Military and naval campaigning on behalf of the health of society, with reference to eighteenth and early nineteenth century Britain.

Hilary Susan Morris

The thesis is submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy of the University of Portsmouth
Contents

Acknowledgements ................................................................................................................................. 3
Abstract: .................................................................................................................................................. 5
Declaration .............................................................................................................................................. 7
Word count: ............................................................................................................................................. 7
Introduction ............................................................................................................................................. 8
Chapter One: The historiographical context .......................................................................................... 18
Chapter Two: The control of smallpox and the emergence of preventative health ..................... 58
Chapter Three: The Scottish influence on the development of military and naval medicine .......................................................... 113
Chapter Four: The role of military and naval medical officers in the development of quantifiable evidence .................................................................................................................. 152
Chapter Five: The battle for supremacy regarding the control of yellow fever and cholera. ................................................................................................................................. 194
Conclusion ............................................................................................................................................ 236
Bibliography .......................................................................................................................................... 256
Acknowledgements

The following thesis has been a long held personal aspiration, which only in recent years has managed to compete with the demands of a career and life in general. It is therefore important to acknowledge that this has become a reality only through the support of my supervisor Dr. Karl Bell. Had it not been for his guidance, insightful inputs, patience and an indefatigable belief in this research, it is unlikely that the following pages would have been filled. I am also indebted to Professor Brad Beaven who in addition to also providing ongoing support, initially offered me the chance to complete this doctoral study at the University of Portsmouth which in itself has been a rich and rewarding experience. In the same way I would also like to thank Dr Robert James for always being there and helping with the last stage, and Professor David Andress whose adeptness at rattling the academic cage has made me think in ways which will forever be understood and appreciated. Lastly, I wish to acknowledge and profoundly thank the support of my external examiners Professor Isaac Land and Dr Matthias Seiter whose belief in this work has bought many years of research to a successful outcome, and have in turn inspired me to recognise the possibility of further areas of development.

This research could not have been produced without the help and support of many archivists and librarians. In particular I would like to thank Mrs Jane Wickenden at the Institute of Naval Medicine who has repeatedly gone above and beyond the call of duty to respond to the endless list of questions as well as trusting me with access to one of the richest sources of naval history in Britain. Over the past six years,
many friends and colleagues associated with medical and military history have provided valuable commentaries and advice and I wish to thank them all for giving up so much time in their very busy lives to engage in extremely useful discussions. Special thanks must go to Dr Christopher Gardner Thorpe and Dr Max Cooper for agreeing to the unenviable task of proof-reading and making insightful comments. A special mention must also go to Dr Christopher Sweeney whose ceaseless technical patience finally allowed the final version to take the shape it has. I am also aware of just how important my friends have been in terms of providing encouragement and companionship on a journey which has sometimes been lonely and isolated. A special mention must go to Debbie Brown, a lifelong and wonderful friend who, despite dealing with everything else, has always persisted in holding up the mirror and keeping me focused and grounded.

On a personal note, this research would never have been completed without the unstinting love, patience and support of both my husband, Stephen, and daughter, Ellie. They have sacrificed much to allow me to complete a lifelong ambition and it is now my turn to do the same for them. One of the worst problems of doing a doctorate at this time of life is the sad reality that too many of those who were formative in making me who I am today are no longer here to see this endeavour completed. Whilst gone, none will ever be forgotten, particularly Arthur, Hilda and Alan Mitchell who I hope would quietly approve of what has been achieved.

**Dedication**

To Stephen and Ellie, with eternal love and thanks.
Abstract:

The creation of the public health and sanitary movement of nineteenth century Britain has long attracted the interest of social and medical historians alike. Attempts by civil servants typified by Edwin Chadwick and the seemingly tireless work of medical officers who were tasked with eradicating the worst excesses of industrialism and urbanisation, have long lent themselves to an overtly heroic interpretation. Only in recent years have these achievements been revisited in a historiography which is prepared to be more critical of what was actually achieved, and question whether all lives were really improved. Yet despite the promising trend towards a more detailed analysis of the events and legacy of the public health movement, there still remains a reluctance to move away from the belief that the public health and sanitary movement in Britain was anything other than a civilian initiative bought into existence through an alliance between local and national government, which was endorsed by the medical profession.

The following thesis therefore aims to challenge this long held misinterpretation by arguing that there is extensive evidence of earlier, effective initiatives in preventative medicine which were not only identified but also actively promoted by military and naval medical staff, which have never attracted the attention of any school of history which they warrant. In the following chapters, evidence for such an argument will therefore begin by identifying how, from the mid eighteenth century onwards, an emerging military and naval medical specialism encouraged staff to look for ways of combatting the worst excesses of disease by identifying the
initial cause of illness rather than relying on ineffective treatment. Moreover, in recognition of the large numbers this involved, medical staff in both armed forces were amongst some of the first practitioners to recognise the need to create a new paradigm relating to understanding the ways in which disease acted on the human body. This not only facilitated opportunities for improved classification but also created the opportunity for standardised treatment, across all populations, namely military and civilian.

In order to illustrate how this was achieved, attention will focus on the training commissioned medical officers received, along with a new empirical methodology which actively encouraged investigation. In the same way the willingness to adopt an early use of quantification provided an opportunity not only to gather evidence but also establish a new standard regarding what was or was not seen to be acceptable in relation to the health of soldiers and sailors. Lastly the inclusion of specific diseases allowed a general dialogue regarding issues such as rights, ideology, and a growing insight into the decaying state of rural and urban locations which gave these medical officers a position of authority in calling for the introduction of early preventative health issues long before the more familiar work of their nineteenth century civilian colleagues. Their achievements, both in methods and ideology, therefore call for a major revision of current historical research which persists in excluding the role of both the army and the navy when identifying what were the true origins of preventative health in Britain.
Declaration

“Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

Word count: 79,637
Introduction

Throughout the eighteenth century, Britain became a country increasingly defined by its commitment to military intervention. Beginning with the War of the Spanish Succession (1702-1707), both the army and the navy played a major role in all subsequent conflicts including the War of Austrian Succession (1740-1748), the Seven Years War (1756-1763), the American War of Independence (1775-1783), the French Revolutionary Wars (1793-1802) and the Napoleonic War (1803-1815). Not all conflicts resulted in victory, though with the final defeat of Napoleon in 1815, Britain could nevertheless finally claim to be the greatest military and naval nation of the age.

Success on this level required a new and unique type of commitment from all of British society in order to ensure that both the army and the navy were in a position to meet the many demands continually being placed upon them. With regards finding ways of meeting the actual costs incurred, this was to be achieved through what Brewer described as the creation of the fiscal military state. This not only involved new approaches to public administration, the introduction of taxation and acceptance with regards the concept of public debt, but was also presented as a burden which was to be borne out of a sense of civic, patriotic duty which in turn would ensure the glory and success of the army and the navy. The true extent of what this equated to in monetary terms can be estimated at just under £6 million at

---

1 Britain withdrew in 1707 although the war officially ended in 1713
the beginning of the century rising to a staggering £40 million towards the end.³

Whilst part of this vast financial outlay was considered to be redeemable through colonial expansion, the fact remained that there had never been a time when the country’s economy was so driven by the needs of the army and navy. Questions relating to the sustainability of this were certainly raised by those who doubted as to whether the country could carry such a burden, but with each victory came a timely reminder of the rewards of patriotic duty.

However, in addition to economic concerns, there were also those who questioned whether the real cost, namely, the relentless demands made on the country’s population, was too much to bare. The journalist and political commentator, Israel Mauduit, publically asked:

Can England then, by its money alone, be a match for all of Europe? If we were so, it is fit that one should wantonly declare it, and thereby give umbrage to every other state? Money may, in a qualified state, be allowed to be the sinews of war; but it must find men to make up the flesh and substance of our armies, which in the present state of Europe is impossible.⁴

Mauduit was representative of a growing number who were not only concerned by the constant call to arms, but who also recognised it to be a burden borne repeatedly by the “poor inhabitants” of the country.⁵ The need to increase numbers was never disputed, especially if the country was to maintain an effective fighting force. Therefore the constant call to battle also led to the unrelenting need for recruits, needed to replace the loss of soldiers and sailors from battle wounds or

---

⁴ Israel Mauduit, Considerations on the Present German War (London: Wilkie, 1760). p.68
⁵ Ibid. p.25
disease. As had always been the case, the rank and file were generally composed of men taken from communities who could least sustain the absence of adult males. Such a drain on essential human resources was therefore quickly felt in both urban and rural settings. Moreover, despite the steady growth in Britain’s population from the mid eighteenth century onwards, the loss of skilled labour and the effects on families and communities, meant that few localities escaped the call for men to step forward and maintain Britain’s plans for colonial expansion and military superiority.

However, as identified by Colley, from the mid eighteenth century, there was a perceptible and clearly positive attitude across much of British society regarding military and naval affairs. Although it was a long way from the pro-military stance found in much of Europe, there was nevertheless, a growing sense of shared experience in terms of the civilian and military populations, which Colley argues, not only helped forge Britain into a unified nation, but also played a profound role in shaping British identity at this time.

It is possible to suggest that such an attitude was in some ways inevitable, especially when one looks at this from a numerical perspective. In 1789, the British

---

6 Desertion also became an increasing problem at this time.
7 E.A Wrigley, Schofield, R.S, The Population History of England, 1541-1871 (London: Edward Arnold, 1981). P.160. In what remains one of the most informative studies, Wrigley and Schofield suggest that figures such as this of Gregory King (1695) are highly inaccurate. Even before the first census of 1801 the steady rate of growth possibly meant that the population at the end of the eighteenth century stood at approximately 8.658 million.
8 Linda Colley, Britons: Forging the Nation 1707-1837 (New Haven: Yale University Press, 1992). This remains one of the most comprehensive studies of the period which focuses on the relationship which developed between the military and the civilian population.
9 The term “civilian” in relation to being non-military was not in use until the Napoleonic Wars though for clarity the term will be used throughout this research to refer to all those who were not enlisted or commissioned in either the army, navy or other military structure.
10 Colley, Britons: Forging the Nation 1707-1837.
army stood at around 40,000 men, which by 1814 had increased to 250,000. The same rate of increase also applied to the navy when prior to 1789 there had only been 16,000 sailors but by 1812 this had risen to 140,000. When one adds to these figures local militia, which by 1804 added a further 176,000 men, the reality was that politically, economically and socially, Britain was increasingly prepared and committed to the demands of modern warfare. The traditional military model which for centuries had involved seasonal use of able bodied men who, if fortunate to survive the rigours of battle, were free to return to a civilian existence, was a thing of the past. Instead, the eighteenth century was about the creation of a professional armed force, which differentiated between the military and civilian existence in ways which were completely unfamiliar to all concerned. Soldiers and sailors taken from their communities, could now expect nothing less than years of service, often at vast distances from Britain and with few, if any, opportunities to maintain links with home and family.

In return, all sections of society initially appeared to acknowledge this change with something akin to a debt of gratitude. Favret has illustrated this by referencing much of the art and literature of the age, and arguing that there was a strong sense of Britain’s military ambitions relying on an increasingly common sense of shared experiences. She cites the views of the preacher, Joseph Fawcett, who later became an outspoken critic of war, but in his early years encapsulated this sense of

---

11 Ibid. p.293  
12 Ibid. p.229  
participation by all sections of society. What was particularly interesting was the emphasis he placed not on the glories of victory but on the misery and particularly

The pain it inflicts upon the mind of every contemplator of its ravages, at whatever distance he stands from its theatre...whose heart can bleed along with the thousands whose bodies are bleeding in the field.15

This call for a shared compassion for those who fought for their country, was more than a romantic notion, but was also closely tied into the development of the modern state. This can be seen in the way that across much of Europe, the emphasis on military and naval supremacy led increasingly to the humble soldier and sailor being regarded as a valuable commodity, worthy of investment. Moreover, to protect such an asset, attention was increasingly focused on providing an infrastructure which would ensure better standards across all aspects of military and naval life, particularly in providing the most basic necessities for the lowest rank and file. Hence, the creation of barracks, standardised training and reform of rules and regulations are all evidence of this change in attitude which was introduced by both the army and navy throughout the eighteenth century. 16

However, in addition to these very physical improvements, there was also a major commitment on the part of medical officers of both the army and the navy not only to treat disease but also lessen its impact by identifying ways of finding and removing the initial cause of sickness. Although there had long been an interest in understanding the cause of disease,17 this was a new paradigm, more familiarly

---

15 Ibid. p.25. Taken from Joseph Fawcett War Elegies (London: Johnson, 1801)
16 Michael Roberts, The Military Revolution, 1560-1660 (Belfast1956). This highly influential debate not only influenced the status of military history but also chartered the development of war in the modern period.
17 This can be found in writings as early as Hippocrates.
known as preventative health. In the following chapters this will be discussed specifically in relation to the emerging empirical methodology which was increasingly used along with the belief that its success relied on universal application. As the eighteenth century progressed, medical officers therefore shaped military and naval medicine to be a specialism which was extremely pro-active in the way it responded to understanding the cause of disease, which would later be replicated in a civilian context in the guise of the public health movement.

In order for these advances to be successful, it was important for both the army and the navy to acknowledge their worth amongst both the rank and file as well as the military and naval hierarchies. Evidence of this happening can be seen in the actions of military leaders such as the Marquis of Granby (1721-1770) who represented a new type of caring, compassionate military leader. Certainly his acknowledgement of the need to care for sick and injured troops was described by the army physician, Donald Monro18 and elicited public praise in *The Gentleman’s Magazine*.19 Charters has argued that Granby was by no means an anomaly but was representative of a far more pronounced change in attitude that focused on not only raising the required number of troops but finding ways of maintaining their health as befitted the valuable commodity which they were increasingly representing.20 In the same way, McCrae’s study of Sir John Pringle has also focused on the actions of the Earl of Stair. 21 His decision to appoint Pringle as a physician to

19 *The Gentleman’s Magazine* vol.33. 1763 p.120
20 Erica Charters, *Disease, War and the Imperial State: The Welfare of the British Armed Forces During the Seven Years’ War* (Chicago: The University of Chicago Press, 2014). p.3
the army in 1742 when Britain finally became involved in the Austrian war of succession, provided the latter not only with a detailed understanding of the need to improve the health of troops but also marked the beginning of a lifetime’s work in terms of introducing preventive health as both standard theory and practice.

Set against such a background, it is important to emphasise that the aim of this research extends beyond providing an extended narrative of military and naval medical successes which for too long has focused on examples such as the work of men such as Lind and Pringle. Rather, its innovation lies in arguing that the motivation which lay behind many of these medical advances should be seen as nothing less than the origins of a model of preventative health which was intentionally designed by medical officers in both the army and the navy to not only protect the troops under their care but who also increasingly recognised and promoted as being applicable when it came to improving the lives of the civilian population as well. Moreover, this involved rejecting centuries-old traditional medical learning in order to pioneer new theory and practice in ways which revolved around the prevention of illness as the most important objective of medical intervention. In turn, this also led to opportunities and initiatives which not only included the introduction of standardised medical intervention, but also provided the confidence to treat large numbers secure in the belief that all of society, regardless of class, would ultimately benefit as well.
Therefore, central to this thesis has been the role of the medical officers of both the army and the navy.\textsuperscript{22} Although only a few have attracted the attention of biographers, their work is largely accessible in specialist archives and libraries, including the Royal College of Physicians of Edinburgh and the Institute of Naval Medicine, and it is these collections which have provided the material which supports this thesis. Some physicians such as Sir John Pringle and Sir Gilbert Blane are better known to historians, though interpretation of their work also remains heavily narrative.\textsuperscript{23} This is particularly the case with Pringle, whose reputation as the “father of military medicine” has attracted the attention of both military and medical historians. However the true value of his work in terms of identifying how poor conditions played such a role in promoting poor health has generally been overlooked. This is unfortunate as he was the first to argue that any unhealthy confined space, be it a garrison or the local gaol, could become a danger to all those who were directly associated with it.\textsuperscript{24} Pringle’s understanding of the need to apply his findings to all sections of society, regardless of status, location or occupation is representative of types of argument contained in this thesis. Views such as his marked the beginning of a period in which generations of military and naval medical officers similarly proposed and initiated change. Much of this was due to the unique specialist training they received in Scottish medical schools, which also

\textsuperscript{22} The history of both the military and naval medical officers is extensively covered by the work of Lloyd, Coulter and Cantlie.


\textsuperscript{24} Ibid.
gave them the confidence to promote their findings beyond the confines of the barracks and ports into all parts of British life.

The extensive achievements of military and naval medical officers in terms of understanding the causes of disease therefore places them at the forefront of implementing and promoting preventative health. They played a major role in discussions relating to the association between dirt, disease and environment, whilst continuing to argue that forms of direct intervention would prove to be beneficial to all populations. However, many causes of illness resolutely remained beyond the reach of early medical intervention until late into the nineteenth century as in the case of Typhus and Typhoid Fever which continued to present both a high morbidity and mortality rate due to their association with lice and contaminated provisions.\textsuperscript{25} The same could be said of Dysentery was responsible for the deaths of thousands of soldiers until the introduction of effective treatment in the early twentieth century.

It is diseases such as these which, while significant, have for too long allowed discussions to repeatedly focus on the perceived ineffectiveness of both military and naval medicine until the post Crimean period. Such a narrow approach also fails to take into account the considerable achievements which can be credited to medical officers particularly in relation to early achievements in recognising the environmental cause of many diseases and the creation of standards which aimed to remove the worst excesses of military and naval lives regardless of rank or location. Moreover, of equal significance was the discussion promoted by the same

\textsuperscript{25} Typhus was still a major problem amongst the armies in WW2, particularly for prisoners of war.
medical officers concerning the declining state of towns and villages as evidenced in
the poor state of newly raised recruits. It was factors such as these which led naval
and military medical officers alike to actively promote preventative health
measures within all sections of society in the belief that this would halt the physical
and even mental decay of the most vulnerable sections of the population. Likewise
they were amongst the first to understand that failure to redress these problems
would endanger not just the security of the nation but also the future economic
and social status of Britain.

In summary, military and naval medicine was therefore far more advanced in
identifying and implementing preventative health than generally credited. Many of
the practices were at the forefront of innovation both in ideology and methodology
which was openly promoted in the vast body of literature produced by many of its
medical officers. Simultaneously, these men were also at the forefront of ethical
questions relating to the rights of compulsory preventative measures in ways which
were all too often lacking, particularly in comparison with legislation which
emerged from the civilian public health and sanitary movement of the mid
nineteenth century. The innovations in preventative health, initiated by military and
naval medical officers, were therefore of immense significance, particularly in
identifying an acceptable standard of wellbeing which had to be applied to all
British citizens, regardless of who or where they were. In the following chapters the
argument will be made that these achievements must therefore be identified as the
true point of origin in writing the future history of preventative and public health in
late eighteenth and nineteenth century Britain.
Chapter One: The historiographical context

In 1975, the economic historian Peter Mathias contributed to a collection of essays reviewing the relationship of war and economic development.\textsuperscript{26} In this work, he argued that throughout the eighteenth and early nineteenth centuries, Britain’s commitment to military intervention was such that there were very few areas of life which were not positively affected in some way by this action. In order to illustrate the true extent of what this really meant, Matthias chose to focus on the growing institutionalisation of the armed forces medical services. He was amongst the first modern historians to argue that this was an intentional development, with the aim of proactively maintaining an effective fighting force which would successfully meet the country’s military and naval commitments.\textsuperscript{27} As a consequence of this, the medical staff of the British army and navy were not only given unprecedented opportunities to implement extensive reforms in order to improve the lives of those

\textsuperscript{26} Mathias, "Swords and Ploughshares: The Armed Forces, Medicine and Public Health in the Late Eighteenth Century." P.75
\textsuperscript{27} Ibid. p.74
under their command, but also saw this as extending the purpose of medical intervention.\textsuperscript{28}

What is particularly significant in this early work is the way in which Mathias emphasised that these reforms were not only effective amongst the troops but also had a positive impact on the civilian population at large. He therefore argued that this should be acknowledged as nothing less than an early model of public health\textsuperscript{29}. In his short but informative essay, Matthias could only focus on a selection of examples taken from areas such as professionalism, innovation and the use of institutions. He also briefly discussed the influence of individual practitioners such as John Pringle and James Lind particularly in relation to the way in which they emphasised the need to understand the cause of disease as opposed to merely finding ways of implementing standardised treatment which had long been recognised as being of limited effectiveness.

Mathias acknowledged that his work provided only the briefest of discussions and called for further research in relation to understanding the true legacy of military medicine and the role it played in defining preventative health.\textsuperscript{30} It is unfortunate that within his own work, there was little criticality of the examples he used and he also failed to suggest why the innovations he cited could be interpreted as being antecedent to the public health movement of the mid nineteenth century. Notwithstanding the limitations of Mathias’ original essay, the following research still owes a debt of acknowledgement to this work, in terms of being the first

\textsuperscript{28} Ibid. p.74  
\textsuperscript{29} Ibid. p.75  
\textsuperscript{30} Ibid. p.71
publication to present the achievements of military and naval medicine as nothing less than an early a model of preventative medicine, which had as its main objective an applicability to all sections of society.

The aim of this thesis is therefore to locate a body of evidence in order to support the argument that preventative health was not just the creation of the civilian public health and sanitary movements of mid nineteenth century Britain, but had its much earlier origins in the work of military and naval medical officers who understood the value of avoiding disease as opposed to trying to cure it. The same group also recognised the need to apply this innovative way of approaching medical practice not just to the men under their care but also the general population, on the grounds that this would ultimately create a far healthier supply of future recruits. Locating this evidence has involved accessing specialist archives and libraries which hold the work of both army and naval medical officers. Along with the more familiar writings of John Pringle, Gilbert Blane and James McGrigor, there has also been the opportunity to locate lesser known work written by medical officers including William Lempriere, Richard Brocklesby and Thomas Dickson Reide.\textsuperscript{31} What is significant is the extent to which many of these medical texts actively promoted the shared idea of preventative health, both in terms of improving the standard of health of the men under their control and also in recognising that this in itself would achieve little unless the findings were applied to all sections of society.

\textsuperscript{31} Each of these medical authors works are referenced in the Bibliography.
Despite the existence of this highly relevant primary material, the same cannot be said in relation to the interpretation of events found in the current historiography. A possible explanation for this may arise from the fact that discussion relating to the true origins of preventative health, positions itself directly on an interface shared by social, medical and military history, each with their own interpretation of events and areas of perceived relevance. As a consequence of this, all three subject areas have to be considered in terms of identifying the different contributions they make to this particular debate. Whilst all have therefore to be reviewed, it is interesting that the most relevant discussions to emerge are located in the small, though increasingly significant area of military medical history. It is therefore within this particular subject area that this research will be primarily focused.

Social historians of the nineteenth century have long considered public health to be an ideal opportunity to study one of the most fundamental aspects of what is generally regarded as a true measure civilised existence. It has therefore attracted an extensive historiography, which continues to attract new areas of research and debate. Attempts to provide an overview of both the public health and sanitary movement can be found in work such as that written by the social historian Anthony Wohl. Despite the importance of narratives of this type, the complexity of the public health and sanitary movement has meant that similar comprehensive texts are generally no longer written, with the exception of work done more

32 Christopher Hamlin, "Predisposing Causes and Public Health in Early Nineteenth Century Medical Thought," Social History of Medicine 5, no. 1 (1992). Hamlin is just one example of the many social historians whose work focuses on the emergence of nineteenth century public health.
recently by Dorothy Porter.\textsuperscript{34} Instead, the subject of public health has become justifiably fragmented in order to try to understand each of the many forces at work and which has inevitably resulted in a more complex and challenging range of interpretations.

An example of this can be seen in the work of Labisch, who argues that the simplistic models are all too often a product of the language in which discussions continue to be framed. He has therefore called for recognition by social historians to begin by acknowledging the need for a more detailed semantic debate regarding the term “public health.”\textsuperscript{35} Labisch argues that it is increasingly important to move away from looking at the history of public health, to be replaced by a model which focuses directly on the action of history in public health. Furthermore, he also makes a highly persuasive case when emphasising that more careful attention to terminology is the only way to ensure that future studies of public health avoid being little more than a response to past events, but instead facilitate an approach which allows one to identify and assess all the different factors which have a role to play. The importance of Labisch’s model is that it is possible to interpret public health more critically in terms of providing an ever changing response to the needs of communities, both military and civilian and encourages recognition of what he calls “hidden lives”\textsuperscript{36} with regards how and why it is developed at any point in time, or in response to specific needs and requirements.


\textsuperscript{36} Ibid. p.1
Despite the validity of Labisch’s views, there remains little evidence of terminology playing a more significant role in new interpretations. However, this is not to say that there has not been more of an effort to present the history of public health as a highly complex model, responding to a variety of needs amongst different populations. Hence Sigsworth and Worboys have focused on analysing more accurately the perceived impact on recipients, particularly the working classes, and in doing so have identified the existence of a myriad of highly effective local initiatives, very few of which been given the attention they credit.\(^{37}\) In the same way the revisionist history of Hamlin\(^ {38}\) has also helped to provide a more balanced discussion regarding the involvement of individuals such as Chadwick as opposed to the type of hagiographic biographies written in post-war Britain.\(^ {39}\) Moreover, Szreter’s discussion on the destabilising role of economic growth in the nineteenth century has also been important in terms of reassessing the true intention of public health initiatives of the time and suggests that the call for improvement came from a far wider group than previously acknowledged, all of which had a vested interest in implementing public health, if only seeing it as a way of avoiding social and economic unrest.\(^ {40}\)

Therefore in terms of developing a more accurate understanding of the way in which public health in Britain was introduced and developed, there has been, in the


\(^{39}\) As typified by Finer’s biography of Chadwick.

past thirty years, a sustained interest in relation to developing an accurate historiography which reflects the true complexity of the many factors which were instrumental in its formation. However, there still remains a reluctance on the part of social historians to present this as anything other than a predominantly nineteenth century civilian phenomenon. Moreover, the continued reliance on terminology such as “public health” and the “sanitary movement”, whilst being correct for its time, has nevertheless acted in ways which have prevented a more analytical understanding of where the true origins of these movements really lie. At the heart of this shortcoming is the widespread failure to both identify and discuss the role played by both military and naval medical officers when it came to an early understanding the value of preventing disease by focusing on the conditions in which many troops were forced to live long before the much more familiar work of civilians such as Chadwick, Simon and Snow.

In order to locate the necessary historiography needed to support this argument, one therefore has to focus on the work of those medical historians with a specific interest in the role of war on society. Although military and naval medicine first came to prominence as a distinct specialism with the early work of Garrison,\(^{41}\) it is important to emphasise that its status within medical history has often been ambiguous and at times problematic. The origins of this perceived conflict of interest date back to what is generally considered to be the first significant generation of medical historians which included Richard Shryock (1893-1972), Erwin Ackerknecht (1906-88) and George Rosen (1910-1977). In response to the political

turmoil they witnessed in the first half of the twentieth century, this group of influential clinically trained medical historians felt compelled to emphasise the social history of medicine as being predominantly a positive representation which placed great emphasis on ways in which the medical profession focused on the needs of civilian society, rather than the role of medicine in times of war. This is evident in the work of Rosen who wrote the first history of public health in 1958, and which was presented in a way which offered sufficient areas of commonality for it to be readily endorsed by social historians. Its emphasis on progress, wide scale application, civic achievement and endorsement by the medical professional provided a model which would be replicated by future generations to come, and which is still evident in the work of medical historians typified by Joan Lane and Roy Porter.

In the second half of the twentieth century the term “medical history” therefore became increasingly synonymous with predominantly “social” issues, and effectively and purposefully distanced itself from the impact of war. For this reason the role and influence of both military and naval medicine found itself being increasingly marginalised, isolated and even ignored. Social historians increasingly recognised the appeal of the history of medicine particularly if it focused on the needs of the patient as opposed to the institutions and professional structure which for so long had appeared to dominate any discussion as to who and what initiated progress. In the 1970’s the same social historians also found their concerns being

echoed in the writing of Michel Foucault. In his most influential work Foucault argued that appearance of the French clinics and hospitals at the end of the eighteenth century marked the point at which doctors were able to successfully distance themselves from the past and progress into the age of modernity.

In what was a highly complex philosophical model, the views of Foucault were nevertheless considered by many contemporary historians of the time to hold a particular resonance. His rejection of the long held belief that medicine naturally progressed throughout the eighteenth and nineteenth centuries, was replaced by a much more ruthless argument in which he claimed the medical profession used the clinics and hospitals to become a discipline which also involved subjugating the needs of the patient to merely being part of a process. This dehumanising aspect of modern medicine resonated with social and medical historians such as Roy Porter who saw in Foucauldian thought the opportunity to replace the traditional model of the history of medicine which had long focused on the role of the individual and the rise of the medical profession, by one which put the patient at the centre of studies. If one was to genuinely understand the real nature of illness from a historical standpoint.

Porter therefore continued to model social medical history from such a perspective. His influence throughout the later decades of the twentieth century particularly in Britain saw the patient narrative as taking precedence over all other discussions. Whilst this has bought a much needed dimension to medical history,

---

what is particularly significant to this thesis is the notable absence of any sustained
discussion in his many works in relation to the role played by either the army or
navy in actively promoting preventative health. Such a shortcoming is difficult to
ignore, particularly when one sees soldiers and sailors in terms of belonging to the
Moreover, the influence of views such as those held by Porter has been such that it
is often seen to be replicated by other social historians with an interest in medical
history. An example of this can be seen in Walkowitz’s influential study of the
Contagious Diseases Acts.\textsuperscript{47} This remains a highly regarded and insightful account of
what was a significant piece of legislation, and which continues to inform medical,
social, political and women’s history. Yet despite Walkowitz’s highly detailed
account, there remains a reticence throughout her work to acknowledge and
analyse the complex issues particularly in relation to the extensive debates that
took place amongst military and naval staff. Failure to include material of this kind
has led to an assumption that both the army and navy were fully prepared to
endorse extreme legislation to remove the threat of diseases such as Syphilis when
in reality, all commissioned officers were far more concerned about how this
would impact on the relationship with the civilian population.

This misunderstanding regarding the true value of military medicine has restricted
its ability to claim its status within the history of medicine as a valid and worthwhile
area of study. Criticisms relating to what is identified as its overtly hagiographic
tendencies often arise in reference to early works such as those of Lloyd,\textsuperscript{48} Coulter

\textsuperscript{47} Judith Walkowitz, \textit{The Contagious Diseases Acts}.
and Cantlie. ⁴⁹ These vast, encyclopaedic works remain a highly valuable asset in charting the history of medicine and surgery in both the army and the navy. The same can be said of Blair’s history of the Royal Army Medical Corps.⁵⁰ Yet despite providing a detailed narrative history, works of this type rarely engaged in more critical discussion, particularly in relation to assessing aspects such as the impact of the work of medical officers on society in general.

It is therefore understandable that social historians such as Cooter have openly admitted to a growing sense of disquiet in identifying any real worth emanating from military medicine in its current state. His concerns are certainly valid, arguing that of all the subjects covered by the history of medicine, none have been so badly served as that of warfare.⁵¹ Amongst the many criticisms he has raised in relation to existing works, Cooter remains particularly concerned by the fact that unlike the social history of medicine, which he argues, attracts the highest standard of academic engagement, in the case of military medicine, much of this appears to be dominated by what he terms a “reductionist realpolitik”.⁵² The use of such a phrase is interesting in that it implies ignoring sentiment and emphasising only facts. However, for the military and naval historians of the past, the human story which can be said to equate to sentiment, had no place in charting the history of conflict. Only in recent years has there been a revisionist attitude seen in the way modern

---

⁵² Ibid. p.1539
warfare is increasingly analysed in terms of human suffering and endeavour, particularly in relation to the twentieth century.

Cooter also denounces the ongoing tendency to deny military medicine and surgery its true complexity and worth, through a continued emphasis on presenting it in the simplistic model of being a catalyst for progress. Such an apologist stance certainly has many problems, led by the fact that this limits any genuine discussion as to the accuracy of such a statement and the variations that are involved in terms of time and place. Cooter’s particular views on the state of military medicine have therefore played a major role in calling for a new approach to be introduced in order to encourage meaningful scholarship. In cases where this has been achieved, he notes that the contribution made to medical history has been expansive, informed and greatly valued, as seen in Summer’s study on military nursing. For Cooter, this type work exemplifies the importance of placing military medicine within a range of theoretical paradigms, such as feminism, social history, military medicine to name but a few, which in return provides the subject with a validity which has been absent for too long.

The concerns of Cooter are without doubt, justifiable. More importantly they have also encouraged a new interest in military and naval history which meets the challenges of illustrating the true complexity of the subject. A particular example of this new approach, which is particularly relevant to this research, can be located in

54 Cooter, "War and Modern Medicine."
the recent work of David McLean. Using the second Cholera epidemic of 1848–49, McLean focuses on the relationships which existed between local government and the navy in response to controlling the disease when it appeared in Plymouth and the surrounding areas of Devonport and East Stonehouse. In addition to providing an opportunity to assess the specialist medical knowledge of naval practitioners when dealing with Cholera, compared to their civilian counterparts, this work also provides a valuable insight in terms of identifying and analysing the role played by naval officers amongst the local communities to which they frequently returned. This is particularly valuable for this thesis in helping to explain why the transfer of military and naval expertise beyond the garrison and port was often met with open antagonism and mistrust. McLean has also found evidence which suggests that in relation to naval officers, their perceived Tory tendencies often put them ideologically at a distance from local government officials who were increasingly more liberal in their views and actions.

The complexity of McLean’s work, has therefore done much to redress the criticisms and concerns of Cooter. It is also part of a growing body of work which is recognising the complexity of what is perceived by the military/civilian relationship, which has been ignored for too long. Although early military works such as those produced by Spiers, Skelley and Harries-Jenkins attempted to identify more clearly soldier’s and sailor’s lives in terms of social composition and the lived

57 Alan Ramsey Skelley, The Victorian Army at Home (Montreal: Croom Helm, 1977).
experience beyond the battlefield, these works did not extend into the community, and rarely considered the problem of health and disease. Using a very different perspective, Favret has attempted to address the lack of understanding as to how eighteenth century society reacted to conflict and the military presence.\textsuperscript{59} Her work has become a valuable addition to military history through her use of a vast range of contemporary material to understand how the military and warfare was perceived by the general population.

However, of all the responses to the concerns raised by Cooter, possibly the most influential has been the substantial body of work produced by Mark Harrison whose research continues to be instrumental in establishing and maintaining British nineteenth century military medicine as a highly valued, globally respected area of historical study. Harrison’s own particular field of enquiry emerged in response to an early interest in the effects of colonial expansion on medical provision. Colonial medicine has not been without its own significant controversies, including accusations that the early histories only tended to focus solely on European recipients, and that little has been done by authors to respond to the accusations that western medicine was imposed on countries in ways which failed to acknowledge basic personal freedoms. It was Arnold who led the demand for a revision of the way colonial medicine was appraised both in terms of intention and outcome. He also argued that colonial medicine could not be seen as a generic response and called for specific studies closely linked to individual locations. This

\textsuperscript{59} Favret, \textit{War at a Distance: Romanticism and the Making of Modern Wartime}. 
challenge was likewise met by Harrison who has subsequently focused much of his own work on India. What is particularly relevant to this research is Harrison’s discussion regarding medicine being used as a form of social control. He asserts that in the early colonial setting, medicine was initially an effective, if somewhat benign, pretence to segregate white settlers from native populations. Only well into the nineteenth century did this develop into yet another branch of the authoritarian policies which enforced European imperial policy. Given the particular focus of his work, it is significant that Harrison has not expanded on his area of interest by looking at the considerable evidence which exists on the part of both army and naval medical officers and their interest in preventative health. The only work where this is briefly considered is him his study of contagion. However, his decision to associate this with trade and commerce meant that yet again, the link to early preventative health had once again failed to be discussed. Consequently, though his discussions on the way diseases, such as Cholera, were perceived by the army and the military stance on methods of disease transmission and contagion have been discussed in chapters two and five, his influence on this research has been limited. Furthermore, it reinforces the originality of this particular thesis in terms of constructing an argument regarding the legacy and impact of military and naval innovation in terms of promoting preventative health as both theory and practice.

---

60 Mark Harrison, Public Health in British India: Anglo-Indian Preventative Medicine, 1859-1914 (Cambridge: Cambridge University Press, 1994).
61 Ibid. Chap.2
63 Ibid.
Nevertheless, the work of Harrison has been of particular importance in encouraging a new interest in military medicine which includes the work of Chakrabarti\textsuperscript{64} and Charters.\textsuperscript{65} Both these historians have played a greater role in supporting many of the discussions contained in this research. Chakrabarti, whose work remains closest to that of Harrison in terms of a shared interest in presenting the advancement of medicine as a direct result of imperial expansion, has helped contextualise one of the key arguments of this thesis, namely the importance of colonial medicine in its own right and the distinct way it recognised the radical need to prevent disease rather than treat it. Moreover, Chakrabarti argues that had it not been for the way in which commissioned medical officers were allowed to adapt and produce their own unique form of medicine, the early days of colonial development would have been nowhere near as successful as they were. Views such as these have been instrumental not only in highlighting the immense value of military medicine, but also play a significant part in supporting the call for colonial medicine to be recognised as a distinct entity, worthy of inclusion along with the more established traditional classifications found within western medicine.\textsuperscript{66}

Consequently, Chakrabarti’s writing contains an extensive overview of military and naval medicine developed in a colonial context. He also argues that colonial medicine was actively encouraged to develop beyond the confines of the traditional

\textsuperscript{64} Pratik Chakrabarti, \textit{Medicine and Empire 1600-1960} (Basingstoke: Palgrave Macmillan, 2014).
\textsuperscript{65} Charters, \textit{Disease, War and the Imperial State: The Welfare of the British Armed Forces During the Seven Years’ War}.
\textsuperscript{66} Chakrabarti, \textit{Medicine and Empire 1600-1960}. p. xii. The term “colonial medicine” was introduced in the work of George Bassalla, as part of a wider concept of colonial science. It is increasingly being recognised as having the necessary concepts and content to be considered as a discreet area of study which would permit it to stand as a separate entity within the existing classifications found within the history of medicine.
medical establishment in response to the increasingly urgent need to maintain the health of troops tasked with securing British acquisitions in ever distant and dangerous environments. However, for it to be seen as truly unique, the colonial medical experience has to be compared with what was being offered both in terms of theory and practice amongst the civilian population back in Britain. It is unfortunate that this is not as explicit as it might be in Chakrabarti’s work due to much of the focus being case studies of colonies such as India and Africa, with the emphasis on location rather than comparison. However this is directly addressed in this particular thesis, particularly in those chapters focusing on diseases such as Smallpox, Yellow Fever and Cholera.

Nevertheless, the views of Chakrabarti remain integral to this research in terms of the way in which his work enters into a discussion relating to the extent to which military and naval medical officers had the right to act in the way they did. 67 The British civilian-military relationship became increasingly complex throughout the eighteenth and nineteenth centuries and affected medical issues in many ways, as will be discussed below. However, at this point, the issue of “right” is more concerned about the emergence of a military belief which facilitated extremely radical changes in relation to the way illness was both understood and treated, without professional repercussions. Up to this time medical theory had for centuries been bound by ancient classical beliefs. This ensured that diagnosis of any illness was perceived to be a personal emanation and as such was accompanied by

67 Ibid.
a sense of inevitability. Hence even the most trained physicians recognised the limitations of medicine as being little more than alleviation of the most extreme symptoms and suffering. Medical treatment was also a commodity which few could afford. The result was that for the majority of the population health was an individual concern and illness was regarded with a sense of fate.

Yet the constant demands made on both the army and the navy throughout the eighteenth century instigated a complete change, necessitated by issues such as scale. Troops were considered to be a valuable commodity and as such required medical intervention to protect them from illness. This was repeatedly seen as a perpetual problem as seen by the fact that more troops continued to be lost to disease, rather than from wounds obtained in battle. Chakrabarti cites the concerns of the naval physician, Gilbert Blane, on this subject who announced that most British losses in the West Indies during the American war of Independence were not even due to adverse climate but from diseases which could be prevented.

However for as long as dominant views on treating disease required each patient to be considered as a unique entity, this problem could never be overcome. The answer lay in effectively inverting classical interpretations of illness which would allow diseases to be classified as discreet entities. This type of thinking also meant that any given disease would not only impart the same symptoms on different patients, but also could be treated by standardised medical intervention. Moreover,

---


69 Chakrabarti, Medicine and Empire 1600-1960. p.41
the categorisation of disease in this way would also allow a greater opportunity for finding ways of preventing its occurrence.

This medical thinking was not only innovative, but actively opposed every element of medical education found in universities such as Oxford and Cambridge, which fiercely held on to classical models regarding the nature and treatment of disease. Only on the continent and in Scotland could one find universities with medical schools who were prepared to embrace such radical thinking. It was therefore inevitable that the same institutions became a focal point of training for medical students planning on a career as a commissioned medical officer. In places such as these, medicine was presented as an empirical science, which could be classified, standardised, quantified and therefore be applicable to treating numbers rather than individuals. Furthermore, following such training military doctors were able to respond to the need of finding ways of treating far greater numbers. The knowledge was still limited, and would remain so until the emergence of scientific medicine, but it permitted men such as Pringle and his contemporaries to begin to look at diseases in the army and navy as preventable, once it had been identified and understood. It was this major development which Chakrabarti identifies, and in doing so feels justified in claiming that preventative health was first introduced by doctors working in military establishments, and as such became the foundation of nineteenth century public health.70

It is therefore unfortunate that Chakrabarti fails to expand on such a significant statement relating to the development and potential impact of military medicine in

70 Ibid. p.43
the eighteenth century. Fortunately this has been extensively redressed through
the work of Charters who’s research on the Seven Years War (1754-1763) has
been instrumental in establishing the true status of military medicine and the
changes it implemented. Through the contributions of both her book and a highly
influential earlier article, Charters has been able to question the views of
established historians such as Brewer who maintain that Britain’s emergent
administrative and financial system was so effective that concerns and shortages
relating to manpower were effectively overlooked primarily through the country’s
ability to purchase extra mercenaries and other foreign troops when needed.

Whilst Charters acknowledges that the secure fiscal standing certainly played a
central role in permitting the country to expand in terms of both military and
colonial aspirations, she contests the interpretation that this in some way allowed
the military and political hierarchy to ignore the wellbeing of “home” soldiers and
sailors who constituted the largest proportion of the rank and file.

Rather, Charters rightly argues that there was infact evidence of a growing
recognition of those in positions of authority to use preventative medical
intervention as an investment to actively protect soldiers and sailors, citing both
practical and moral grounds. Disease had long been recognised as one of the main
factors affecting the chances of British military and naval success, but there was

---

71 This is also known as the French and Indian War
72 Charters, Disease, War and the Imperial State: The Welfare of the British Armed Forces During the
Seven Years' War.
73 “The Caring Fiscal-Military State During the Seven Years War, 1756-1763,” The Historical Journal
52, no. 04 (2009).
74 John Brewer, The Sinews of Power: War, Money and the English State, 1688-1782 (Cambridge:
75 Charters, "The Caring Fiscal-Military State During the Seven Years War, 1756-1763." p.922
now also a growing realisation that it also affected morale in general, and as such, had to be eradicated as far as possible amongst the rank and file.

This early caveat, in terms of limitation of what could really be achieved, is significant in relation to the following research particularly when attempting to assess the implementation of “preventative health” measures in military and naval environments during the eighteenth and early nineteenth centuries. Moreover, it was even acknowledged by medical officers of the time who repeatedly exhibited a very detailed and sophisticated understanding of the health needs of the men under their command. This can be seen in the writings of the army doctor Robert Jackson when discussing the dangers of new recruits who persistently showed a greater propensity to fall victim to a range of diseases. Jackson believed that this was generally due to such men having little in the sense of belonging to their new life, especially when it involved being posted at ever increasing distances from Britain and which he believed manifested itself in a tendency to be more susceptible to illness. 76 In the same way the naval surgeon Thomas Trotter was a very public advocate of introducing compulsory preventative health measures in the navy when it came to interventions such as compulsory inoculation against smallpox and successfully campaigned for the close of public houses in naval towns such as Plymouth. Yet when discussing the feasibility of controlling all disease on board ships, he remained concerned by the danger posed by “raw” recruits who he saw as a constant source of infection. 77 Trotter, like Jackson, also discussed the

76 See p. 206
77 Thomas Trotter, “Medicina Nautica,” (1803). In this work Trotter refers on nine separate occasions to the health dangers posed by raw recruits. For an example of this see p.219
cause of low morale, which in the case of the navy he attributed to the very
genuine horrors of impressment. He also saw this as the reason why such sailors
showed themselves to be persistently more prone to contagious diseases
regardless of the attempts made by the Admiralty to improve conditions on board
all ships.\textsuperscript{78}

Despite Charters’ limited discussion as to what could really be achieved in the
context of military and naval preventative health, her work has nevertheless played
a pivotal role in acknowledging the value of medical officers and their often
innovative response to protecting the army and the navy from the worst ravages of
disease. Moreover her extensive study of the Seven Years War has been
instrumental in proving the existence of a dialogue between influential politicians
such as Barrington,\textsuperscript{79} military leaders and military medical staff in an attempt to
actively find ways of preventing disease amongst all troops and associated
populations. However it is possible to identify in her work two areas which would
benefit from additional attention particularly in the way they are able to enhance
the case she is making for military and naval medicine. The first of these is a failure
to emphasise the way in which the material gathered by military medical officers
was regarded as being the findings of “experts”. This terminology is significant as it
reflects a contemporary belief that commissioned medical officers were in no way
seen as being inferior to civilian practitioners, even though their status was not
acknowledged by the all-powerful Royal College of physicians of London who

\textsuperscript{78} Ibid. p.17
\textsuperscript{79} William Barrington, \textit{An Eighteenth Century Secretary at War; the Papers of William, Viscount Barrington}, vol. 4 (London: Bodley Head, 1988).
actively opposed any infringement of the medical hierarchy or attempts to modernise medical thinking from practitioners who had not followed the traditional university degrees, namely graduates from Oxford or Cambridge. Instead military medical expertise was the result of empirical studies and a way of understanding the nature of disease which emerged from the radical teaching offered by Scottish universities. The legacy of medical students who chose to train in places such as Edinburgh and Glasgow was immense and as such is discussed extensively in Chapter Three. However within the medical profession bodies such as the Royal College continued to refuse licentiates to Scottish trained medical graduates. Whilst this accreditation was essential within the civilian medical fraternity, it appears to have carried little weight amongst the military hierarchy, especially as the majority of their medical staff were Scottish graduates. It is therefore also unfortunate that Charters therefore omits the importance of Scotland in terms of the integral role it played in shaping modern military medicine, despite being pivotal to her own research.

A second area which would benefit from further discussion is a more informed understanding of the lived experience of the soldier and sailor beyond the confines of the barracks or ship. Despite the many thousands of men who enlisted to fight throughout the eighteenth and nineteenth centuries, their experiences and relationship with the society to which they belonged generally remain forgotten. For many the reality was that only a few would return home after years of fighting as a professional soldier in what were increasingly remote areas and for ever longer periods of time. Yet there was an expectation that enlisted men would return and it was the duty of society to retain an affiliation with soldiers and sailors alike.
Therefore Pringle, Cleghorn and all other military medical officers continued to acknowledge that civilian society remained integral to the successful functioning of the army and navy and as such should never be treated as anything other than a mutually dependant consideration. They also upheld the view that a sick society would produce weak, inefficient troops who were unable to withstand the demands of modern warfare. Therefore medical officers saw grounds for increasingly applying preventative medicine beyond the confines of the port and garrison.

However this type of intervention remains a highly complex area in terms of identifying both motive and the type of intervention which would prove acceptable to different groups. Most recently, significant areas have been analysed in the work of Isaac Land. As part of extensive research into the experiences of British sailors when back on shore, Land has identified a significant number of schemes and social reforms to promote wide scale reform. Whilst many were supported by the medical profession, they also attracted the attention of other groups with a vested interest in not just on preventative health but with specific concerns relating to population growth. Land therefore argues that many of the concerns raised in relation to the way sailors in particular were allowed to live were initiated not by medical issues but more by pronatalism and concerns relating to enervation and other such tendencies which worked in opposition to the needs of a country committed to

---

military and naval expansion and which explains the type of solutions which were proposed.\textsuperscript{81}

Land’s work has unquestionably been a major addition to the existing naval and social historiography in terms of providing a far more accurate analysis relating to the lived experience of the ordinary sailor and his relationship with the rest of society. It can also be argued that in this particular work, Land sees the role of the medical profession as taking a far less dominant role in informing the way occupational groups like sailors were encouraged to live. However in relation to this research there is extensive evidence which allows one to argue that whilst society was becoming increasingly aware of the role it had to play in ensuring future generations of healthy recruits, the medical officers of both armed forces saw their commitment to preventative health as their leading, and what could be argued as their only priority. At a time when successful containment and treatment of disease was still unknown, any approach to avoiding illness particularly amongst thousands of soldiers and sailors was recognised as being a major advantage. It was therefore both the practicality and the moral imperative which military medical officers adopted which allows their advances to be presented as the true antecedent to the public health movement of the nineteenth century, and by doing so establish this research within the historiographies of military, medical, and social history with particular implications for future studies on the understanding of public health. This has been achieved by focusing on four distinct areas which comprise the following

\textsuperscript{81} Ibid. See chapter 4 in which Land describes schemes such as the construction of villages and even marriage schemes as ways of ensuring that sailors were dissuaded from failing to return to Britain and encouraged instead to settle in Britain and raise families.
chapters, namely, the control of Smallpox through inoculation and vaccination, medical training in Scotland, the validation of empirical medicine through the adaptation of quantifiable techniques and the control of Yellow Fever and Cholera. Each of these has been selected in relation to the way in which they can illustrate how military and naval medicine developed an understanding of the importance of preventative health, in relation to both the soldiers and sailors under their command and the civilian population. It is because of this particular objective that any discussion on preventative medicine which only affected military establishments, as in the case of hospitals, is not included. In terms of chronology, discussion will be confined broadly to the period 1720 to 1832, with a study of Britain’s military and naval involvement in Europe, North America and the West Indies. With the exception of the arrival of Cholera, there will be no reference to India, the East Indies or Africa. The decision to exclude the influence of the East India Company has been taken on the grounds that despite being highly active during this period, its influence in terms of preventative medicine play a far greater role in terms of the mid nineteenth century, and consequently does not hold the same degree of relevance for this thesis. It is also necessary to reiterate that this research is not aiming to include any specific analysis of military initiatives located within the Public Health and Sanitary Movement of the nineteenth century. Rather, the aim remains focused on identifying an emerging belief by commissioned medical officers of the need to ensure not just the health of troops but also the society from which such men were taken, which should be interpreted as rather than a direct response to use professional expertise to actively promote change regarding all aspects of daily life.
Having previously addressed the relevant historiography Chapter two will establish this research by revisiting events surrounding the control of Smallpox, as this particular disease provided the first opportunity for military and naval medical officers to identify and acknowledge the value of preventative intervention, and the benefits this would bring in relation to protecting not just troops but also the society from which these men were taken. In an age when the majority of diseases could be fatal, Smallpox still managed to invoke a powerful sense of fear across all sections of society. Early numerical returns collected from parish mortality records also confirmed that the disease was becoming increasingly virulent both in epidemic and endemic form. It was this stark situation which led to early accounts of control being considered with more than intellectual curiosity. The first form of intervention was inoculation\textsuperscript{82} which entailed giving a mild dose of Smallpox to a healthy recipient. The practice could be found in areas such as South America and the Middle East where it was noted by early colonial administrators. The unique concept which lay behind inoculation made it an ideal item of interest for the Royal Society where the first accounts were read and discussed.

Despite inoculation showing itself to be effective, it did so on the premise that an otherwise healthy patient was purposefully infected, all be it with a mild form of the disease.\textsuperscript{83} From the 1720’s, this generated a vast number of responses from not just the medical profession but also the Church and any person or group who considered themselves to have a viable reason for holding views on the advantages

\textsuperscript{82} In this thesis the term “inoculation” is used as opposed to “variolation”. In general, the latter tends to be used more widely in North America while British and European literature favours the term “inoculation”.

\textsuperscript{83} Genevieve Miller, "Smallpox Inoculation in England and America: A Reappraisal," The William and Mary Quarterley 13, no. 3 (1956).
and disadvantages of inoculation. The vast library material reflecting this general interest was catalogued by Klebs in the early twentieth century and remains one of the most complete references citing material concerned with the early response to controlling Smallpox.\textsuperscript{84} It also shows that in terms of the discussion relating to the introduction of inoculation in Britain, military and naval doctors were initially slow to react in terms of endorsement, which makes this very much a civilian initiative. However, the delay was only temporary, particularly when a Smallpox epidemic in 1740 had a devastating impact on the channel fleet.\textsuperscript{85} This prompted army and medical military officers to begin to engage in discussions regarding the suitability of inoculation amongst British troops in a much more sustained and active way.

The extensive literature written on the subject by medical officers represented by Sir John Pringle, Sir Richard Brocklesby, Dr Donald Monro, Dr Thomas Dickson-Reide and Dr Thomas Trotter are all particularly pertinent in terms of meeting the aims of this chapter. However what is significant is not just the amount written but the common themes that can be traced throughout the material. These doctors, all of whom had received their training either on the continent or in Scotland, typified a commitment to medical empiricism in relation to understanding the complexities of inoculation when applied to a military population. Leading such concerns was the possibility of potentially risking lives of otherwise healthy men if inoculation was performed on those troops who had not previously been infected with Smallpox.

The issue which began in a general context, became vastly more significant during the American Revolutionary War (1775-1783), and has subsequently attracted the

\textsuperscript{84} Arnold Klebs, C, "The Historic Evolution of Variolation," \textit{The Johns Hopkins Hospital Bulletin} 1913.
attention of historians including Buckley, Frey and Becker. There was also the highly problematic issue as to whether inoculation could become compulsory. There has been a tendency to present the British army and navy as inherently brutal institutions where individual needs were ignored. However as seen in the extensive writings of the naval surgeon Thomas Trotter, his professional support of inoculation did not allow to him to ignore the issue of religious objection raised amongst the sailors who came under his care.

Even when Smallpox threatened the continued security of the nation, the military response was one of careful consideration. Pringle established communications with civilian practitioners, particularly those who were engaged with establishing compulsory programmes of inoculation as in the case of William Watson, physician to the Foundling Hospital in London. Pringle’s interest lay in finding ways of standardising the procedure whilst maintaining control over the cost and ensuring a level of safety. Monro also maintained a regular correspondence with Dr. Quiers who was working on slave plantations in Jamaica. The importance of discussions such as these shows that in the early days, military medical officers considered themselves to be an integral part of the medical profession and actively facilitated debates which would benefit all sections of society. In return, philanthropists such

89 Thomas Trotter, "Medicina Nautica," (1797).
91 Monro, "Observations on the Means of Preserving the Health of Soldiers and of Conducting Military Hospitals."
as Jonas Hanway considered it a duty to introduce programmes of inoculation within the Marine Society as a way of ensuring that the navy would have a constant supply of healthy young men, all of whom were free of the scourge of Smallpox.92

Inoculation was therefore a shared response by all members of the medical profession to finding ways of combatting the worst excesses of Smallpox. Its contagious nature and increasing propensity to affect both the young and the old with equally devastating outcomes meant that no one group saw its control as their particular responsibility. This was certainly driven by the ethical considerations which continued to dominate discussions regarding compulsory programmes, even when the procedure was simplified through the intervention of the Sutton family.93

However, this situation changed with Jenner’s introduction of vaccination in 1798. Smallpox could now be controlled by the use of cowpox which was far less dangerous and provided an immunity.94 The significance of Jenner’s work was immense, though it has attracted a disproportionate number of heroic narratives95 which began whilst he was still alive. Vaccination also continues to be presented as being the worthy accolade of Enlightenment thinking with little attention paid to the controversy it caused from its first appearance.96 The same criticisms can be levelled against medical histories which have failed to review the extensive role

---

93 J.R Smith, The Speckled Monster: Smallpox in England, 1670-1970, with Particular Reference to Essex (Chelmsford: Chelmsford record Office, 1987). Chapter 4. This remains one of the most informed discussions on the impact of the Sutton family whose work on producing a cheaper, quicker form of inoculation aimed to increase its popularity across much of Britain.
played by the military, particularly the navy, in promoting vaccination. Physicians such as Trotter and Blane were amongst the first to recognise that vaccination could become a compulsory medical intervention across all of society, as it was free of the ethical problems which had accompanied inoculation.97 This level of conviction was in no way affected by the looming war with France, and naval physicians were at the forefront of transporting and administering vaccination to troops stationed beyond Britain. In one of the first experimental trials of the age, representatives from both the army and the navy carried out tests on the local inhabitants of the islands of Minorca, Gibraltar and Malta, in an attempt to show the safety of vaccination.98

The control of Smallpox therefore played a significant role in testing the nature of the relationship between military and civilian doctors. During the period under discussion, the disease led many doctors to consider problems of contagion, and in doing so, try to understand the basis of what would become known as epidemiology. More recently, Foucault saw the introduction of medical procedures such as inoculation and vaccination in a far different way. He argued that these were an example of what he termed “medicalization”, 99 whereby traditional attitudes towards health and disease were forcibly replaced by previously unknown intervention on the part of the medical profession. The problem with this interpretation in relation to mid nineteenth century Britain is that it fails to take

97 Trotter, "Medicina Nautica."
99 Foucault, The Birth of the Clinic: An Archaeology of Medical Perception. Pp 36-41
into account both the relatively low numbers who chose to undergo the procedure due to cost and the localised practitioners who offered the intervention.

However Smallpox also acted as a catalyst for military and naval medical officers in relation to understanding the nature of illness and the importance of prevention. They began by using the populations under their care as testing opportunities both in terms of medical procedure and understanding the boundaries of intervention.\textsuperscript{100} The uniqueness of this opportunity was not lost on those involved and as such was presented as providing knowledge which would be applicable to all sections of society. This responsibility remained at the forefront of all military medicine at this time because it was the most logical way of thinking. As a sick army or navy led to defeat in battle so a sick civilian population perpetuated the chances of this happening. However the moral duty of such views also remained at the forefront of military medicine as seen in the actions of men such as Blane. Whilst endorsing compulsory vaccination amongst troops on the grounds that this would also stop infection of the societies to which these men returned, Blane was also at the forefront of calling for the endorsement of Jenner to be tempered until such time he could provide evidence as to why vaccination worked.\textsuperscript{101}

As the eighteenth century progressed, military and naval medicine became increasingly defined as a discreet specialism within the medical profession at large. The numbers of medical officers appointed by both the army and the navy rapidly increased to provide care for the continuously expanding number of troops

\textsuperscript{100} This was first seen in the work of Dr George Cleghorn
required. Furthermore there were also a significant increase in the number
employed by the East India Company to care for both the private army and the
immense number of administrators and settlers.\textsuperscript{102} Whilst the type of troops and
destinations varied according to the service, all medical officers were nevertheless
tasked with the same objectives, namely providing medical care and implementing
ways of actively preventing disease. However there was a far more significant area
of commonality, arising from the fact that the majority medical officers had and
continued to be been trained in a Scottish university.

The influence of Scotland and why it became specialised in military medicine is
therefore the focus of Chapter Three. The history of the Scottish universities has an
extensive historiography, much of which continues to be written by academics with
strong links to the country. However as in many aspects of military medical history
there is a paucity of research in terms of understanding why military and naval
medicine evolved north of the border along a different trajectory from English
institutions. Established texts such as Dow\textsuperscript{103} and Comrie\textsuperscript{104} provide an interesting
narrative regarding the rise of education in Scotland which they attributed without
question to the influence of the Scottish Enlightenment. Whilst this played a central
role in academic and intellectual life, the true complexity of what lay behind
Scotland’s formidable reputation has only recently been analysed by Hamilton\textsuperscript{105}

\textsuperscript{102} Mark Harrison, \textit{Medicine in an Age of Commerce and Empire. Britain and Its Tropical Colonies
1660-1830} (Oxford: Oxford University Press, 2010). This provides one of the most thorough accounts
of the East India Company at this time.
\textsuperscript{103} Derek A Dow, \textit{The Influence of Scottish Medicine} (Carnforth: Parthenon, 1988).
\textsuperscript{104} John.D Comrie, \textit{History of Scottish Medicine to 1860}, vol. 4, Research Studies in Medical History
and Kaufman.\textsuperscript{106} Of the two, the latter remains the only substantial study of events surrounding the establishment of a medical school in Edinburgh as well as charting the history of the Chair in Military Surgery which ultimately led to the university being closely associated with military medicine. Kaufman’s work therefore plays a significant role in framing much of the general discussion in this thesis. However it too has remained extensively within the Scottish context, and as such does little in terms of looking at the role of Scottish graduates within their professional context. Kaufman has also chosen not to focus on the early years of the university. This is an unfortunate omission in the work as it has prevented discussion of the role of men such as John Pringle who was so influential in defining the type of learning all students would experience. This has now been redressed by Craig, whose paper on Pringle is valuable in explaining both the development of military medicine and the role played by the university in facilitating this emerging specialism.\textsuperscript{107} Craig emphasises the way in which it was continental philosophy which defined Pringle’s own views on the form and function of medicine in general. Moreover, the idea of preventative health was familiar across much of Europe and regarded as a measure of what could be regarded as a civilised, well-ordered society which also ensured that its military was fit for protecting the rest of society. Frank’s innovative concept of “medical police” therefore found favour in countries such as Prussia and even Scotland, where it gained credibility through the creation of its academic Chair. \textsuperscript{108}

\textsuperscript{106} Matthew H Kaufman, \textit{The Regius Chair of Military Surgery} (New York: Rodopi 2003).
The complex legacy of Scottish medical schools has still to be addressed in ways which acknowledge the diverse influences which guided their development. Alongside a modern curriculum which reflected Enlightenment thinking, the methodology was one based on empiricism, which also involved the rejection of traditional learning. The result of this were generations of medical practitioners, many of whom accepted a commission in either the army or the navy, though it is important to also acknowledge the role played by many civilian doctors who left Scotland for careers in the many public institutions which increasingly required skilled staff to meet the growing number of men, women and children who were falling prey to the hostile conditions posed by industrialism and urbanisation. Throughout the eighteenth and nineteenth century Scottish trained medical graduates therefore became increasingly associated with reform and modernity, as will be shown within this thesis.

Discussion will also include findings of the Royal Commission on Scottish Universities. Although the commissioners were concerned with assessing the teaching across all faculties, it was the debate regarding the presence of military medicine as a specialist subject in Edinburgh which is most relevant to this thesis. The evidence given to the Commissioners is cited extensively in this chapter as it remains the most detailed document in existence which shows how complex the military-civilian relationship had become in the period following the defeat of Napoleon. It will also be used in relation to charting the growing professional status

---

109 "Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George Iv, July 23rd 1826; and Re-Appointed by His Majesty William Iv, October 12th 1830. For Visiting the Universities of Scotland," (London: W Clowes, HMSO, 1830).
of medical officers which they used when presenting the case for implementing preventative health measures, arguing that these were applicable to all sections of the population. It is therefore possible to argue that the influence of Scottish medical training was immense, not only in providing a philosophy which gave credence to actively engaging with preventative health as a universal intervention but also provided its graduates with a training which permitted recourse to scientific enquiry at a time when civilian medical practice was generally unable to meet such challenges.

Chapter four will therefore develop the case for military and naval medical staff increased commitment to preventative health by their adaptation of early quantifiable methods. In response to finding ways of overcoming a reluctance to understanding the many obvious advantages of preventative health measures, medical officers in both the army and the navy increasingly were forced to look for ways of proving that the health of all individuals was measurable. The earliest use of quantifiable analysis used in this way can be traced back to seventeenth century Britain when Petty and Graunt used Bills of Mortality to attempt to measure the loss exacted on the country’s economy through disease. The particular way in which military and naval medical officers adopted early statistical analysis will therefore be the focus of this section. To date, there has been limited academic interest in developing an understanding of the way in which quantifiable analysis was espoused by the medical profession in general throughout the eighteenth century. The exception to this is the work of Trohler whose particular focus has

111 John Graunt, Natural and Political Observations Made Upon the Bills of Mortality (1662).
been that of the association and advancement of therapeutic diagnosis. \textsuperscript{112} With progress being made in scientific and medical equipment, and the growing interest in proving the value of medical intervention, methods had to be found which facilitated the recording of large amounts of information in a way which permitted analysis, understanding and application. The first step lay in tabulation and quantifiable analysis which was far more basic than the later developments of mathematical statistics, but which still offered an innovative approach to charting dynamic changes in disease frequency.

The same level of commitment can be identified in the work of military and naval medical officers who also made extensive use of tabulation, though as a group they added little in terms of refining the process of numerical analysis and made no significant advances in the general evolution of statistical methodology. It is possible that this explains why for many years, the vast library of military medical publications failed to attract research in order to further an understanding of why quantifiable analysis was used in the way it was. However Trohler, argues that limitations such as these are not in themselves sufficient grounds for disregarding the material produced by army and navy doctors simply because it appeared to replicate a style used by civilian practitioners. Moreover, in subsequent work he has attempted to locate evidence for this view through a detailed study of all eighteenth and early nineteenth century military and naval medical officers who used numerical information in their publications\textsuperscript{113}.

\textsuperscript{112} Ulrich Trohler, "The Introduction of Numerical Methods to Assess the Effects of Medical Interventions During the 18th Century: A Brief History," jameslindlibrary.org (2010).

\textsuperscript{113} Quantification in British Medicine and Surgery 1750-1830, with Special Reference to Its Introduction into Therapeutics, vol. Doctor of Philosophy (University of London1978).
Whilst Trohler’s work is valuable in highlighting the extent to which quantifiable analysis was used by particular military and naval medical practitioners, it nevertheless fails to explicitly identify using the same material, evidence for creating the case that numerical analysis in military and naval publications was immensely significant in that it enabled medical officers to prove the connection between dirt, environment, climate and other malignant causes when it came to identifying transmission of a range of diseases common to all. At a time which was still without the certainties of scientific medicine, there was a clear need to find ways of showing that many diseases were avoidable. This was the achievement of the medical officers, whose findings were increasingly presented as numerical evidence bought into being through a range of empirical methods. Quantifiable analysis was therefore a highly valuable part of the process in which preventative health was being presented as accessible, achievable and an asset to all populations, regardless of whether they were military or civilian.

It is therefore important that chapter five will contextualise this argument by looking at the medical officers growing professionalism and confidence to not only implement reform amongst their own men but also increasingly wanting to use their particular expertise in terms of directing their civilian counterparts into initiating similar preventative health measures. This has been far more complex in terms of identifying distinct examples, particularly as medical officers were far more integrated with society than is often acknowledged.  

Therefore in order to identify distinct opportunities where this took place, this research has focused on

---

114 McLean, *Public Health and Politics in the Age of Reform: Cholera, the State and the Royal Navy in Victorian Britain*.  

55
epidemiological incidents relating to the control of Yellow Fever and Cholera. Whilst there were many other similar examples which could be used in the same way, the significance of these two diseases lies in the fact that they were initially considered not to be a particular threat to the civilian problem, and as such were known to be closely associated with military and naval life.

The events which led to a complete reversal of this have received extensive discussion in a detailed historiography. However, reiterating the concerns raised in other chapters, there has been insufficient attention paid towards analysing the discourse which took place in relation to the role the military were expected to play in preventing both diseases from entering Britain and what in reality they were allowed to do. This is most clearly seen in the parliamentary papers from the time where discussions on securing the safety of the civilian population was seen to lie with the army and the navy in the form of implementing and maintaining quarantine regulations. Little attention, if any, was paid to the views of army and naval doctors relating to major issues such as the natural history of these diseases and the complex debate which existed between those who believed in the theory of contagionism as opposed to those who supported the anticontagionist argument. As will be seen, this did more than any other medical controversy of the time to show the disparity which had emerged between military and civilian medical theory and practice, as well as a pronounced distrust on the part of the latter to rely on any initiatives which medical officers were now in a position to promote from the standpoint of being experts in preventative health measures.

The threat of Yellow Fever and the inevitable arrival of Cholera did much to illustrate the increasingly complex, and often fractious opinions held by military and civilian medical practitioners in relation to the effectiveness and boundaries of their roles in matters of health. As the number of military medical officers rapidly increased to meet the growing demands of war across the world, they formed a large, identifiable and increasingly vocal section of the medical profession who understood both the nature and value of preventative health to a very sophisticated level. Yet even in the midst of the real threat of epidemics of both Yellow Fever and Cholera, along with prior knowledge of just how deadly both diseases could be, there was a concerted effort on the part of the medical profession and the government not to pass the nation’s health into the hands of the army and the navy. The importance of this final chapter therefore lies in not only explaining this rejection as part of the growing mistrust of military intervention in civilian life but also the legacy in terms of the formative years of the public health movement being seen as a solely civilian initiative.
Chapter Two: The control of Smallpox and the emergence of preventative health

In the following chapter, events surrounding the early efforts to control Smallpox through inoculation and vaccination will be discussed in relation to the influence exerted by both military and naval medical officers during the eighteenth and early nineteenth centuries, and the opportunities they saw in extending this to all soldiers and sailors. In what has previously been regarded as a solely civilian achievement, the aim of this discussion will therefore be to recognise the extent to which medical officers influenced the development and extent of both procedures being used in Britain.

This will first be addressed by discussing the growing awareness seen throughout the eighteenth century of the need to invest in the care of soldiers and sailors if the military and colonial aspirations were to be achieved and maintained. Secondly, there will follow a detailed analysis of the ways in which medical officers contributed to a general understanding of the effectiveness of ways to control Smallpox through the application of an empirical methodology. These studies were not only shared with civilian medical practitioners but also marked the point at which medical officers also began to talk about the benefits of preventative medicine as a universally applicable procedure. Lastly, discussion will also focus on the issues of compulsory intervention and the rights of the individual, which was a concern voiced by both the military and naval authorities, and the extent to which preventative health could be enforced. By looking at each of these areas, it is possible to argue that the army and navy played a far greater role in the control of
Smallpox than is currently acknowledged. Moreover the events provided the same medical officers with the confidence to propose ways in which preventative health should be introduced, so making their actions the forerunner of the public health movement.

Despite being one of the oldest diseases known to affect humankind, Smallpox was relatively late arriving in Britain.\(^\text{116}\) It is impossible to give an exact date of its first appearance, though by the seventeenth century it was sufficiently common to merit inclusion in all the leading medical text books of the age. Attempts to effectively treat the disease were hindered by the fact that it appeared to take on various forms, some of which were more virulent than others. Modern research has shown this to be the coexistence of variola major, the most aggressive and deadly form of Smallpox and variola minor, which was a far milder form and often mistaken for measles\(^\text{117}\). More astute contemporary practitioners such as Thomas Sydenham (1624-1689) recognised clinical patterns in its natural history, particularly predilection for the young and vulnerable.\(^\text{118}\) It was also generally agreed that those who survived the disease would at least benefit from lifelong

\(^\text{116}\) Raymond Stearns, P, "Remarks Upon the Introduction of Inoculation for Smallpox in England," *Bulletin Of The History Of Medicine* 24, no. 2 (1950). P.105 Stearn claims that it became the virulent malady during the reign of James 1

\(^\text{117}\) There are now known to be at least twenty viruses of this group which affect humans and animals.

\(^\text{118}\) For centuries smallpox and measles had been identified as the same disease. Although this was first discredited in the tenth century by the Islamic physician, Rhazes, this common and often fatal misunderstanding was upheld until the observations of the English physician, Thomas Sydenham (1624-1689) who announced they were different diseases. He published his views on the basis of observation and note-taking in order to identify the different diseases. Sydenham is therefore important in marking a departure from the views of natural philosophy which for so long had promoted the uniqueness of the individual even in relation to the actions of disease. His views allowed for a revolution in the way illness was now standardised both in identification and treatment, and explains why his approach found popularity amongst those who promoted empirical medicine, particularly in the army and navy.
immunity. The value of this type of protection was increasingly acknowledged by eighteenth century recruiting orders where infamous pox marks on an individual meant that not only were they unlikely to be infected again but that they were less of a threat to others. Sadly, the reality was that few Smallpox victims were left without some far greater residual neurological damage, which in the worst cases led to lifelong paralysis and blindness.

By the eighteenth century it was also becoming increasingly apparent to the medical profession, both civilian and military, that the disease was not only becoming more virulent but also was seldom absent from everyday life regardless of class or location. In addition to being endemic, there were an increasing number of particularly devastating epidemics which affected different locations across the country. The result was a growing sense of alarm, the likes of which had not been seen since the days of the plague. Using Bills of Mortality, Smith estimated that Smallpox mortality was one death in five to six cases, though emphasises that this is a cautious representation of a situation which was certainly far worse. What is undisputable is the fact that Smallpox had by this time become the most virulent and deadly disease of its age.

---

120 Smallpox is a virus known as variola. There are now known to be at least twenty poxviruses affecting humans and animals but the classic version which was responsible for the disease in Britain only involved variola major which was particularly sever and variola minor which was far less threatening. The lack of contemporary understanding did not facilitate this type of analysis and may account for why the disease for so long led to different diagnosis and treatment. Gareth Williams has provided a discussion of smallpox pathology in “Angel of Death”.
Set within such a context, it is therefore easier to understand why early attempts to control the disease have attracted such a heroic interpretation. During the eighteenth century, Smallpox was effectively transformed from the feared “angel of death”\textsuperscript{122} into a preventable infection. This was through two medical procedures known as inoculation\textsuperscript{123} and vaccination.\textsuperscript{124} Although Smallpox was not yet at the point of being eradicated, vaccination in particular saw a considerable fall in mortality rates. Moreover, these early attempts to control Smallpox were still significant in the way they represented a new paradigm in terms of replacing the traditional approach to treating illness to one of preventing its appearance in the first place.

In the current historiography, this continues to be described as one of the early successful examples to implement what can be claimed to be the first exercise in managing a person’s health. Also, the fact that this was also initiated by civilian medical practitioners lends itself to the persistent argument that all attempts to improve the way in which people lived was a success which lay firmly with the achievements of civilian society. The focus of this chapter and others contained in this thesis is therefore to redress this incorrect assumption not only from a factual perspective but by also establishing a definitive argument which sees commissioned medical practitioners as pivotal in the development of preventative health. Furthermore, the motivation which lay behind this was the understanding that

\textsuperscript{122} This was a commonly used term throughout the seventeenth and eighteenth centuries although the origins remain unknown.

\textsuperscript{123} Inoculation involved giving a live dose of smallpox matter into the body of a healthy person who had not contracted the disease.

\textsuperscript{124} Vaccination was a prophylactic based on cowpox.
would not only help ensure a strong army and navy but also bring benefits to society at large.

The process of inoculation was far from being a new way of controlling Smallpox. Its early history can certainly be traced to China and Turkey where it had become an indigenous method of Smallpox prevention.\textsuperscript{125} The process involved giving live Smallpox matter to healthy individuals in order to promote a mild but controllable outbreak of the disease. An informal description of inoculation first reached Britain as early as 1701, though it was to be fourteen years before a more formal account was sent to the Royal Society.\textsuperscript{126} Since its inception in 1662, the aim of the Royal Society had been to create an institution where scientific knowledge would be promoted on Baconian principles.\textsuperscript{127} For this to be achieved, there had to be rejection of rhetoric in favour of experiment and verifiable fact, an aim firmly embedded in the Society’s own motto “\textit{Nullius in Verba}”.\textsuperscript{128} The Society’s interest in curiosities, particularly of a human variety, soon became an established part of its identity, although there were concerns that this was detracting from the pursuit of real science.\textsuperscript{129} The relative openness of the Royal Society in terms of general membership also ensured that a significant cross-section of society were represented. The emphasis on science and medicine also attracted members from the army and the navy at a time when there were few other similar forums for professional development. The respect given to these members was officially

\textsuperscript{125} Williams, Angel of Death: The Story of Smallpox. P.61
\textsuperscript{127} As outlined in Francis Bacon’s “New Atlantis”
\textsuperscript{128} The commonly held translation at the time was “on the word of no one”.
acknowledged when John Pringle became President from 1772-1778\textsuperscript{130}. Although he remains the only military physician to have held the title, the list of Fellows at this time include a significant number of commissioned members.

However, it was more than a willingness on the part of the Royal Society to discuss the unusual, which made it such an ideal forum for introducing the idea of inoculation. The Society's own publication, *Philosophical Transactions*, \textsuperscript{131} attracted a growing readership and was accessible to both members and a wider audience who were able to subscribe. It was here that the first accounts of inoculation were printed in 1714, and as such marked the formal affiliation between the Royal Society and the introduction of inoculation. However the initial response appears to have been little more than a curious interest, due in part to their association with “heathen” countries such as Turkey and China. Questions relating to racial differences and the problems arising from any clear understanding as to how inoculation worked effectively delegated it to being little more than an intriguing type of folk medicine. Were it not for the decision taken by the Fellows of the Royal Society to openly endorse inoculation, it is unlikely that the procedure would have been introduced into Britain and used as a viable method of controlling the ravages of Smallpox.\textsuperscript{132}

In attempting to understand why such an influential group were prepared to promote such a radical idea as inoculation, Risse argues that it should be seen as nothing less than a planned response to what many saw as an imminent

\textsuperscript{130} McCrae, *Saving the Army: The Life of Sir John Pringle*. Chap.14
\textsuperscript{131} The first issue was printed in 1665 and has remained the official publication of the Royal Society
\textsuperscript{132} Williams, *Angel of Death: The Story of Smallpox*. P.65
constitutional crisis following the Duke of Gloucester’s fatal attack of Smallpox in 1700. Support for this interpretation lies in the fact that Smallpox showed little regard for social status and was as virulent at Court as in the homes of rural and urban settlements. Moreover, many fellows of the Royal Society relied on patronage at the highest level which had to be protected both in terms of individual careers and the reputation of the Royal Society at large. Therefore the fear generated by the exacerbated by the continued problem of Smallpox was sufficient to promote a reassessment of the potential value of inoculation and begin studies to assess the validity of the procedure.

Whilst inoculation purported to offer protection from the worst excesses of Smallpox, it was not lost on the very earliest of its supporters that it incurred significant risks, not the least the ethical dilemma that infecting a healthy person could result in fatal disease. Therefore, whilst fellows and members of the Royal Society might see the potential surrounding the introduction of using inoculation, until its safety could be assured there was little chance of further endorsement. Alongside a number of high profile public inoculations, the Royal Society chose to undertake a systematic programme of trials from April 1721 to March 1722. They were facilitated by Sir Hans Sloane who in addition to being President of the Royal Society, Physician-General to the army and member of the highly influential Court Whigs, was considered to be the most qualified to pass judgement on their success.

---

133 Andrew Wear, Medicine in Society: Historical Essays (Cambridge: Cambridge University Press, 1992) p.190
134 The number of deaths at Court and amongst members of the nobility were one of the reasons why Lady Mary Wortley Montague wrote directly about the benefits of Turkish inoculation to Caroline, Princess of Wales as early as 1718
135 Williams, Angel of Death: The Story of Smallpox. p.127
The involvement of Sir Hans Sloane should also be seen in terms of presenting these trials as the first example of state-led medical intervention in Britain. Under the direction of a group of physicians representing the Royal Society, nine experimental inoculations took place on criminals, children and orphans. Considering the risk this involved, and the vulnerability of those selected, Wilson, who has made a detailed study of each case, claims that this was nothing less than State-endorsed human experimentation. Moreover the fact that these experiments were ordered to be carried out in public rather than within the relative privacy of a medical environment, can be taken as further evidence that inoculation was an initiative driven by political motive, in which the risks incurred by a few could be off-set by the benefits which would become accessible to the rest of society.

The early introduction of inoculation was not always met with approval. One of the earliest opponents was Rev. Edward Massey, a leading theologian and well-known Tory, who denounced the procedure as an unholy attempt to intervene with the Will of God. Theological concerns were not unusual but when presented in conjunction with established Tory ideals, men such as Massey were considered to be far more of a problem, in terms of providing a vigorous and effective opposition to inoculation. In order to curtail such support, it appears that Massey himself became the victim of intense questioning regarding his personal loyalty to the

---

136 Ibid. p.127-148
138 Massey first preached against the inoculation on 8th July, 1722 in a sermon entitled “A Sermon against the Dangerous and Sinful Practice of Inoculation” at St Andrews Church, Holborn.
country which he addressed in the publication of an open letter. In this he denounced the fact that any questions relating to the morality of inoculation had become “a diagnostic of a man’s affection or dissatisfaction to the government”\textsuperscript{139} and went on to condemn Dr. Samuel Brady, army physician to the garrison at Portsmouth, for accusing him of harbouring Jacobite sympathies. This was a serious allegation which if found to be true, was regarded as nothing less than treason. The willingness to associate opponents with anti-loyalist affiliations was an unprecedented event in the history of medicine, though it supports the interpretation that inoculation was in the early days a politically driven innovation.

As late as 1747, Dr Charles Perry\textsuperscript{140}, a physician from Stroud, argued that the failure of inoculation to become standard practice across the country was the unfortunate outcome of the alignment of religion with politics, adding that whilst Dissenters continued to join forces with the Whigs in support of inoculation, there still remained those “on the other side of the question” who would continue to oppose the procedure on both religious and political grounds\textsuperscript{141}.

Despite such an atmosphere of mistrust and hostility, there nevertheless emerged a gradual realisation that issues surrounding the safety of inoculation could not be addressed through public spectacles but needed to be developed within the guidelines of empirical medicine. Only then could there be any assurance as to whether inoculation could provide a level of protection with the potential to ensure


\textsuperscript{140} Dates unknown

personal good health across all sections of society. Views such as these can be seen in an early publication, written by a London surgeon, Legard Sparham. He refused to recognise public experiments as proof that inoculation worked and called for further evidence undertaken specifically by members of the medical profession. Furthermore, he argued that this would also ensure that the general population who were already disadvantaged by a failing economy, would also be protected from the “wrong-judged indulgence” of state endorsed inoculation. His concerns are seen by his use of a military analogy when he argued

Would it not be egregiously absurd in a Soldier, whose Life perchance in a Battle might fall a sacrifice to his country, first to request his Comrade to season him against Powder and Ball, by making Experiments at him at some Distance?

The views of men such as Sparham play a significant role in presenting the complexities surrounding both the introduction of inoculation and accompanying issues related to rights, responsibilities and the role of the state. Preventative medicine was, as yet, without a definition in Britain. Throughout the eighteenth century models representative of early welfare systems appeared in Europe such as that of medical police, but these generally found little support in Britain, unlike Prussia, Sweden and France. Here, the tensions which existed between the rights of the individual, commercial needs and fear of state control prevented any chance of a centralised approach, which were essential if diseases such as Smallpox and other

---

142 Legard Sparham, “Reasons against the Practice of Inoculating the Small-Pox,” (London1722). Biographical details unknown
143 Ibid. p.26
144 Ibid. p.28
145 This was an early concept of continental welfare developed by Frank and Rau which is discussed later in greater detail.
highly virulent pathogens were to be effectively controlled, particularly in the absence of effective pharmacology. This was understood by men such as Dr Charles Perry, who in 1747 wrote the first of two treatises discussing the nature of Smallpox and the effects of inoculation.146 Perry was representative of a growing number of physicians who acknowledged that changes taking place in medicine had the potential to benefit all communities, but remained unsure as to whether this was a decision which could be left to the individual. He therefore concluded

This Practice of Inoculation is not only a Blessing and a Benefit to Individuals, and to particular Communities and Societies, but ‘tis also a benefit to the State. For ‘tis most certain, that if it was universally practised throughout the King’s Dominions, the Lives of many thousands of His Majesty’s Subjects would annually be preserved by it.147

Perry was clearly exploring the idea of compulsory inoculation but as yet remained unsure as to just how far this should be imposed. The questions of free will and duty was attracting the attention of European philosophers such as Kant (1724-1804) whose work attempted to reach definitive answers regarding this type of moral dilemma. Although he personally opposed inoculation, Kant eventually chose to endorse the procedure on the grounds that the danger it posed by potentially inflicting disease in a healthy body was offset by the fact that it lessened the chances of contracting the more dangerous naturally acquired version of the disease. Furthermore he argued that as this was too complicated to be understood by the individual, inoculation should become the sole responsibility of the state.

146 Perry, "An Essay on the Smallpox. With Regard 1st, to Its Specifick Cause. 2dly, to Its True Nature and Essence. 3dly, to the Best Methods of Curing It. Also Seasonable Reflections and Considerations on the Modern Practice of Inoculation."
147 Ibid. p.46
which in turn exonerated a citizen from having to rationalise a choice which potentially could have a fatal outcome.\textsuperscript{148} Although Kant had little direct impact on the medical literature relating to the use of inoculation as a way to protect against Smallpox in a civilian context, the arguments he presented would eventually become directly applicable in relation to the introduction of compulsory use by the British army and navy. The eighteenth century witnessed notable changes in relation to the status of the soldier and sailor, closely linked to their increasing value as a highly trained commodity which was now recognised as being worthy of sustained investment.\textsuperscript{149} However even at a time when the army and navy functioned from the perspective of unquestionable obedience, few in the military and naval hierarchy were prepared to impose such a personal infringement of human rights, which came with the question of inoculation. It also explains the readiness of the army and navy to use vaccination as its safety as a prophylactic removed the ethical dilemmas of imposing a possibly fatal procedure on an otherwise healthy individual.

The views of Kant were not the only discussions regarding the morality of inoculation. A vast body of literature appeared throughout Europe and America in response to the controversy it generated from ethical, religious and social perspectives.\textsuperscript{150} However in Britain, questions relating to the safety of Smallpox became less relevant during the 1730s due to the disease entering one of its less

\textsuperscript{148} Susan Meld Shell, \textit{The Embodiment of Reason: Kant on Spirit, Generation and Community} (Chicago: University of Chicago, 1996). P.408

\textsuperscript{149} Charters, \textit{Disease, War and the Imperial State: The Welfare of the British Armed Forces During the Seven Years’ War}. p.6

\textsuperscript{150} Klebs, "The Historic Evolution of Variolation." This remains one of the most complete bibliographies of inoculation, covering the eighteenth century.
virulent phases. The number of inoculations therefore fell in response to the danger of infection being considered an acceptable risk. However this situation was rapidly reversed from the 1740’s to the beginning of the 1760’s which saw some of the worst Smallpox infection rates on record. Inoculation was once again brought to the forefront of public attention in terms of offering a level of safety from the worst excesses of the disease and the first mass inoculation programme was officially sanctioned in 1743. The governors of the newly created Foundling Hospital in London announced that all children over the age of three would be inoculated for free unless they had previously contracted natural Smallpox. Whilst the disease had the ability to infect a person at any age, it had long been recognised that a particularly vulnerable group were the very young. Moreover, there was extensive evidence that children who survived Smallpox also showed signs of lifelong natural immunity. Nevertheless it is significant that this programme was performed on a group who were denied any right to object, being both minors and orphans. There is no evidence relating to mortality rates from inoculation carried out in the Foundling Hospital though it is likely that this was considered to be a success as three years later a second mass inoculation programme was launched in the newly opened County Hospital for the Small-Pox in London. As well as offering inoculation, the hospital was the first of its kind to offer in-patient care for those infected with the disease. Similar institutions quickly appeared across Britain providing a range of early specialist healthcare. Although the creation of many was seen as an example

151 Davenport, "The Decline of Adult Smallpox in Eighteenth Century London." This article explains the problems with compiling accurate statistical evidence on mortality rates associated with smallpox though it remains one of the most accurate and extensive discussions on the subject.

of the new philanthropy which emerged as an integral part of Enlightenment thinking, there was also a growing appreciation that inoculation was both a moral and civic duty.153

Mass inoculation programmes such as these were also significant in that they provided for the first time incidence rates for a defined population which could be monitored and measured. The importance of quantifiable and comparable analysis remained a central argument in the Royal Society's continued endorsement of inoculation. Only by comparing the mortality rates from naturally acquired Smallpox as opposed to inoculation could the safety of the latter actually be proved. This is what made the work of men such as James Jurin (1684-1750) so important.154 As a doctor and leading iatromathematician of the day155, Jurin was recognised as being eminently well qualified to analyse and reach conclusions regarding the effectiveness of inoculation, although his biased views favouring the procedure bought into question issues relating to impartiality. In 1723 he announced that on the basis of reports received from physicians such as Thomas Nettleton (1683-1742), it was possible to prove that the risk of dying from inoculation was “one out of 91”.156 157 Jurin also emphasised its value by making projections regarding the danger of dying from naturally acquired Smallpox at

---

155 A term which described the process of applying mathematical models to the human body
157 Edward Huth, "Quantitative Evidence for Judgements on the Efficacy of Inoculation for the Prevention of Smallpox: England and New England in the 1700s," Journal of the Royal Society of Medicine 99, no. 5 (2006). P.2 In this paper Huth emphasises the importance of Nettleton to Jurin who inoculated forty people in Halifax, Yorkshire which was published in Philosophical Transactions. He later went on to look at the variations between mortality from inoculation compared to that from naturally acquired smallpox.
different periods of life. Although Jurin believed that inoculation was the only option to protect society, his methodology attracted widespread criticism particularly from men such as Isaac Massey, who argued that it could only be meaningful if it included control groups, distributed equally with regards age, sex and circumstance. It was the absence of this type of detailed information which also made Jurin’s work ineffective in terms of transferability. It also explains why medical officers in both the army and navy when implementing empirical methodologies accepted that in terms of testing theories and interventions, they were having to create their own detailed records for analysis, particularly as their civilian counterparts were as yet practicing medicine without the benefits of their use.

Whilst the possible opportunities afforded by inoculation continued to dominate discussions relating to ways of controlling Smallpox, there nevertheless remained many who firmly believed that the most effective form of prevention lay in finding the initial cause of the disease, with particular emphasis being placed on how and where societies lived. The often challenging and changing relationship between human habitation and the natural environment has been discussed at great length by Glacken, whose work has been so significant in illustrating the level of complexity surrounding this aspect of human history. Certainly, early practitioners such as Hippocrates were prepared to acknowledge the influence of land, air and water in terms of possessing both a positive and detrimental effect on

---

158 Stearns, "Remarks Upon the Introduction of Inoculation for Smallpox in England." P.120
human health. Moreover, over the centuries ideas such as these developed in ways which allowed them to continue to influence discussions relating to matters of health and provide diverse explanations as to what might lie behind the cause of disease and poor health. Consequently by the eighteenth sophisticated discussions relating to aspects such as the varying state of the atmosphere gained considerable creditability amongst medical communities when trying to identify potentially harmful influences on human health. In the same way, the association between noxious smells and disease became a familiar source of concern amongst both the lay and medical populations, even to the extent of developing its own terminology of miasma and putrefaction. One such adherent of these ideas was Dr John Arbuthnot (1667-1735) who as early as 1733 wrote specifically on the likely interaction of air and disease. However, it can be argued that the significance of this work has all too often been overlooked, in terms of the way he developed what was by this time a well-established theory in order for it to be more easily adapted in order to effectively respond to the many unfamiliar changes taking place across eighteenth century Britain. Consequently Arbuthnot claimed that it was not only possible to argue that air differed according to location, but also stated that it had the ability to act in different ways depending on the physical state of any given population. This is significant in that Arbuthnot was constructing a case which allowed for precautionary measures be taken in order to actively protect the most

161 Wear, Medicine in Society : Historical Essays. P.87 This was more commonly known as the miasma theory which claimed that decaying matter produced smells from which diseases originated
vulnerable inhabitants from the worst excesses of human habitation. Moreover, Arbuthnot should be recognised as one of the earliest physicians to actively promote a model of preventative health, which involved a sense of direct action. Although Arbuthnot did not specifically discuss the needs of individual occupational group’s soldiers or name specific locations, his work nevertheless was responsible in terms of promoting a sense of duty and common benefit in relation to successfully locating the cause of diseases and then acting upon the knowledge acquired. Such views inspired a Plymouth physician, Dr John Huxham (1692-1768) to try and identify the worst sources of disease within the town. He became convinced that it was the bad air coming from confined spaces, such as jails and ships hulks, which was particularly responsible for the high levels of sickness amongst those most acutely affected, namely the prisoners and sailors who were forced to inhabit such spaces. Moreover, Huxham noted that when the sick were taken on shore from the notoriously filthy holds of naval vessels, this often proved to be highly detrimental to the local population, as it was “from these a contagion being also spread among the common people, it caused most terrible havoc.” Huxham was therefore one of the first civilian medical practitioners who recognised that the poor state of troops and sailors inevitably impacted on the rest of society, and as such could not be allowed to be seen as simply a military or naval problem. Furthermore, he was increasingly concerned that certain diseases seemed to affect troops in a far more virulent way due to their already weakened constitution. This

163 Ibid. p. 68-93
was, according to Huxham particularly true for Smallpox which he believed affected soldiers and sailors to a far greater extent than their civilian counterparts. In an attempt to understand why this should be so, he initially focused on the poor physical condition of troops as a consequence of the way in which these men were forced to live. However, he later extended possible reasons to include the poor, almost non-existent moral standards associated with both the army and the navy.

With reference to the epidemic of 1738 he therefore felt compelled to argue

The Small-pox more still epidemic, but in general sufficiently favourable; however it carried off a great many amongst the sailors and soldiers; whether this was owing to their Bloods being more acrimonious and putrid, from their bad Diet, and their swallowing down large quantities of burning Spirits; or to the scorbutic Contagion, nay, and to other Causes, and very often to its being polluted from the venereal disease. This indeed is constantly remarked that every epidemic Fever is more fatal amongst this kind of people, than it is amongst the Towns-Men or the Country-People.165

As yet, the problems of urbanisation had still to reach the appalling state which characterised much of the nineteenth century, though even in relatively remote towns such as Plymouth, city living was not without its problems. From 1700 to 1750 it has been estimated that the prosperity of the town as both a dockyard and centre of industry led to the population increasing from eight to fifteen thousand inhabitants.166 As a local doctor Huxham’s concerns are therefore of immense relevance in terms of comparing the state of health relating to the civilian and military populations, and the professional concerns he had in relation to the latter particularly in relation to their susceptibility to disease. Huxham’s medical

165 “Observations on the Air and Epidemic Diseases from the Beginning of the Year 1738 to the End of the Year 1748 (Volume Two),” (London: J.Hinton, 1738). P.212
reputation also gave his views particular credence. Although he never left
Plymouth, he wrote extensively on a range of medical issues with his work being
read widely across much of Europe.\textsuperscript{167} The views of men such as Huxham is
therefore significant in identifying signs of a new sense of shared responsibility
when it came to finding ways of improving the physical state of soldiers and sailors
on the grounds that they retained the right to be seen as members of the society
they were ultimately protecting.

Despite Huxham raising concerns regarding the propensity of Smallpox amongst
soldiers and sailors, no other civilian medical practitioner continued with this
particular medical discussion. However, it can be seen as marking the point at
which military and naval medical officers to begin to take specific responsibility for
the care of those under their command, supported by a nascent specialism which
was significantly different to their civilian counterparts. In particular, these medical
officers\textsuperscript{168} began to develop an interest in finding ways of actively preventing
diseases rather than often ineffective treatment, which began with their
endorsement of inoculation. The first example of this was seen in the work of Dr
George Cleghorn (1716-1789), a graduate from Edinburgh University who in 1736
accepted a commission as surgeon to the 22\textsuperscript{nd} Regiment of Foot, stationed in
Minorca.\textsuperscript{169} During the sixteen years spent on the island, Cleghorn used the
opportunity to study in detail the military population in the hope of understanding
the cause of disease and identifying the most appropriate treatments. The type of

\textsuperscript{168} This term will be used to refer to both military and naval medical positions.
\textsuperscript{169} Biographical detail regarding Cleghorn is scarce though the main account remains a detailed
obituary recorded in \textit{Walkers Hibernian Magazine} January 1790 p.1-3
medical training he had received as a student would later become replicated in what was recognised as typical of the Scottish model of medical teaching and learning. However Cleghorn was one of the first army doctors to combine his study of botany, materia medica, chemistry and medicine in such a confined setting to analyse the influence of climate and environment on the health of troops. He also made use of the freedom to dissect humans and apes which provided him with extensive and accurate anatomical knowledge.

Cleghorn published his findings in 1751, based on an empirical methodology which was replicated in many subsequent military and naval medical texts of the age. The diseases he discussed were those he found to be most common amongst the military population. Although there are no direct references to Arbuthnot, the influence of this work is seen in the way Cleghorn emphasised the dangers of unfamiliar environment and climate which he saw as being detrimental to the health of Smallpox soldiers stationed in garrisons away from Britain. In relation to the problem of, Cleghorn provided a study, the likes of which had as yet been notably absent in the inoculation debate. By recording in detail how the disease affected the island’s population through a series of epidemics, he was able to study

---

170 This is discussed in detail in Chapter Three
171 This indicates that Cleghorn was possibly a supporter of Vesalius, who had been the first to question the teachings of Galen. If so, it is further evidence of the early rejection of the scholastic teaching of medicine in Scottish universities such as Edinburgh.
172 Walkers Hibernian Magazine p.2 If this is correct, it suggests that army medical officers like Cleghorn made use of the freedom to carry out human dissections when stationed outside Britain far earlier than previously believed. The British government continued to restrict its practice until the Anatomy Act of 1832.
174 In medical texts of this time, authors tended to restrict referencing to the “Ancients” particularly Hippocrates. It is rare that contemporaries are specifically named.
the transmission and treatment of Smallpox in particular detail.\textsuperscript{175} He also made a study of inoculation which, after much consideration, he felt able to endorse on the grounds that it had proved itself to be safe for those who underwent the procedure.\textsuperscript{176}

The work of Cleghorn is therefore significant in the way it established military medicine as an emerging specialism in its own right aware that it required a distinct set of approaches in order to manage the many medical issues which continued to be found amongst soldiers and sailors. Furthermore, it defined the need for preventative medicine, aware that the only way illness could be effectively managed was by limiting the rate of incidence. However, what made Cleghorn’s views particularly significant in relation to this research was the way in which he promoted the belief that preventative intervention could only be sustained and effective if it were applied uniformly to not just military and naval populations but also the rest of society civilian health. This view is outlined in the Preface when he argued:

Would all who practice physic in our factories and colonies abroad embrace the opportunity which their situation affords, to make proper observations on the sick, and communicate them to the public, we should soon have a more exact and ample history of disease, than we are yet possessed of; and future practitioners would be enabled to shun the dangers into which many have fallen, and to conduct those committed to their care through the disorder to which they are exposed, with satisfaction and honour to themselves, and no small benefit to their country.\textsuperscript{177}

\textsuperscript{175} Cleghorn, “Observations on the Epidemical Diseases in Minorca, from the Year 1744 to 1749.” Chapter V11
\textsuperscript{176} Ibid. p.184
\textsuperscript{177} Ibid. Preface p. ix-x
The views of Cleghorn were of such validity that they considered as being worthy of replication by subsequent medical officers. Such men ensured that military medicine would, from this point, be increasingly defined as a commitment to preventative health, which in order to be fully effective, had to be applied to the British population in its entirety. This was far more than a response to the government of the day calling for troops to be cared for as a valuable commodity.\textsuperscript{178} Instead, it should be seen as a professional response by medical officers in both armed forces who intrinsically understood why the state of health of all members of British society was fundamental to securing the nation was to be maintained, and early colonial aspirations achieved.

The commitment by medical officers to eradicating the worst excesses of disease was motivated by more than a commitment to an ideology. Disease amongst soldiers and sailors was a growing problem which had the ability to affect ever increasing numbers.\textsuperscript{179} One of the starkest examples of this occurred in 1740 when of the 6,000 strong British force which set sail from Spithead, nine out of ten soldiers perished from disease, many of which were Smallpox victims.\textsuperscript{180} Not only was this unacceptable, it was also made worse by the fact that there had clearly been little progress since Admiral Hosier’s earlier disastrous expedition of 1726 which saw the eradication of over ninety percent of the accompanying crews.\textsuperscript{181} Britain’s commitment to the Austrian War of Succession (1740-1748) can therefore

\textsuperscript{178} Charters, Disease, War and the Imperial State: The Welfare of the British Armed Forces During the Seven Years’ War. P.6
\textsuperscript{179} Cantlie, A History of the Army Medical Department, 2. P.78
\textsuperscript{180} Ibid.p.78
\textsuperscript{181} In 1726 Admiral Hosier’s expedition to the West Indies had resulted in the loss of 4,000 men out of an original crew of 4,750, all from disease.
be seen as marking a significant change in attitude regarding the inexcusable loss of thousands of troops to disease rather than battle. This is seen in the work of John Pringle, whose successful career as a military physician earned him the soubriquet “father of military medicine.”\textsuperscript{182} His work focused on the importance of understanding the cause of disease which he linked to the presence of different types of dirt.\textsuperscript{183} From these came what he termed pestilential or putrid fever, both of which was the cause of disease.\textsuperscript{184} To date, little attention has been paid regarding his views on the control of Smallpox. This is due, in part, to his limited discussion on the disease in “Observations.”\textsuperscript{185} However, the omission was likely to have been intentional as Smallpox was not particularly prevalent during the campaigns in which he served.\textsuperscript{186} However, in Pringle’s private papers, more commonly known as “Annotations”\textsuperscript{187} there is extensive evidence of his professional interest in Smallpox, which led to him collating a wide range of information in order to understand both effective treatment of Smallpox and assess the true value of inoculation. This was very much an extension of Cleghorn’s work, which Pringle credited and actively promoted.\textsuperscript{188} However, Pringle also recognised the need to expand on existing knowledge which involved communication with

\textsuperscript{182} This is untraceable in terms of who first used the description, though contemporary writers were familiar with the term.
\textsuperscript{184} Ibid. p.54 Pringle identified four sources of contamination: water from marshes, human excrement, rotten straw and the air of sick men. The focus on climatic and environmental problems emerged from his early medical study of texts such as Hippocrates which still remained central to medical education.
\textsuperscript{185} Ibid.
\textsuperscript{186} Ibid.
\textsuperscript{187} “Annotations” are held in the Royal College of Physicians of Edinburgh archive where they can now be accessed. Due to legal restrictions imposed by Pringle no printed copy of this work can be made.
\textsuperscript{188} Taken from “Smallpox” in Annotations.
medical practitioners both in Britain and Europe who were using inoculation in numbers which would facilitate a better sense of its true and lasting value.\textsuperscript{189}

Pringle’s approach to inoculation exemplified the importance of empirical medicine amongst a new generation of military and naval medical officers. His own influences came from a medical education shared between Leiden and Edinburgh, which played such a major role in forming his commitment to rational, scientific medicine. This is seen in the way he promoted the views of Dr William Hillary (1697-1763) who as early as 1735 had warned the medical profession against placing their blind faith in inoculation, on the grounds that as yet the procedure was based not on science but on “fictitious hypotheses, and false principles”.\textsuperscript{190} Pringle recognised the importance of this entreaty and therefore sought to understand why inoculation worked, an obvious question but one which had not yet been answered by civilian practitioners. To locate pertinent and specific information, Pringle wrote letters to Dr William Watson (1717-1787), physician at the Foundling Hospital, the institution which had first inoculated a large number of orphans. His concerns are reflected in the very specific questions he asked and indicate that it was not the age of the children which interested him but the issues surrounding uniformity of procedure when inoculating a large number.\textsuperscript{191} There is no existing evidence that confirms Pringle’s early plans to extend this type of medical intervention into the army, although it would have been in many ways a logical step for him to take. However, his former career as Professor of Moral Philosophy at Edinburgh

\textsuperscript{189} Due to the nature of annotations, few letters were dated by Pringle.
\textsuperscript{190} William Hillary, ”A Rational and Mechanical Essay on the Small-Pox,” (London1735). p.xi
\textsuperscript{191} Pringle, “Annotations.” P.199
University may well have continued to exert considerable influence in relation to his views on compulsory as opposed to voluntary inoculation, emanating from the rights of the individual. Only after considerable studies, was he prepared to publicly endorse inoculation on the grounds that it appeared to pose little danger to the lives of those who chose to undergo this procedure.\textsuperscript{192}

The extent to which military and naval medical staff such as Pringle considered the range of implications which accompanied new theories and practices, should be taken as evidence of a new level of training which originated in the universities. The combination of theory and the soon to be acquired practice acquired on the battlefield, resulted in a type of medical officers who increasingly found themselves projecting the voice of authority in relation to the health of men placed under their care. However, their position and degree of authority within the regular army and navy remained ambiguous for much of the century and was only improved with a series of reforms. This question of status is significant in terms of understanding the extent to which military and naval medical officers considered themselves to be in a position to facilitate change in relation to both the military and civilian population. This has been briefly discussed by Rodger in terms of the situation in the navy.\textsuperscript{193} He presents the relationships of the Admiralty and Navy Board and the different medical corporations\textsuperscript{194} as a conscious attempt to undermine the civilian medical profession in order to gain a position of authority.

\textsuperscript{192} In addition to the established work of Cantlie and Lloyd and Coulter, more recent publications on military and naval medicine have been written by historians including N.A.M Rodgers, Erica Charters and Catherine Kelly
\textsuperscript{194} These were the Royal College of physicians, the College of Surgeons and the Worshipful Society of Apothecaries
He also argues that this lay behind the decision taken by the Admiralty to allow naval medical staff to practice as “general practitioners” among civilian populations when not required for naval duties, even though some were likely to be without the requisite formal education.\textsuperscript{195} The situation with regards the army was made more complex due to the constant changes which took place amongst the notoriously fractious Army Medical Department.\textsuperscript{196 197} However military medical officers also appear to have considered themselves well placed to enter into general medical discussions. Many also played an active role in civilian communities when not required or retired from military duties. To date, no significant research has been undertaken in look in detail at the interaction of medical staff beyond the confines of the ship or barracks. However, just in relation to the control of Smallpox, men such as Samuel Brady were known to promote inoculation as a medical practitioner in Portsmouth and later James Forbes proved to be equally enthusiastic in promoting vaccination in Chichester having overseen it’s seen its introduction as Inspector of Army Hospitals.\textsuperscript{198}

The high levels of disease during the Austrian War of Succession (1740-1748) served to reinforce the idea that the preservation of health amongst troops was of increasing importance. Diseases such as Typhus and Dysentery caused the greatest

\textsuperscript{195} Rodger, \textit{The Command of the Ocean. A Naval History of Britain, 1649-1815}. P.186

\textsuperscript{196} Cantlie, \textit{A History of the Army Medical Department}, 2. See chapter 7

\textsuperscript{197} Richard Brocklesby, "Oeconomical and Medical Observations, in Two Parts. From the Year 1758 to the Year 1763 Inclusive," (London: T.Becket & P.A De Hondt, 1764). P.31. this is significant in that Brocklesby acknowledges that the first request to establish such a Board to oversee medical care in the army was made directly by the Duke of Cumberland to Viscount Barrington, then Secretary of State at War, who was known for his concerns relating to improving the state of health of soldiers.

number of deaths amongst the British army.\textsuperscript{199} In the case of Smallpox, the numbers were relatively low though the fear of contagion was never distant. The death of Emperor Joseph from the disease not only cost the Hapsburg dynasty the Spanish succession, but served as a timely reminder that it showed little discrimination regarding its victims.\textsuperscript{200} Britain’s decision to withdrawal from the War of Succession provided a timely and much needed respite. Pringle’s attention to removing what he considered to be causes of disease was certainly significant in helping keep the mortality rate from disease at an acceptable level. The sick and wounded admissions for the entire war were totalled 32,246, of which 2,563 died.\textsuperscript{201} Although figures such as these were not excessive for the time, they were still far higher than the country could afford to ignore. Consequently the focus on implementing preventative health measures in both the army and the navy remained a priority.

The problem was exacerbated by the fact that within eight years the country was yet again preparing for war. Such a short interlude had not been sufficient time to restore the strength of the army and navy in terms of both equipment and manpower. Although the British army continued to rely heavily on mercenaries and recruitment parties to meet the numbers of soldiers constantly required, the varied success of both approaches increasingly showed the value of investing in the living conditions and health of serving soldiers, many of whom were highly experienced and difficult to replace. Chakrabarti argues that this significant change in attitude

\textsuperscript{199} Cantlie, A History of the Army Medical Department, 2. P.95
\textsuperscript{201} Cantlie, A History of the Army Medical Department, 2. P.93 As Cantlie states, this mortality rate of 8\% was not excessive for the time.
arose from economic considerations, namely, that it was becoming increasingly cheaper to invest in the medical care of established, well-trained troops, than discard them when they became ill, only to be replaced by untested recruits. In support of this view, one begins to see military and naval physicians being granted greater influence regarding matters of health, both on and beyond the battlefield, and were at the forefront of initiating change with the aim of maintaining a professional, cost-effective and physically able fighting force. Medical officers were also tasked with ensuring that all recruits met an agreed standard of health and physical well-being. In reality, this intention was more often honoured rather than implemented, especially when the numbers demanded by the army and navy always greatly exceeded those actually acquired from standard recruitment drives. Nevertheless physical examinations became increasingly common policy in military life, and included reporting if a recruit showed signs of previous infection of Smallpox through the tell-tale pock scars. This was always recorded as a favourable outcome, as it indicated immunity against further Smallpox infection.

The army physician, Richard Brocklesby (1722-1797), wrote a highly influential text on the state of military hospitals and the diseases most commonly found amongst the troops. In this work he too recognised the challenge of maintaining the health of the army, particularly when it came to improving the general conditions

---

202 Chakrabarti, Medicine and Empire 1600-1960. p.48
204 Brocklesby, "Oeconomical and Medical Observations, in Two Parts. From the Year 1758 to the Year 1763 Inclusive."
most soldiers were forced to endure. He was also concerned by the inequalities
surrounding the preservation of health of soldiers stating

Diseases of all kinds, in war time, commit greater waste on all those who
follow an army, and rage continually with more desolating havoc amongst
soldiers, than amongst any order of men in civil society.\textsuperscript{205}

It is interesting to note the way in which medical officers were becoming
increasingly open about the fact that, battle casualties aside, life in the army was
clearly not conducive to maintaining a state of good health. Brocklesby emphasised
this in relation to Smallpox when he wrote

Small-pox is more destructive, in every army in England, than any other
acute disease; (considering the proportion of those who have it, after they
enter themselves into it.) In short, by an estimate which I have framed, from
the relations I have had from several regimental Surgeons, in the late war;
the Small-pox carried off about one, out of a little more than four of those
who were at any time seized with it, in the natural way, during our late
encampments, and in winter quarters.\textsuperscript{206}

Brockelsby therefore became increasingly attracted to the idea of introducing
inoculation, though before he could openly promote such an intervention, he
acknowledged the need to assess its impact and be assured of its safety. To achieve
this within a feasible period of time, he avoided any detailed studies of regiments
on the grounds that they were too large, but instead chose to focus on the militia.
These were not only smaller units, but were generally found in rural locations and
so were easier to assess. He therefore began to collate the detailed information he
needed in order to evaluate the true worth of inoculation. On completing his study,
Brocklesby confirmed

\textsuperscript{205} Ibid. p.105-06
\textsuperscript{206} Ibid. p.232
In some militia regiments, submitted to good notions of subordination, on account of the difference of the natural and artificial small-pox, near one third of the numbers such county regiments consisted of were inoculated; and out of one hundred and seventy men, so treated, in one regiment, only one was lost by this beneficial improvement.207

This type of detailed, small scale analysis had already taken place in a civilian context through the work of Dr. Thomas Nettleton (1683-1742) whose studies of individual towns had been instrumental in providing Jurin at the Royal Society with the data he needed for his own quantifiable analysis.208 However, such an approach had not been repeated until the work of Brocklesby which enhanced the value of using specific groups in order to trial preventative strategies such as inoculation.

It was particularly apt that whilst Brocklesby was attempting to gather further evidence relating to the safety of inoculation in Britain, the disease presented a series of unprecedented problems in North America. The presence of British troops was identified as being the source of contagion amongst local populations.209 Moreover, the problem was exacerbated by the number of troops sent out to fight, who had not received inoculation, and had failed to contract Smallpox naturally.

One of the most common reasons for failure to undergo inoculation was the personal expense, which remained high until the appearance of the Sutton family whose methods considerably reduced the cost.210211 A further problem arose from the unavoidable period of illness and contagiousness which followed all

207 Ibid. P.231-2
208 Miller, The Adoption of Inoculation for Smallpox in England and France. p.111-112
209 Charters, Disease, War and the Imperial State: The Welfare of the British Armed Forces During the Seven Years' War.
210 Williams, Angel of Death: The Story of Smallpox. P.137-138
211 Lane, The Making of the English Patient. P.80 The cost of inoculation in the second half of the eighteenth century ranged between 5-6 shillings.
inoculations. Whilst the British army facilitated the cost through payments to those regimental doctors who inoculated troops, the only way of limiting the spread of the disease was to find ways of isolating such men until they were fully recovered. However the problem as to why so many recruits had escaped Smallpox was more complicated. Brocklesby suggested that there were two reasons for this, namely the ineffectiveness of inoculation, and the moral status of troops which he believed was often so bad that this made some continuously predisposed towards all illnesses, and consequently unable to benefit from preventative interventions.\textsuperscript{212}

If medical officers called into doubt the value of inoculation based on inherent traits,\textsuperscript{213} the rest of the military infrastructure were far less willing to turn away from seeing the procedure as anything other than beneficial. Captain Bennett Cuthbertson argued

\begin{quote}
Soldiers, who have not had the small pox, being subject to many distresses, by constant apprehensions, and the chance of taking it on a March, or at other times, when it is not in the power of Officers to extend their care, in a manner agreeable to their wishes, should have it strongly recommended to them to undergo inoculation, as a certain means of saving many lives, it being well known, that the unprepared state in which that distemper generally finds a soldier’s blood, renders the taking of it, in a natural way, too often attended with very fatal consequences, even though circumstances admit their being treated with the utmost tenderness.\textsuperscript{214}
\end{quote}

The preference taken by the military authorities to rely on the moral imperative rather than make inoculation compulsory was considered to be the only option at the time in relation to controlling Smallpox. However in the second half of the

\textsuperscript{212} Brocklesby, "Oeconomical and Medical Observations, in Two Parts. From the Year 1758 to the Year 1763 Inclusive."
\textsuperscript{213} Dates unknown
\textsuperscript{214} Bennett Cuthbertson, "A System for the Complete Interior Management and Oeconomy of a Battalion of Infantry," (Bristol: Rouths & Nelson, 1768). P. 31
eighteenth century the ambivalent approach towards inoculation was increasingly
questioned both in relation to the persistently high death rate from Smallpox and
the fact that survivors were all too often economically unproductive. One area
where this could be clearly identified was in the way that many of those who
survived infantile Smallpox were affected in terms of stunted adult height. This had
implications for military recruitment, particularly in response to the new emphasis
being placed on physical standards. In order to see if this was so, evidence was
collected by the Marine Society, established in 1756 by the philanthropist Jonas
Hanway (1712-1786). He had initially created the Society as a way of offering
unemployed or orphaned boys, once they reached the age of fourteen, training as
servants to naval officers\(^\text{215}\) or given the opportunity to join either the Royal or
merchant navy. Most of these boys came with little or no previous connection with
the navy\(^\text{216}\) and were taken from the poorest sections of both rural and urban
locations. In reality, the Marine Society also provided an opportunity for Hanway to
promote his own extreme views regarding the benefits of inoculation especially
amongst the poor\(^\text{217}\). He directed the Marine Society to keep registers of the boys’
height and any previous history of Smallpox.\(^\text{218}\) Between 1770 and 1772, 638 boys
were recorded in the registers with 610 marked as being victims of Smallpox. From
1772 to 1778, registers also had additional columns for the specific purpose of
recording those who had been inoculated. It is interesting that no existing register

\(^{215}\) In the eighteenth century there was a need for 4,500 servants at any given time.
\(^{217}\) Jonas Hanway, "Virtue in Humble Life," (London: J Dodsley, 1774). This was representative of the
many works produced by Hanway which talked of the need to make inoculation compulsory.
\(^{218}\) The register first started on 25\(^\text{th}\) September 1770 with notification of smallpox following on 31\(^\text{st}\)
October, 1770.
contains evidence of this particular information ever having been recorded. An explanation for this is possibly found in Hanway’s own account of the Marine Society when he wrote that boys were offered inoculation which was performed once their consent had been given. Whether this was a somewhat questionable way of creating a way of encouraging young boys to agree to the procedure or simply a failure to collect additional information will remain unknown. However the records have since attracted contemporary research in an attempt to discover whether Smallpox was responsible for reducing the height of young males by one inch. This remains a fiercely contested area of social and epidemiological history. Nevertheless the relevance of this research is such that it adds to the complex history of Smallpox in the eighteenth century and illustrates the type of concerns voiced amongst both the military and civilian populations.

Despite a general consensus regarding the growing threat of Smallpox, the overall rate of inoculations remained low. Donald Monro (1727-1802 had seen the devastation caused by Smallpox during his posting during the Seven Years’ War, and retained a sense of concern when he returned to his civilian post at St Georges Hospital, London. Aware of the need for further information regarding the safety of inoculation, he began a detailed communication with Dr John Quiers (1738-1822), a British physician working on the slave plantations in Jamaica. Quiers was responsible for maintaining the health of slaves working on the island, which involved overseeing compulsory inoculation. Recognising the unique opportunity

---

220 Ibid.
221 See the work of Floud, Heintel & Baten, and Voth & Leunig.
this provided, he took every opportunity to test inoculation on men, women and children in ways which could not have been done back in Britain.\textsuperscript{222} Despite the often graphic account of his experiments in letters he sent to Monro, these were still published in Medical Transactions, which appear to have elicited no adverse response from the readership\textsuperscript{223}. In a modern context, Quiers’ work does raise serious ethical questions\textsuperscript{224}, though he made no reference to the experiments being performed on slaves from what would be seen today as a racial and inhumane perspective. Instead he explained how he focused on the effects of climate and local environment and the ways it shaped the physiology of both slaves and indigenous populations in relation to medical procedures such as inoculation. This would have been recognised by Monro as being particularly significant in terms of Britain’s plans for colonial expansion, as well as providing further evidence relating to the safety of early attempts to control Smallpox prior to making it compulsory.

Whilst the civilian and military population therefore continued to engage in inoculation, all be it in a piecemeal way, few were prepared for the way in which Smallpox would became a major issue, following Britain’s decision in 1775 to protect her colonial possessions in North America.\textsuperscript{225} Much has been written on Smallpox in the colonies prior to and during the war with Britain due to the extent it

\begin{itemize}
\item \textsuperscript{222} Quiers inoculated black female slaves at different stages of pregnancy to see if it caused abortion. He also inoculated a number of slaves continuously to see how this affected their health.
\item \textsuperscript{223} John Quier, "Chapter Xix : An Account of the Success of Inoculation for the Small-Pox at Jamaica," Medical Transactions.\textsuperscript{1772}.
\item \textsuperscript{225} Erica Charters, “Military Medicine and the Ethics of War: British Colonial Warfare During the Seven Years War (1756-63),” Canadian Bulletin of Medical History 27, no. 2 (2010). In this paper Charters addresses the problem of smallpox being used as a form of germ warfare.
\end{itemize}
affected both local populations and the British army. Infamous epidemics such as that in Montreal had earlier left the American army seriously undermanned, whilst British soldiers initially showed a marked level of immunity as recorded by men such as Dr Benjamin Rush and Dr Schoeff, Director of the Hessian Medical Services. This was certainly due to a large number being seasoned campaigners, who managed to avoid Smallpox either through previous natural infection or from inoculation. However as the war in North America gained momentum, army reports began to record a significant increase in the number of British soldiers falling victim to the disease. In places such as Boston, there were accounts of up to three British soldiers dying each day. Figures such as these prompted a rapid response from civilian and military sources. In Britain, the Gentleman’s Magazine called for a widespread programme of inoculation amongst the poor, stating that it was the only way of preventing further loss of life, either in a military or civilian context. Meanwhile British troops in North America were offered inoculation if they had not had Smallpox, whilst those who refused were removed from their Regiments and placed in quarantine until the state of their health had been determined. There is no evidence of punitive action being taken against those who refused, but the army had always been keen to find ways of introducing a programme of compulsory inoculation. As early as 1756 the First Regiment of Foot

---

226 Becker, "Smallpox in Washington’s Army: Strategic Implications of the Disease During the American Revolutionary War." This is just one of many articles discussing the issue of smallpox.
227 Cantlie, A History of the Army Medical Department, 2. p.155
228 The term “seasoned” was used to refer to troops who had spent time in a foreign posting. This allowed them to contract local diseases but be cared for and therefore recover with a marked immunity against further attacks.
230 Gentleman’s Magazine, XLIX (1779),p.193
had been inoculated and later in 1772 Brigade Orders for the Foot Guards issued the following:

The men of the Several Companys who have not had the smallpox, to be asked if they chuse to be Inoculated and those Men absenting thereto, means will be used to have them Inoculated agreeable to their desire, such as do not chuse it will be at the same time signify it to the pay Serjeants of the Different Companys, and make reports to M gen (sic) Slater as soon as possible.\(^{231}\)

It is clear from this Order that the army still felt unable to issue notice that inoculation would become a compulsory procedure, even though the volatile nature of Smallpox played an immense role in the events of the American War of Independence. The disease was used not only as a form of germ warfare but was considered sufficiently important for George Washington to oppose Congress and order his army to undergo mass inoculation programmes as a way of limiting the number of soldiers lost to the disease.\(^{232}\) However, the situation regarding the British army changed significantly during the siege of Boston.\(^{233}\) The British army was desperately trying to hold the town when Smallpox appeared amongst the troops. This led General Sir William Howe to act promptly to halt the spread of the disease. His Orderly Book shows that between November and December, 1775, he gave orders for accurate numerical records to be made of all soldiers who had previously been infected with Smallpox.\(^{234}\) On receiving this information he gave

\(^{231}\) Brigade Orders 1769-1774. P.439
\(^{232}\) Elizabeth Fenn, *Pox Americana the Great Smallpox Epidemic of 1775-82* (Stroud: Sutton, 2001). Chapter 2. In this chapter Fenn discusses at length the problems faced by a reluctance in the colonies to introduce inoculation which was regarded as an immense danger, alongside the need to provide the army and militias with a form of protection. The complexity of Washington’s ultimate decision is recorded in this work.
\(^{233}\) Ibid.
\(^{234}\) General Sir William Howe’s Orderly Book at Charlestown, Boston and Halifax, June 17th 1775 to 1776, 26th May, (London: Benjamin Franklin Stevens, 1890).
unprecedented orders that all soldiers who had not been infected, should be
inoculated with immediate effect. The compulsory nature of this intervention must
have caused great concern, as only six days later the order was changed to one of
now encouraging troops to undergo inoculation. Nevertheless, Howe still allowed
self-inoculation amongst the civilian population of Boston, which he followed
with an order for three hundred men, women and children to immediately leave
the town. Washington interpreted this as nothing less than an attempt to spread
Smallpox amongst his own army and ordered that the same civilians were kept
isolated from all military personnel. It is unfortunate that no official records have
been found relating to Howe’s personal decision regarding inoculation. His
leadership style was known to be autocratic and unpopular within the military and
government, and disastrous events in Boston provided the government with the
opportunity to call for his return to Britain. It is therefore reasonable to deduce that
his actions relating to inoculation were untenable even in such extreme
circumstances and failed to take into consideration contemporary and strongly
entrenched beliefs relating to the autonomy of the lowliest foot soldier.

When General Clinton took charge of the British army in North America, no further
orders were passed regarding the control of Smallpox except for those posted north
into Canada. Here, the army physician Dr Thomas Dickson Reide continued to
inoculate any willing soldiers as well as loyalist families arriving from New York. The
threat of Smallpox amongst civilians was now regarded as a major problem and

235 It is possible that self-inoculation was quite common as the procedure simply required insertion
of smallpox matter into a lesion. Dr Perrot Williams had written about this in Pembrokeshire which
was published as “A method of Procuring the Smallpox in South Wales” Philosophical Transactions
ccclxxv January 1723 p.262-68
236 Fenn, Pox Americana the Great Smallpox Epidemic of 1775-82; ibid.
they were therefore kept segregated from military personnel. Dickson Reide was also concerned by the spread of Smallpox to towns in Canada as well as amongst the settlements of native Indians. In order to overcome any financial concerns amongst such vulnerable people, he personally covered the cost of all inoculations.

After the war Dickson Reide continued his interest in understanding the cause and effect of dirt and disease in a civilian setting. He argued that crowded, unplanned cities, unwholesome poor diet, unskilful treatment of the sick, filth and hazardous climatic conditions contributed to the cause and spread of diseases in ways which pre-empted the later Public Health movement. However not all of his work was valued by contemporaries, particularly with regards to his later views on Smallpox. He became an outspoken opponent of the idea that the disease spread due to it being infectious and returned to the idea of some people, namely the poorest, had an innate predisposition, although he believed that this could be offset by a more wholesome way of life.

The war in North America in 1783 had not only been a disaster for Britain but also served as an unwelcome reminder that Smallpox was still one of the most dangerous threats to life. It had also shown the ineffectiveness of inoculation as a public health intervention, either in terms of being administered to sufficient numbers and in the fact that questions continued to be unanswered regarding its effectiveness. Medical officers had also been unable to reconcile moral, ethical and religious issues due to the conflict of rank and personal autonomy. As a result of

this, inoculation was never actively promoted amongst soldiers, although Smallpox continued to be monitored amongst all recruits.

With an end to the war in North America, Smallpox returned to being a civilian concern as seen in the work of Dr. John Haygarth (1740-1827). Although he held no military or naval posting, like many civilian practitioners, he had been concerned by the high incidence of Smallpox during the war. However it was the return of soldiers to Britain and the state in which many existed which led to him studying the danger this presented to civilian populations. It was the poor state of army camps stationed outside of Chester, the town where he had been appointed as physician to the local infirmary which first attracted his attention. The area was commonly used to temporarily house newly raised regiments and whilst there was no evidence that their state of health was significantly worse, the lack of discipline compared to established garrisons created an array of problems. Furthermore, many of the soldiers in Chester came from Ireland, and were greatly affected by diseases caused by the poverty they left behind. Haygarth had been particularly concerned when he came into contact with one soldier suffering from Smallpox who had managed to escape the confines of the barracks. On making further enquiries he was concerned to find that soldiers in transit to different postings were generally left unattended and he concluded that this was a major cause of disease appearing in towns such as Chester.  


Haygarth’s response to controlling Smallpox involved establishing a medical and philanthropic society in Chester as well as writing two influential publications.\footnote{Ibid. Also “A Sketch of a Plan to eliminate the casual smallpox from Britain” 1793} Using numerical evidence to prove that the disease was responsible for approximately one-third of all childhood deaths in the town,\footnote{“A Sketch of a Plan to Exterminate the Casual Small Pox from Great Britain; and to Introduce General Inoculation,” (London1793).} Haygarth believed that the only way to control Smallpox was to implement enforced programmes of inoculation, supported by policing and the use of fines. His plans received endorsement from the medical profession, though they did not attract similar support from the government. Lobo suggests that this was due to Haygarth’s association with Dissenters.\footnote{Lobo, “John Haygarth, Smallpox and Religious Dissent in Eighteenth-Century England” .} However it is more likely to have arisen from his belief in compulsory and therefore expensive social reform at a time when the British government was now deeply committed to war against Revolutionary France. Furthermore it was generally seen as inadvisable to make inoculation compulsory at a time when the rights of the individual were so central to political ideology. In the same way that failure to support the early introduction of inoculation had been linked to Jacobite sympathies, so questions of compulsion were equally associated with despotic and undemocratic action and a threat to personal liberty. The plans of Haygarth therefore attracted no further support, even from the military and naval medical departments. Instead he joined forces with early sanitary reformers such as Percival\footnote{In 1795 Dr Thomas Percival became a founder member of the first Board of Health in Manchester.}, and moved into ways of improving the living conditions of those in towns such as nearby Manchester.
In 1793 the war with Revolutionary France bought an end to the brief interlude in military and naval commitments. In the ten years since the defeat in North America, both the army and the navy had been left in a state of neglect, and the call to arms showed just how unprepared the country really was in terms of ensuring its security against foreign invasion. At the time it was estimated that there were only 15,000 regular troops in Britain\(^{244}\) the rest being stationed in both the East and West Indies to protect the country’s growing colonial territories. To make up this deficit, attention turned to the local militia whose members were now forcibly drafted.\(^ {245}\)

As part of the recruitment process, militiamen who had previously escaped Smallpox were quietly inoculated along with any new recruits rounded up for the army and navy. The high number requiring the procedure surprised military medical officers. Even Woodfall’s Register of 1793 announced that many Sussex militiamen were having to undergo inoculation, the same situation being true of Essex and much of Gloucestershire.\(^ {246}\) The reality was that despite the cheaper methods on offer and local parish initiatives, the actual number who were inoculated in Britain remained comparatively small.\(^ {247}\) The many advertisements offering inoculation which appeared in the provincial papers of the day suggest that inoculation was economically viable for doctors wishing to offer it to patients but there are no

\(^{244}\) Cantlie, *A History of the Army Medical Department*, 2. p.210

\(^{245}\) Colley, *Britons: Forging the Nation 1707-1837*. p. 293 .The militia had earlier been reorganised in 1757 when legislation was passed which aimed to raise 32,000 men by ballot. These would be allocated to each county in England and Wales who would receive annual training paid from money raised by local rates. The Supplementary Militia Act of 1796 aimed to raise a further 60,000 men to secure home defences.

\(^{246}\) Anon., *Diary or Woodfall’s Register 1793*. June 19th

\(^{247}\) There are no existing records relating to actual numbers receiving inoculation.
reliable records as to how many people undertook this form of prevention against the ravages of Smallpox.\textsuperscript{248}

The 1790s was also significant in relation to the interest shown by the navy with regards inoculation. Although the disease was not uncommon amongst sailors, greater attention was paid to prevent its appearance once crews were at sea where the outcome would have been fatal. The common procedure of quarantining ships to avoid crews being infected by diseases was not always followed, but it was generally recognised by ships captains and crew as being a reliable way of ensuring the good health of all on board prior to setting sail on what were increasingly long journeys. This new interest in Smallpox was very much the initiative of Thomas Trotter (1760-1832) who was appointed Physician to the Channel Fleet in 1794. Trotter was particularly interested in Smallpox and discussed it in great detail in his work, “Medicina Nautica”.\textsuperscript{249} It was here that he acknowledged that the greatest danger to a ship’s crew came from new recruits, often described as “raw.” He also noted that many of these men came from rural settings and had not acquired the same level of immunity to diseases, such as Smallpox, as those who were recruited from urban populations. There was therefore a need to stop recruits being a source of contagion, which in the case of Smallpox, meant inoculation. Unlike his military colleagues, Trotter openly “admonished”\textsuperscript{250} those men who were reluctant to undergo inoculation, despite reassurance that the procedure was safe. Similarly, to those who opposed on religious grounds he added

\textsuperscript{248} Lane, The Making of the English Patient. P.80-81
\textsuperscript{249} Trotter, “Medicina Nautica.”
\textsuperscript{250} “Medicina Nautica.” P.138
We combatted this objection with the usual arguments, that Providence had put into our power the means of escaping a dreadful distemper by a trifling operation, and that it was impious in human beings to neglect it. They felt our advice more sensibly when they were told, that we considered it our duty to instruct them for their welfare, and that our only motive was their safety, for they were not to be compelled to undergo inoculation; but act as they pleased.

The theological concerns regarding inoculation had been voiced from the very first days of its appearance in Britain, as seen in the sermons of Massey.\textsuperscript{251} In the intervening years, religion had been replaced by politics in terms of presenting inoculation as an intervention which had the potential to affect the security of the nation. Yet from the 1780s, the Admiralty welcomed a renewed evangelical movement, led by a group of officers more familiarly known as the Blue Light, as part of a wider movement to bring about both moral and physical reforms in the navy. The importance of belief, either in the form of religion or superstition, was attributed by Blake as a way for sailors to deal with the isolation from their homes, often for years at a time.\textsuperscript{252} The Admiralty had always appointed ships Chaplin’s, but unlike their military counterparts, they dealt with a very different set of circumstances. Trotter would have been aware of this and consequently framed his response to theological objections to inoculation with particular care, though not without reference to personal guilt and the personal duty to follow religious creed.

Trotter was also aware of the danger of shore leave as an opportunity for sailors to be infected with any manner of diseases, including Smallpox.\textsuperscript{253} In works such as

\textsuperscript{251} Edmund Massey, "A Sermon against the Dangerous and Sinful Practice of Inoculation, Preach’d at St Andrew’s Holbourn, on Sunday July the 8th, 1722," (London1722).


\textsuperscript{253} Trotter, "Medicina Nautica." P.386
Materia Nautica\textsuperscript{254} one finds him increasing identifying the greatest dangers faced by soldiers and sailors as those which came from the civilian population they were tasked with protecting. Such views are significant in that they indicate a reversal regarding the source of contagion since the concerns first raised by Huxham.\textsuperscript{255}

However, medical officers had little control over the interaction between sailors and civilian society, which often made preventative measures of limited value. In such a context, the events of 1798 with Jenner’s discovery of vaccination were therefore of immense significance in relation to finally finding a way to control Smallpox across all sections of society. Jenner used cowpox as a prophylactic intervention to prevent Smallpox in a procedure he called “vaccination.”\textsuperscript{256} Despite his inability to prove how it worked, it nevertheless attracted considerable attention as it was considered to be both safer and more effective than inoculation, which was increasingly discarded. Although there were those such as the Anti-Vaccination Society who demanded more research from Jenner in order to provide scientific proof that vaccination really did prevent Smallpox, the government did not share these concerns and rewarded him with two impressive financial grants. Trotter also became one of the earliest outspoken supporters of Jenner as well as being the first naval surgeon to trial vaccination when, in 1800, Smallpox broke out on three naval ships.\textsuperscript{257} Due to Trotter’s personal and professional endorsement, vaccination was rapidly used by one Surgeon Veitch on the crew of HMS

\textsuperscript{254} “Medicina Nautica.”

\textsuperscript{255} Huxham, “Observations on the Air and Epidemic Diseases from the Beginning of the Year 1738 to the End of the Year 1748 (Volume Two).”

\textsuperscript{256} Trotter to Admiralty, 14\textsuperscript{th} and 23\textsuperscript{rd} August 1800, NMM, F/31 (following smallpox on the Cumberland, Gibraltar and Ville de Paris).
Magnificent. This proved to be successful and Veitch also announced vaccination to be a most valuable form of preventative medicine. In response to growing support by its medical officers, the Sick and Hurt Board called for further independent trials to be carried out aboard HMS Triumph, though in reality there was little interest shown by all naval staff in terms of waiting for the official findings, with vaccination already being made available to all sailors who requested it.

In addition to affording Smallpox protection amongst its crews, the navy also quickly organised a programme of mass vaccination on Gibraltar, which held significant strategic importance for both the British army and navy. This was considered so successful in controlling further outbreaks of Smallpox amongst the local population that it led Trotter to call for a subscription to purchase a gold medal to be awarded to Jenner in grateful thanks of his achievement. This was presented in 1801 and was the first national recognition awarded to Jenner in acknowledgement of his discovery of vaccination. However the true extent of Trotter’s conviction was seen in February 1801. Concerned by the growing voice of civilian concerns regarding vaccination, Trotter requested official endorsement of vaccination by the Admiralty and official commitment that it would not revoke its policy of promoting vaccination. Trotter also emphasised the importance of vaccination by claiming that there were still 10,000 men in the navy who did not

---

259 Sick and Hurt Board to Admiralty, 7th August 1800, NMM,F/31
260 Sick and Hurt Board to Admiralty, 15th September, 1800, NMM F
261 Trotter to Jenner, 20th February, 1801. Printed in Dr Alexander Cockburn’s address to the Harveian Society, 12th April 1845, Edinburgh Medical Journal 64 (1845) pp.430-441. Vale pp137
262 Admiralty to Sick and Hurt Board, 28th February 1801, NMM, E/48
know if they had ever been infected with Smallpox. It was therefore a medical intervention which would not only protect the army and navy but would benefit all of society. He also clarified that whilst it was important to eventually secure a sound understanding of how vaccination worked, this should not detract from the real value of what it offered on the grounds that

> it is not in the nature of medical investigation long to resist the evidence of facts; and it is far less the province of medicine to check the current of charitable feelings, or to circumscribe the duties of benevolence. We must therefore hope that, while the Liberal discussion it has undergone shall secure the suffrages of the enlightened mind, the love of offspring will confirm its favourable reception through domestic life.\(^{263}\)

Despite Trotter’s eloquent and enduring support of vaccination, the strongest case came from the naval physician, Sir Gilbert Blane (1749-1834). His appeal for its adoption across all of society was printed in Medico-Chirurgical Transactions\(^{264}\) with the aim of shaming the country into acknowledging and questioning why vaccination had not become as widespread as it should. Simultaneously he also called on Jenner to provide the much needed evidence to prove that vaccination really was safe. However the most significant aspect of Blane’s argument lay in his opposition to the continued use of inoculation. He emphasised that Smallpox has been the greatest destroyer of life and whilst inoculation had shown some benefit in terms of limiting the danger of the disease, it still created an infected person. Therefore it was only vaccination which could be tasked with removing the danger

---

\(^{263}\) Baron, ”The Life of Edward Jenner, M.D, with Illustrations of His Doctrines, and Selections from His Correspondence.”

\(^{264}\) The journal had been established in 1806
of Smallpox once and for all. 265 Furthermore, to prove that inoculation increased the mortality rate from Smallpox, Blane used evidence taken from bills of mortality which included four defined periods as well as including a period prior to inoculation. Whilst claiming that the death rate from Smallpox increased during the two periods covered by inoculation, which was an early form of a control group, Blane also attempted to evaluate the impact of vaccination by applying the concept of projecting death rates if vaccination had not been discovered. Blane’s use of quantifiable analysis was not without significant flaws but it was pivotal in creating a scientific case for the support of vaccination which up to this point had been the main concerns raised by those opposing Jenner’s discovery.266

Jenner’s discovery was also quickly endorsed by the army. The events of recent wars had served as a constant reminder that those in command could not become complacent regarding the ever-present dangers of Smallpox. Therefore the Army Medical Board selected the 85th Foot based in Colchester and the Coldstream Guards in London as the first two units to undergo vaccination as standard medical intervention.267 Jenner and his nephew administered the vaccination, though the actual number of soldiers who underwent the procedure was far less than anticipated due to a high number being diagnosed with the itch.268 Jenner’s reluctance to vaccinate sick troops did not detract from the army’s plan to introduce vaccination, though this was instigated by the Duke of York269 who was

265 Blane, "A Statement of Facts Tending to Establish an Estimate of the True Value and Present State of Vaccination."
266 Ibid.
267 Cantlie, A History of the Army Medical Department, 2. P.281-2
268 The “Itch” is more familiarly known as scabies
269 In 1795 Frederick, Duke of York had become Commander-in-Chief of the British army
an outspoken supporter of Jenner’s work and gave the order of April 1801 that all soldiers were to be vaccinated.\textsuperscript{270}

Whilst the army and navy were seen to openly promote vaccination, their medical officers retained some concerns regarding the continuing inability of Jenner to clarify major concerns such as the length of time vaccination remained effective. Jenner was increasingly unable to provide the evidence required and this explains why the medical officers of both services chose to carry out further studies regarding the effectiveness of vaccination on the islands of Minorca, Gibraltar and Malta. In 1801 cowpox vaccine was taken to these islands, with the intention that it should then be sent on to all Mediterranean countries under British control. When the fleet was first stationed off the island of Minorca, Dr Marshall took the opportunity to conduct the first trials on the efficacy of vaccination outside of Britain.\textsuperscript{271} The local inhabitants were eager to be vaccinated due to a particularly virulent Smallpox epidemic, so Marshall carried out the procedure on several local children as well as adult patients. He also ensured that this was carried out in the presence of physicians, surgeons and inhabitants of Mahon in order to gain popular support for the vaccination programme beyond Britain.\textsuperscript{272}

By the time the fleet had reached Malta, orders were already in place for the widespread vaccination of the British army. Dr Walker was given the task of overseeing this vast undertaking which he finally completed in Egypt. In order to

\begin{flushleft}
\textsuperscript{270} Frederick His Royal Highness, Duke Of York And Albany, "General Regulations and Orders Relative to the Duties in the Field and in Cantonments," (Whitehall: Egerton, 1798).
\textsuperscript{271} Lloyd, Medicine and the Navy: 1200-1900. Volume iii, 1714-1815, 3. P349-351
\textsuperscript{272} Baron, "The Life of Edward Jenner, M.D, with Illustrations of His Doctrines, and Selections from His Correspondence." p.397
\end{flushleft}
meet the demands of such a large vaccination programme, Surgeon General Thomas Keate liaised with the Vaccine Institute for the purchase of a constant supply of cowpox vaccine, at a fixed price of twenty-five guineas a year, the cost of which was to be met by the government. Finally Smallpox, which had been considered for centuries as the scourge of the army and the navy, could now be controlled by vaccination, and as such was considered to be nothing less than a prerequisite for success on the battlefield. The status given to vaccination in Britain, led Napoleon to issue orders in 1804 for all French troops to be vaccinated as a way of protecting them from the scourge of Smallpox.\textsuperscript{273} France, like much of Europe, had never accepted inoculation to the same extent as Britain and consequently Smallpox continued to ravage both rural and urban populations.\textsuperscript{274} Therefore despite the fact that both countries were at war when Jenner’s discovery was first published, copies of his work still managed to reach France, where they met with highly favourable official response. Moreover, in 1800 the first French clinical trials were established which ensured that vaccination had been suitably tested prior to being given to all soldiers and sailors. This type of extensive testing was not seen in Britain, where medical officers were as yet without the specialised medical infrastructure which was firmly established in France.\textsuperscript{275} Without scientific validation of the safety of vaccination the Admiralty proceeded with care in relation

\textsuperscript{273} Emily Meyell, "French Reactions to Jenner’s Discovery of Smallpox Vaccination," Social History of Medicine 8, no. 2 (1995).

\textsuperscript{274} Ibid.

\textsuperscript{275} Thomas Neville Bonner, Becoming a Physician: Medical Education in Britain, France, Germany, and the United States,1750-1945 (Baltimore: Johns Hopkins University Press, 1995). P.53
to making it compulsory. It appears that all new marines underwent vaccination at Chatham.\textsuperscript{276} However for sailors, regulations still preferred persuasion by stating

\begin{quote}
It being though proper that the practice of Vaccine Inoculation be extended throughout H.M Navy, you are to advise all such patients as you may think fit subjects for inoculation...to be inoculated...should any person, however, object to such inoculation, you are, with a view to overcome their prejudice, to present the harmless nature of the operation, and the subsequent advantage thereof.\textsuperscript{277}
\end{quote}

Despite the military and naval endorsement of vaccination, civilian concerns remained at the forefront of contemporary discussions. The Anti-Vaccination Society continued to demand that Jenner should be called upon to provide answers relating to how long vaccination remained effective and how safe it really was when applied to all sections of society. Until such time these reassurances could be made, inoculation continued to be performed by civilian practitioners, though there are no known accounts of it taking place in either the army or the navy. Only after the devastating Smallpox epidemic of 1837-1840 was inoculation officially banned in the belief that it had been a major aspect in causing a mortality in excess of 12,000 people. In 1841 a free civilian vaccination programme was introduced, to be administered by the Poor Law Boards. However there remained a high annual mortality from Smallpox, particularly among infants which led the Epidemiological Society demanding compulsory infant vaccination with centralised control and full registration. This became law in 1853 and despite its intention of eradicating Smallpox, the common response was widespread concern against what was perceived to be excessive state intervention in matters of personal health and a

\textsuperscript{276} Sick & Hurt Board August 7, September 13, F/13
\textsuperscript{277} Article 45 of the Royal Navy Instructions of 1808
denial of personal autonomy. Nevertheless, the control of Smallpox remained a matter of priority in the early days of state medicine and vaccination was the first form of direct medical intervention of its type, representing a new type of preventative medicine. At no time did the army or navy contribute to the discussions regarding the extension of the vaccination programme amongst civilians. However their absence was compensated by the views of civilian medical officers who actively supported an extension of a compulsory vaccination programme on the grounds that it was not only the moral duty of the state but the only way to ensure the ultimate safety and prosperity of the country.

In conclusion, it is therefore possible to present the early attempts to control Smallpox as an intentional way to control the worst excesses of what was one of the most destructive diseases known to affect humankind.278 The introduction of inoculation was an initiative which was championed in Britain through the very public endorsement by the Royal Society and the medical profession represented by the Royal College of Physicians of London. Very few other European countries showed the same commitment to a procedure which offset extensive risks to personal safety with protection, which in the best outcome, offered a less severe case of Smallpox. Moreover even in Britain, the dubious medical and moral status of inoculation certainly played a significant role in motivating men such as Jenner to

---

278 Fenner R Smallpox and its eradication (Geneva: WHO publications) 1988. Smallpox was officially classed as being globally eradicated in 1980
find a more effective form of protecting against the disease, which came in the form of using a prophylactic which became known as vaccination.\textsuperscript{279}

However, to date all histories have failed to acknowledge the true extent of the role played by the medical officers in both the army and the navy in the way they influenced the application and introduction of both inoculation and vaccination. What began as a response to government concerns to improve the state of health of troops in recognition of the value of protecting the asset of a trained and established body of men, became an opportunity for the same medical officers to establish their own voice of authority in what was essentially a civilian initiative. The control of Smallpox should therefore be seen as the point at which military and naval staff identified that preventative medicine was a viable option which they could implement and adapt in order to effectively protect those under their command.

For this to be achieved, medical staff increasingly identified the importance of proof and standardisation, if initiatives based on pathogenic control were to be adopted. The emphasis placed on early statistical analysis by men such as Jurin shows that civilian practitioners were equally aware of the need to develop an undisputed body of proof in relation to the use of inoculation, but were generally unable to collate such material. Consequently, the reports of medical officers such as Cleghorn were therefore welcomed by all medical practitioners, in terms of the way

\textsuperscript{279} Patrick Pead, \textit{Benjamin Jesty: Grandfather of Vaccination} (Chichester: Timefile, 2016). The debate regarding the true discovery of vaccination is now well established and acknowledges the considerable role played by Benjamin Jesty as discussed by Pead.
they used controlled groups to develop an understanding of the benefits and limitations of medical intervention which could be applied to wider populations.

The events surrounding the control of Smallpox were therefore representative of a collaboration between military and civilian medicine in recognition that preventative health was a universal benefit. Cleghorn’s early discussion of “public” utility\(^{280}\) should be seen in terms of realising that the distinction between the soldier and the citizen he was tasked with protecting was nowhere near as entrenched as one may consider. Brockelsby’s own interest in the militia also began an early debate regarding whether the rural idyll compared with the state of rapidly growing towns and cities really existed. Such was the value of these detailed studies in that they effectively called for questions to be raised not just in terms of the standard of future recruits, but how the same population would be able to meet the modernisation of the country and maintain the vast infrastructure required for Britain’s growing colonial aspirations. As will be seen in the following chapters, this discussion became increasingly pronounced, which ultimately gave medical officers in both armed forces, the confidence to contribute to questions relating to the safety and standard of health of the population at large. Moreover, by being active in this way, the same military professionals must be recognised as establishing the need for preventative health which was undoubtedly the antecedent to the Public Health movement of the nineteenth century.

\(^{280}\) Cleghorn, "Observations on the Epidemical Diseases in Minorca, from the Year 1744 to 1749." Preface p.x
Finally, the events surrounding inoculation and vaccination played a major role in not just physically imposing preventative health on both the military and civilian population but for the first time raised ethical questions relating to rights and responsibilities. What is significant is the way in which both military and naval staff were more aware of avoiding transgressions when it came to the rights of the individual than their civilian counterparts. Whilst tasked with protecting the rank and file, medical officers increasingly became aware of a paradox in relation to going beyond what was defined as acceptable in how soldiers and sailors were treated and the conditions in which they lived whilst fighting for King and country. For men such as Pringle, the eradication of dirt in an attempt to prevent the worst excesses of putrid fever did not lead to the same ethical questions as those faced by Monro and Dickson-Reide, despite being contemporaries. This acknowledgement of rights and responsibilities also motivated the same medical officers for definitive proof relating to the safety of preventative health innovations but in the absence of this being found, interventions such as vaccination which was considered to be safe, was given careful consideration regarding the introduction of compulsory use. The constant need by medical officers to identify the safest and most effective forms of military and naval medicine can therefore be said to help define it as a specialism in its own right. The requirements for this to also be successful increasingly lay in the type of training which medical officers received, most of which took place predominantly in the Scottish medical schools where a new model of medical theory and practice rejected centuries of traditional teaching in favour of a radically new approach. The early attempts by medical officers to understand ways of effectively controlling Smallpox were evidence of the success of such
innovation in the way they provided a structure to both the thinking and application of these new ideas. Whilst driven by a moral imperative to care for the soldiers and sailors under the command, the effectiveness of the achievements of the same medical officers relied heavily on the endorsement they received from the universities north of the border, where health was considered to be the rights and responsibility of the state and applicable to all sections of its society.
Chapter Three: The Scottish influence on the development of military and naval medicine

In this chapter the main discussion will begin by identifying the way in which the medical faculty in Edinburgh University evolved over the eighteenth century in ways which rejected the long established theory which was taught in English universities on the grounds that it was outdated and failed to transfer to the needs of the rapidly changing British society. This will follow with how this transferred to meeting the needs of the medical officers in relation to the emphasis placed on preserving the health of soldiers and sailors both in Britain and from a global perspective, and which was increasingly identified as the Scottish medical model. Lastly, the association which developed between the Medical Faculty in Edinburgh and the medical officers in both the army and navy will be analysed from the perspective of evidence taken by the Royal Commission which illustrated a highly complex situation and growing disquiet on the part of all parties. The outcome was acknowledgement on the part of the army that it had to replicate the move already taken by the navy and establish military medicine within the confines of military institutions. This also served to effectively diminish the power of the medical officers in terms of directly influencing civilian preventative health.

For centuries, disease had always been regarded as an inevitable aspect of life within the garrison and the fleet, and as such this was reflected in the relatively
lowly position held by military and naval doctors. Unlike surgeons, whose training was particularly aimed at dealing with wounds acquired on the battlefield, their more educated counterparts appeared poorly prepared to combat the vast array of illnesses which persisted in barracks and ports, targeting men who had been taken from the poorest section of society and as such were already suffering from the associated problems of malnutrition and poor health. This situation was exacerbated throughout the eighteenth century by increasing demands made on both the army and navy, with conflicts being fought over protracted periods and at increasing distances from Britain. This was typified by the strategic and highly valuable West Indies, where the brutal, unforgiving environment constantly showed itself to be highly detrimental for both the army and the navy. However, regardless of location, the massing together of men in armies, contributed to a staggering array of diseases, often made worse by the generally poor health of the ordinary foot soldier and the speed at which even the most organised camps would become a breeding ground for many different pathogens. The fact that it was Pringle who suggested the ordering of purpose built latrines away from the camps,

---

281 The status of medical officers only began to improve with the acknowledgement of rank which only appeared towards the end of the eighteenth century.
282 The distinction between surgeon and physician was generally based on the level of training and affiliation to a governing body. Surgeons did not receive university training as it was classed as a vocational skill. In 1745 they officially broke with the Barbers and established their own College of Surgeons.
283 One of the worst military defeats bought about through the high incidence of disease was the failure of Admiral Vernon in 1740 to take the small town of Carthagena in the Caribbean. Between in April of that year the fleet of 6,600 men was reduced to 3,200. This event was witnessed by Tobias Smollet who was a surgeon’s mate in the navy. The appalling conditions and experiences he witnessed also formed much of the background to his novel “Roderick Random” first published in 1748.
shows how late improvements were introduced with regards ensuring the most basic standards of hygiene within the British army.\textsuperscript{284}

The types of diseases which inflicted soldiers and sailors are well known due to the fact that they were discussed at length in the vast library of medical texts which were being written by serving staff from the mid seventeenth century onwards. These became more prolific throughout the eighteenth century, appearing both as texts as well as articles for the rapidly expanding popularity of journals.\textsuperscript{285} The most common diseases found in the armed forces were the infamous fevers and fluxes, which included Dysentery, Typhus, Typhoid Fever, Syphilis, Scurvy, Malaria and Smallpox, to name but a few. Without exception, they also known within the civilian population but often took on greater severity in the military and navy due to the particular situation. In the absence of scientific medicine, correct identification remained a considerable problem, hence the reliance on broad terms such as “fever and fluxes” which in reality covered a broad spectrum of diseases. As early as 1676, the English physician, Thomas Sydenham proposed that diseases should be classified according to their symptoms. Moreover, his early attempt to construct a “nosology” was significant in that it suggested that not only did each disease have a distinct identity, but this would also replicate itself in the same way regardless of the patient.\textsuperscript{286} This type of discussion was particularly welcomed by military and naval doctors in that it prepared the way for standardised treatment which was essential for treating large numbers of patients, as in the case of sick troops. The

\textsuperscript{284} Pringle became physician to the British army whilst stationed in Flanders in 1742
\textsuperscript{285} During the reign of George III alone there were twenty-six specific medical journals published on a regular basis
\textsuperscript{286} Thomas Sydenham, "The Whole Works of That Excellent Physician, Dr Thomas Sydenham," (1734).
significance of Sydenham’s views are evident in the many references made to him in subsequent military and naval literature. Pringle was one such advocate and cited Sydenham on sixty-eight occasions in his own work. However, it is interesting that Pringle personally failed to see the value of nosological classifications on the grounds that he believed that they prevented originality with regards innovative diagnosis.

However, the most significant problem facing all medical practitioners was understanding the initial cause of disease, as only then could effective treatment be applied. The domination of metaphysical ideology and the construction of systems had defined medical thinking from the end of the sixteenth century. Although this promoted extensive discussion relating to the nature of illness, it reliance on increasingly obtuse theoretical frameworks did little to alleviate the problems associated with poor health. Therefore by the eighteenth century there was an increasing awareness across the medical profession of the need to reject speculation and replace it with a more substantive and useful ideology when looking for the cause of illness. This was empiricism, which can be defined by a growing commitment to observation and experimentation, which adapted a distinct methodology. In an attempt to summarise what it involved, Gefland focuses on the

288 Craig, "Sir John Pringle Md, Early Scottish Enlightenment Thought and the Origins of Modern Military Medicine."
289 Since the earliest records medical practitioners have all attempted to provide a model by which the cause of disease was explained although the most referred to was that of Hippocrates and the Hippocratic Corpus.
290 Medical Empiricism and Philosophy of Human Nature in the 17th and 18th Centuries, (Leiden: Brill, 2014). Chapter I discusses this in depth from a British and European perspective
way empiricism “militated against physicians’ claims to comprehensive knowledge based essentially on scholarship, rather than experience...utilitarian, technical, specialized skills increasingly took precedence over knowledge of the classics.”

More recently, Lindeman has emphasised the extent to which empirics could also be defined by their call for more restraint in the application of drugs and treatments available at the time, on the grounds that they were at best ineffective and at worst dangerous, and by doing so championed their replacement with regimen and hygiene.

It is therefore understandable why many medical officers were increasingly attracted to empiricism, as it provided an ideal structure in terms of both theory and practice when establishing medical care which could be standardised and applied to large numbers. However, its adherents faced extensive opposition, particularly from those who retained a commitment to traditional ideologies.

Medical education in England was strictly controlled by the requirements of the Royal College of Physicians who remained the only licencing body which ensured professional advancement. This however, required a degree from one of the two universities, namely Oxford and Cambridge, who in turn were committed to delivering a scholastic based syllabus. To date, Weatherall remains the only historian whose work significantly adds to this particular discussion.

______________________________
292 Mary Lindeman, Medicine and Society in Early Modern Europe (Cambridge: Cambridge University Press, 1999). P.91
293 The Royal College of Physicians awarded the licentiate and fellowship, without which doctors were technically unable to practice. However, outside of London, it is possible that the influence of the Royal College was significantly reduced.
does not dispute that the study of ancient texts remained central to the medical curriculum, he argues that it is incorrect to state that the value of innovations such as clinical diagnosis, which lay at the heart of empiricism, was not lost on Cambridge professors, many of whom actively encouraged their students to also study at places such as Leiden, where in 1701 Boorhaave (1668-1738) had first introduced clinical diagnosis as part of the syllabus for medical students. What was far more intransigent was the restrictive religious entry requirement which excluded all students who were not Anglican, and were therefore forced to study medicine outside of England.

The development of the Scottish medical schools was therefore highly significant not just in the history of medical education, but in the way they facilitated the training of medical officers who in turn would be able to respond to finding ways of improving the treatment of British soldiers and sailors. Although the five universities had a long, well established history, the Scottish Enlightenment had been particularly influential in relation to enhancing the type and standard of university education. At the heart of this lay a very open rejection in terms of trying to emulate the scholastic academic model found in England, but instead focus on modern, relevant learning particularly in the promotion of science and commerce. In this environment of accountability and relevance, the Classics were taught, but alongside new subjects such as Chemistry, Geology, Botany, Midwifery, Economics, Geography to name but a few. All students were also expected to study

---

295 Ibid. p.10-11
296 Both these were considered to be fundamental in order to create a secure, economically viable Scottish nation which would take its place within its own right in dealings with England and the rest of the world.
a wide range of subjects in order to demonstrate a breadth of knowledge, which was considered as being most appropriate education for all students.

Scottish universities also became increasingly popular when war effectively closed much of Europe for many students at the end of the eighteenth century. In the decade 1790 to 1800 approximately 12,853 students enrolled in Edinburgh alone, of which 5,592 of these were in the medical faculty. The appeal for those wishing to study medicine went beyond being the only alternative option, but also was a result of a new, modern Medical Faculty in 1726, which modelled itself on facilities found in places such as Leiden. This commitment to innovation could be seen when Edinburgh’s Royal Infirmary opened in 1738. The idea was not only to provide hospital care for the people of the city but to help pay for its upkeep by allowing students’ access to patients in order to learn directly from clinical diagnosis, and for which they would be charged a regular fee. The benefits afforded by access to such innovative training, supported by a modern curriculum which included natural history, materia medica, anatomy and chemistry was quickly seen in the high standard of medicine available to Scottish graduates. Many also became adept specialists in a range of medical and surgical subjects which were offered through extra-mural classes, and taught by the leading names of the time. The Scottish medical model, as it soon became known, was soon associated with a standard of excellence and modernity. As the eminent Scottish physician John Gregory

---


298 This was due to the fact that many Scottish medical staff had trained in such places and therefore understood the importance of replication this back in Scotland.

299 This innovative idea had first been proposed at Leiden by Boerhaave who argued that students should not learn medicine from books alone but have direct access to patients.
acknowledged when defining the attributes of a good doctor, he emphasised to be “qualified for the practice of physic, a variety of branches of knowledge seemingly little connected are extremely necessary.”

The Medical Faculty in Edinburgh, followed by the other Scottish universities, successfully responded to this challenge, creating what Hamilton refers to as a “hybrid healer”, or what would be known today as a general practitioner. Moreover, the range of abilities the Scottish medical graduate could offer made them increasingly ideal candidates for the position of medical officers.

Despite the growing reputation of Scottish medical education, this did little in way of challenging the power of the Royal College of Physicians of London. It also soon became apparent that the absence of College accreditation did not stop Scottish graduates from finding employment in situations where professional status carried little precedence over actual ability. Whereas the title of “physician” was a prerequisite for those seeking advancement in a medical career based in the increasingly prestigious hospitals, for those who were prepared to take opportunities offered by the expanding social institutions appearing across Britain, such association carried little weight. Life was particularly challenging for this type of salaried doctor who often endured long hours, poor pay and low social status which prompted many to accept a commission in either the army or the

302 With the increase in dispensaries, workhouses, friendly societies, prisons etc. there was a growing need to employ salaried doctors who could administer to the needs of the poor associated with such places
Throughout the eighteenth century, both the army and the navy provided all medical staff with regular pay, leave, and increasing support through affiliated rank. Moreover, as seen from the accounts of the time, a military or naval career did not exclude the possibility of success as a civilian practitioner.

Whilst the Scottish medical syllabus therefore proved to be valuable in terms of the knowledge it provided, the universities north of the border, also played a pivotal role in developing a sense of duty in terms of the form and function of medicine. Originating with their formative European training, many of the early staff in Edinburgh and the other Scottish medical schools had been subject to new philosophies such as medical police. Although its origins can be traced back to the sixteenth century, its main proponent was Johan Peter Frank, a German doctor, who developed it in detail in his monumental work first printed in 1779. In general, medical police has failed to attract the research it merits by either social or medical historians, although the early work of Rosen, White and Carroll provide a highly informed analysis of this innovative health and social policy. Frank upheld that it was not only essential for a nation to maintain good health but in order for this to be achieved, it was the duty of the state to intervene in order to prevent illness at any stage in a person’s life. At the heart of Frank’s model of

---

303 Although medical staff were without the privileges of rank for much of the eighteenth century, there was a medical hierarchy which allowed progression, as well as regular pay, leave and the opportunity to return to civilian practice at times when the requirements of the army and navy permitted medical staff to go onto half pay.
304 Frank, "System Einer Vollstandigen Medicinischen."
308 Frank, "System Einer Vollstandigen Medicinischen." p.82
medical police was the importance placed on controlling the environment and the removal of causes of disease, which in turn would be constantly monitored and investigated, whilst being evaluated by statistical analysis.\(^{309}\)

The idea of implementing standardised, state imposed health regulation and the advantages it offered was endorsed by philosophers including Pufendorf, Leibniz and Wolf, who also addressed issues relating to how it impacted on moral rights and responsibilities.\(^{310}\) The appeal of Medical Police led to its introduction in countries such as Prussia, Sweden and Scotland which can in part be explained in terms of providing evidence of the country’s cultural and intellectual ties with Europe rather than with England.\(^{311}\) Medical police was therefore taught to students at Scottish universities as a model of what modern society should strive for and how it could be achieved. It was first introduced by Gershom Carmichael, a lecturer on moral philosophy at Glasgow, who in 1718 published an annotated version of Pufendorf’s “On the Duty of Man and Citizen”\(^{312}\) George Turnbull also encouraged his students to think experimentally, not only in relation to scientific issues but also when approaching moral problems. As a leading theologian and educationalist, his endorsement of medical police as a type of social intervention was significant in terms of its reputation in the University. \(^{313}\) Consequently it was

---

\(^{309}\) Carroll, "Medical Police and the History of Public Health." p.465


\(^{313}\) Craig, "Sir John Pringle Md, Early Scottish Enlightenment Thought and the Origins of Modern Military Medicine."
relatively straightforward for Medical Police to be an accepted part of the medical profession. Dr Andrew Duncan Sn. first introduced a course of lectures in 1795 on the importance of Medical Police in his role as Professor of the Institutes of Medicine a work he published for general readership six years later.\textsuperscript{314} He defined medical police as “the application of the principles deduced from the different branches of medical knowledge, for the promotion, preservation and restoration of general health.”\textsuperscript{315}

However, it was his son, Andrew Duncan (Jn.) who was granted the first joint Chair Medical Jurisprudence and Medical Police at Edinburgh in 1807. Whilst promoting the philosophy of Frank, he did not perceive the same level of need for direct state involvement and advocated private philanthropy with particular emphasis on the training of a medical profession to recognise the need to ensure health and well-being at all stages of life.\textsuperscript{316} He also argued that once doctors were trained in the principles of medical police, they were then well placed to advise civil authorities on the optimum way of preventing disease.\textsuperscript{317} There is no evidence of Duncan discussing this in a military context, possibly as he had no direct involvement with either the army or the navy. The fact that medical police noticeably became absorbed into medical jurisprudence, indicates that the subject was considered to be increasingly redundant in the universities, although by this time this constituent

\textsuperscript{314} Andrew Duncan, \textit{Heads of Lectures on Medical Jurisprudence and Medical Police} (Edinburgh: Adam Neill, 1801).
\textsuperscript{315} “A Short View of the Extent and Importance of Medical Jurisprudence, Considered as a Branch of Education,” ed. Edinburgh (1798).
\textsuperscript{316} White, “Medical Police and Politics: The Fate of John Robertson.” P.408
\textsuperscript{317} Duncan, \textit{Heads of Lectures on Medical Jurisprudence and Medical Police}. p.183
elements of medical police were being taught as an integral aspect of preventative health.

Medical graduates therefore left Scottish universities with a commitment to meeting a duty of care which went beyond the more traditional definition of medical professionalism. They were supported in this by a modern curriculum which promoted empirical methodologies. The one area which endorsed this approach to maintaining healthcare was in the army and navy. Scottish medical graduates were considered to be particularly suitable candidates for the role of medical officer and were often specifically targeted in times of particular shortage. This was seen when war broke out against Napoleon, and recruitment posters were attached to the gates of the University.\textsuperscript{318} It is interesting that the actual completion of a medical degree was not considered as being a necessary an entry requirement and recruiters would actively encouraged students to leave the university prematurely, in the belief that they had acquired sufficient training in whatever brief time they had attended. McGrigor recorded in his autobiography that recruitment posters offered the enticements of regular pay, permanent quarters and any costs reimbursed arising from the journey for an interview in London without specifying the need for a degree.\textsuperscript{319} The high number of commissioned medical officers who returned to study after a military career, suggests that a significant number chose to leave Edinburgh prematurely, tempted

\textsuperscript{318} James McGrigor, \textit{Medical Sketches.}
\textsuperscript{319} The Scalpel and the Sword. P.93
by the early career opportunities as a medical officer, as seen in the case of the naval surgeon, Thomas Trotter.320

In return for accepting a post in either of the armed forces, the military and naval hierarchy increasingly acknowledged the value of university education, particularly those such as Scotland. The military physician William Turnbull explained

In conducting the education of a naval Surgeon, it is perhaps of little consequence where his preliminary studies are entered upon. The schools of medicine are numerous, and the profession taught by many of the first abilities and experience in the healing art, both in the metropolis and in other situations of the empire. One advantage however attends a regular commencement of study at a university, namely that the student is there taught to entertain enlarged and scientific views of his subjects, which in the more confined situation of an inferior seminary, he has neither the opportunities to do, nor is he apt to imbibe them. It is for this reason that the University of Edinburgh has been so deservedly distinguished for the scientific acquirements of its medical pupils; and though in the metropolis, a great display of abilities prevails among the teachers, still the course of study is seldom so beneficial to the student from the want of that connexion among the different professional branches, which a university so happily possesses.321

Specialist training was therefore increasingly recognised as the only way forward if medical officers were looking to be successful in finding ways of maintaining the health of soldiers and sailors under their care. In addition to universities providing medical education the Admiralty endorsed the idea of vocational training within its two new naval hospitals at Stonehouse and Haslar. However despite their fame in terms of innovative hospital design, it appears that the extent of formal teaching in

both was minimal.\textsuperscript{322} When Thomas Trotter took up his post at Haslar in 1793, he was concerned by the significant lack of training taking place for naval medical staff and called for the hospital to become a teaching and research centre.\textsuperscript{323} Nevertheless, despite such shortcomings, the navy compared extremely favourably to the army when it came to providing relevant medical instruction in a hospital setting. This was only addressed with the creation of Netley Hospital in the latter half of the nineteenth century.

Therefore universities such as Edinburgh became increasingly important in meeting this type of training provision. Evidence of this can be found in two personal journals.\textsuperscript{324} The first belonged to Thomas Robertson, a naval surgeon from 1793 to 1828, which provides a very detailed account of the type of medical training he undertook. He enrolled at Edinburgh for the degree in medicine where he studied for four years, completing classes in Anatomy and Physiology with Alexander Monro, Chemistry, and the Practice of Medicine. He also recorded that he attended clinics at the Royal Infirmary where he would have learnt clinical diagnosis.\textsuperscript{325} In support of McGrigor’s own comments relating to incomplete studies, Robertson did not stay to finish his degree but applied to the navy as a surgeon’s mate. In 1796 he sought promotion to the rank of Surgeon. This required attendance at Surgeon’s Hall in London for examination by the Sick and Hurt Board. This included being

\textsuperscript{322} The Healing Arts. Health, Disease and Society in Europe 1500-1800, (Manchester: Manchester University Press, 2004), p.281
\textsuperscript{323} Vale, Physician to the Fleet: The Life and Times of Thomas Trotter 1760-1832. p.94
\textsuperscript{324} The journal of Ker is held in the National Library of Scotland whilst the papers of Robertson are recorded as being in a private collection which to date has not been located. It is therefore cited from the original article of W. Boog Watson.
tested on the work of contemporary doctors relating to the transmission of infectious diseases. Robertson was not only successful in his naval career, but also developed a personal interest in the effects of different climates and diet as possible factors in the cause of disease.  

The second journal was that of James Ker. He too studied in Edinburgh and also left without a degree, preferring to accept a post with the East India Company. Later he responded to a recruitment call for medical officers in the navy, having first passed the necessary examinations at Surgeons Hall. Ker’s journal is particularly useful in illustrating the attitude of the military examiners to the Scottish medical curriculum. It appears that Ker faced notable reticence from his examiners with what they saw as his lack of surgical experience. He had no London experience, in either a hospital or private anatomy school, and his evidence of attendance at the anatomy classes of Dr Monro in Edinburgh was initially taken as being insufficient. Although this was eventually accepted by the examiners, he recorded that their concern arose from the belief that Scottish anatomy relied too extensively on comparative anatomy. Ker’s achievements regarding the exam in medicine were far more promising. His examiner, Dr Hussack, physician to the Greenwich Hospital “examined me on Physick, and gave me a qualification, as I found afterwards, for first rate. He paid a good deal of respect to my Education at Edinburgh and observed that I had been bought up at the feet of Gamaliel.”

326 Ibid. P.147
327 Alexander Monro would later provide evidence to the commissioners enquiring into the state of Scottish education that he saw no need to treat military surgery as requiring any different skills to civilian surgery.
The written accounts of many medical officers in both the army and the navy throughout the eighteenth and early nineteenth centuries are testimony to some of the finest examples of empirical medicine of the age. Moreover, the influence of university education, particularly in Scotland, was certainly noted as being important in terms of providing these doctors with relevant professional theory and a commitment to preventative health. However, despite the acquisition and development of specialist knowledge, the level of improvement amongst the health of soldiers in particular showed limited improvement. Unlike the experience on board a ship, life in barracks was not without significant dangers. As Trotter and other naval surgeons acknowledged, ships crews remained relatively healthy whilst at sea, until such time they came into contact with civilian populations. However for soldiers confined in either temporary or permanent barracks, the problems of avoiding disease was far greater in terms of the level of interaction and the difficulty of maintaining a healthy environment due to the massing of large numbers of soldiers in a fixed environment.

As a result of these circumstances, the health of soldiers did not appear to significantly improve, and began to attract a new level of concern from all sections of society. In order to identify the cause of this major problem, a government enquiry was called in 1807 which tasked its commissioners with reviewing the

---

329 Robert Hamilton, "The Duties of a Regimental Surgeon Considered," (London: Johnson, 1787). This is one such example of the type of manual that showed the range of training required.

330 This relates particularly to diseases such as dysentery and many fevers, all of which maintained a high mortality rate.

331 Trotter, "Medicina Nautica."
existing medical provision within the army in order to find ways of translating this into successfully maintaining the health of troops.

The publication of the commissioners’ findings the following year was entitled the Fifth Report. To date, attention has focused on seeing this as a very public condemnation of the failings to the Army Medical Board. However, it plays a far greater role in terms of finally providing explanations as to why the health of troops continued to deteriorate despite the advances which were being simultaneously pursued by many medical officers. The findings also help in terms of providing an explanation as to why the mortality rate amongst troops continued to rise despite the fact that the military medical staff were committed to implementing an all-encompassing programme of preventative health.

In 1794 when Sir Lucas Pepys began his tenure as Physician-General, he did so without any prior military experience, yet was now solely responsible for the organisation of the Army Medical Board with regards equipment, organisation and staff. Moreover his intransient belief in the superiority of civilian medicine, can be said to have defined his time in office, to the point of creating a highly detrimental position for the Army Medical Board and all medical staff relying on its actions. He was not averse to acting against army Regulations, as seen in the way he openly acted in defiance of direct Orders from the Commander in Chief which stated that whilst it was preferable for physicians to have either an English medical

---


333 The post of Physician-General was regarded as being head of the AMB despite the fact that other staff were also members.

334 Cantlie, A History of the Army Medical Department, 2. This two-volume work remains one of the most detailed and accurate account of medical provision in the British army.
degree or hold the status of licentiate from the Royal College of Physicians, other suitable candidates should be considered. Pepys however openly opposed appointing staff who did not share traditional credentials, which prohibited all serving medical staff for being considered suitable for promotion. Pepys argued that education, that is, actual experience, did little in terms of providing such men with the necessary “knowledge of principles” which still defined the traditional English medical profession.

This very open discrimination against military candidates became a major concern of the commissioners, arguing that “there would have been a convenience in selecting them from amongst the Regimental and Staff Surgeons who possessed actual experience in Army medical practice, both home and abroad.” Nevertheless, it was Pepys’ decision to close Regimental hospitals and have all troops treated in large general hospitals which attracted the greatest condemnation. The Report argued that such places could not possibly accommodate the particular manners, habits and diseases that accompanied health problems in the army. They were also concerned by the fact that “the mortality which, whilst the sick remained with their regiments in the former year, had been trifling...became very great in the general hospital.” It was also agreed that general hospitals failed to meet the needs of the military because

---

337 Ibid. p.16
338 Ibid. p.16
339 Ibid. p.16
The Regimental Surgeon, and the Officers whose duty it is constantly to inspect the Hospitals, are previously acquainted with the habits and characters of the patients, and have a superior interest in keeping up the effective strength of their corps; and that the patients have a greater attention shown by them of those belonging to the same Regiment than they probably receive in a General Hospital, and that their cure is promoted by it: and it is also said, that diseases are often acquired in the General Hospital, in addition to those which the sick carry with them.\(^{340}\)

Discussions relating to the value of general hospitals and the very real danger posed by the civilian population, were not without a marked degree of controversy. Whilst McGrigor called for the reinstatement of the Regimental hospitals, men such as Edward Bancroft (1772-1842) a highly respected military and civilian physician at St Georges Hospital, London, argued for keeping general hospitals on the grounds that unlike the standard military institution “general hospitals are not only on a larger scale, but directed by medical officers of superior ranks and abilities; and therefore much may be learned in them, and in much less time than the regimental”.\(^{341}\)

Certainly, the number of military and naval medical officers accepting civilian posts had always been considered to be an advantage on the part of all concerned, and with the creation of more hospitals, their presence amongst civilian staff was not uncommon. In view of such uncertainties, the commissioners therefore chose not to insist on changes, though in order to improve the health of soldiers, they now called for specific training for medical officers in the army prior to their first posting. They suggested that this could take place in general hospitals or in military establishments such as the York Hospital, Chelsea where newly trained medical

\(^{340}\) Ibid. p. 16
staff could be instructed in the ways of army life and deliver more effective medical care for the troops placed under their care.342

It appeared that Pepys’ and the Army Medical Board had avoided irreparable damage following the 1807 Report, but any complacency was short-lived in light of the catastrophic events of 1809. The ill-fated Walcheren expedition saw over 4,000 British soldiers lost to disease compared to the 106 who were killed in battle.343 The initial decision to send British troops into the Scheldt failed to receive endorsement on the part of either the army or the navy. The timing, environment and poor climatic conditions meant that despite British troops arriving on 28th July 1809, by mid-August it was agreed that Britain should withdraw as it became increasingly obvious that none of the military objectives could be achieved.344 Moreover, plans to send troops back to Britain were delayed due to poor planning which led to the full contingent being in the area when disease took hold in the British camp.345 The high mortality rates at Walcheren illustrate the reality that until the advent of scientific medicine, medical officers continued to be hampered by adverse conditions which negated any progress they may have made.

A British disaster on this scale initiated a demand from the opposition for nothing less than a House of Commons Enquiry which took place in 1810. Despite accusations relating to the failure of the Amy Medical Board to protect troops from the worst excesses of disease, the members appeared to be exonerated by proving

343 Cantlie, A History of the Army Medical Department, 2. P.395
345 Ibid. p.33
that the call for additional medical aid had arrived too late and was yet another example of general poor planning. \(^346\) However, as Kelly has shown in her extensive study of these events, the reality of the situation with regards the status of the Army Medical Board had long been under question.\(^347\) Following a series of parliamentary reports and an often vitriolic pamphlet war were undertaken and the all-powerful Army Medical Board was unceremoniously disbanded in order to be replaced by what was hoped to be a more effective, modern structure.\(^348\)

Whilst these reforms appeared to address the problems of efficient medical administration, the questions relating to the continuing need of developing specialist training in military medicine remained unanswered at official levels. The idea of creating one school of military surgery had first been proposed in 1798 by the Edinburgh-trained naval surgeon John Bell, who presented the idea to Earl Spencer, First Lord of the Admiralty.\(^349\) When he failed to receive the expected response, Bell chose to publish both his concerns regarding the state of military and naval care, along with plans for improvement.\(^350\) His objective was to create a school, under the auspices of a university, which would train specialist military and naval medical staff, and thereby ensure Britain’s status in terms of national security and commercial viability. Bell understood the importance of presenting military medicine as a specialism which would ultimately silence opposition. He therefore

\(^{346}\) Ibid. p.33
\(^{347}\) Ibid. p.49
\(^{350}\) "Memorial Concerning the Present State of Military and Naval Surgery. Addressed Several Years Ago the the Right Honourable Earl Spencer, Firts Lord of the Admiralty; and Now Submitted to the Public," 1800.
produced a detailed syllabus which centered on promoting preventative health as the only effective way to limit the worst excesses of disease across all sections of society. Bell suggested that all training should take place in a specialist building, with dissection rooms, library, access to clinical training in a nearby hospital, but still be placed in the midst of a civilian university in order to ensure the sharing of teaching and learning to the benefit of all. Despite the extensive detail contained in the work, Spencer unsurprisingly chose to remain silent. With all expenditures being directed towards ensuring a British victory in the war with France, innovation on this scale would have stood little chance of success. However Bell continued to look for support, emphasising the poor standards of British military medical training compared to the situation in Europe, which, he argued led to far stronger armies.351

Although Bell continued to be unsuccessful in gaining support for his military school, there was a growing acknowledgement of the need for additional training particularly in light of the continued problem of high morbidity and mortality rates among troops and sailors. Robert Jackson, who was an outspoken critic of the present state of military medicine, also suggested the creation of a training school, which was to be based either in London or on the Isle of Wight.352 Despite generating considerable interest, no sustained investment was forthcoming and both plans were forgotten. However with the renewal of hostilities against Napoleon, questions relating to the care and suitable provision of sick and injured

351 Ibid.
352 Robert Jackson, "An Outline of the History and Cure of Fever, Epidemics and Contagion, More Especially of Jails, Ships and Hospitals and the Yellow Fever. With the Observations on Military Discipline and Economy, and a Scheme of Medical Arrangements for Armies.," (Edinburgh1798). His rationale for London was the proximity of hospitals whilst the Isle of Wight was frequently used as a point of entry into the country for sick and injured troops as well as prisoners of war.
troops both on the field and back in Britain were once again raised as a priority. In 1803 the Town Council in Edinburgh duly responded to such concerns by proposing a plan for the construction of a specialist military hospital in the city.\textsuperscript{353} A local surgeon, Dr John Thomson, had already been requested by his patron, General Sir Thomas Maitland, to deliver a course of lectures for additional training on all aspects of military surgery and medicine which he gave at the university over the winter of 1803. In his biography it is claimed that due to the lack of adequate material which existed in Britain on these subjects, Thomson was forced to find authoritative material from French and German authors which he translated.\textsuperscript{354} He also believed that these lectures should remain accessible to Edinburgh students as they had little opportunity to travel to London for the additional training they would need once they had been called up to serve as medical officers in the army and navy.\textsuperscript{355} Thomson also took the decision to send the contents of these lectures as a prospectus to the army Surgeon General Thomas Keate. It is unlikely that any promise of endorsement was forthcoming and Thomson had to wait for a suitable opportunity to once again produce his plans. This appeared in 1806 when a change in government saw him successfully be granted permission to be made Regius Professor of Military Surgery at the University of Edinburgh. The army however chose not to endorse this new development.

Although Thomson regarded this as a significant achievement for the training of military staff, the response from Edinburgh University was far from favourable.

\textsuperscript{353} Edinburgh had long been home to a garrison for the army and was also considered to be vulnerable from the point of being a possible target by an invading army.

\textsuperscript{354} Anon., \textit{Biographical Notice of John Thomson, Md, Frs&F} (Edinburgh: Blackwood, 1859). P.22

\textsuperscript{355} Ibid. p.22
Despite this being the first time that military medicine was to be taught as a discreet subject in a British university, the Medical Faculty announced that their position had not been taken into consideration and refused Thomson access to the teaching rooms.  

There was also a general feeling of disquiet amongst many university staff that it would have been preferable to create a new Chair in Surgery where both military and civilian needs could be addressed as a shared specialism. Despite this lack of support from the most influential groups, including colleagues at Surgeon’s Hall who noticed their exclusion in his plans, Thomson designed a course which he considered would provide the most relevant training to those students who enrolled. He also made a formal request that they should be given access to the military hospital in Edinburgh Castle in order to replicate the type of clinical training offered to civilian students in the Medical Faculty. The army rejected Thomson’s request as to be expected regarding a course that still held no official military status.

Nevertheless Thomson continued to promote his subject. In addition to teaching medicine and surgery he also emphasised the importance of understanding and implementing preventative health across both the military and civilian populations. Kaufman has found evidence that whilst the majority of Thompson’s students came from the army and navy, his course was open to civilian students, on the understanding that they may at some point pursue a commission. However the most important development which ensured that Thomson’s course remained a viable option within the university was official acknowledgement that students who

---

357 Ibid. p.69
opted for and completed this specialism could on completion, transfer back into the Faculty to continue with their medical degree. Thomson’s position was never secure due to his inability to find a permanent role within a more established Faculty, although he managed to remain in post until 1822. This was undoubtedly due to his genuine commitment to military medicine, along with the popularity he retained in Edinburgh through his support of town initiatives such as the New Town dispensary358. He also continued to request access to the military hospital which was again denied. In 1811 he also wrote directly to the Army Board informing them of his decision to include additional lectures on diseases specific to different countries.359

Thomson maintained a strong sense of commitment relating to the responsibilities of his role. Kaufman has estimated from various lecture records that after 1815 over two hundred and fifty students regularly attended his lectures.360 The fact that these were free to commissioned officers would have been a significant factor in their appeal, though the numbers remained significantly high and continued to attract civilian students.361 In 1816 Thomson was finally given access to the military hospital, having been made Surgeon to the Forces the previous year. However, orders were rapidly issued which restricted this to only those students already commissioned in the army.

---

358 This was officially opened in 1815
359 Anon., Biographical Notice of John Thomson, Md, Frsl&E. p.34
360 Kaufman, The Regius Chair of Military Surgery. P.69
361 Anon., Biographical Notice of John Thomson, Md, Frsl&E. p.42
Attempts have been made to evaluate the effectiveness of Thomson’s role in relation to creating a specialism in military medicine.\textsuperscript{362} Class lists which survive from this time show that servicing medical officers formed the minority of those students who attended and there is no existing primary evidence relating to how this training transferred into directly influencing the medical care of soldiers and sailors. The limited success of his endeavours may have been the reason why in 1822 Thomson chose to resign from his post.\textsuperscript{363} What is also significant is that his successor was appointed only eight days after his resignation, which suggested that the university authorities were already preparing for this decision.\textsuperscript{364} The appointment of George Ballingall as the second Professor of Military surgery was therefore announced without any opposition and who subsequently remained in post until 1855.

Unlike his predecessor, Ballingall’s appointment was left to the discretion of the University, which may account for the ease of the transition. However the continued presence of military medicine remained a contentious subject amongst other faculties. The university was also becoming increasingly frustrated by its lack of autonomy from the controlling influence of the all-powerful Town Council. The growing antagonism between the two bodies escalated to an unprecedented level, with allegations of ineptitude and mismanagement being made on both sides. In an attempt to find ways of gaining full independence, in 1824 the Senate initiated legal proceedings against the continuing right of the Town Council to influence academic

\textsuperscript{362} Kaufman, \textit{The Regius Chair of Military Surgery}. P.69-82
\textsuperscript{363} He claimed that this was on the grounds of poor health though he was hoping to be considered for the position as Professor of Physic.
\textsuperscript{364} Kaufman, \textit{The Regius Chair of Military Surgery}. p.113
affairs. Aware that this would not be given an impartial hearing in the Scottish court, the university directly petitioned the Home Secretary, Sir Robert Peel, requesting a Royal Commission to enquire into the validity of their concerns. Peel responded to this request and on 25th August 1826 a Royal Commission received official status to report into the state of university education in Edinburgh, though Peel quickly extended the powers of the commissioners to review each of the Scottish universities. The final report was published on 28th October 1830, in which the commissioners vindicated the grievances of the university and proposed the creation of a university court to oversee all academic affairs. However they also proposed far reaching reform throughout each Scottish university in response to what they saw as serious failings across all Faculties. Despite a first attempt to implement these reforms in 1836-37, the Scottish universities were not willing to replace their new found freedom with yet another form of centralised intervention, with the outcome that no significant changes were introduced in any Scottish university until forced to do so with the passing of the Universities (Scotland) Act, 1858.

The Report of 1830 has long been seen in terms of Edinburgh University establishing itself as an academic entity free from the politics of the all-powerful Town Council. However, it has yet to be studied from the perspective of being one of the most comprehensive official documents to assess the university’s

---

365 “Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George IV, July 23rd 1826; and Re-Appointed by His Majesty William IV, October 12th 1830. For Visiting the Universities of Scotland.”

366 *The Regius Chair of Military Surgery.* P.9 The Town Council in Edinburgh gained considerable power and influence throughout the eighteenth and early nineteenth centuries. In addition to overseeing the administrative needs of the city it also considered the university to be subject to its needs. This only came to an end in 1830.
relationship and effectiveness in terms of providing the additional training recognised as being essential for both naval and military Medical Officers. Evidence was presented by both Regius professors of military surgery, the recently retired Dr John Thompson and Dr George Ballingall along with the evidence of other relevant academic staff and military personnel. Thompson and Ballingall each provided a detailed account as to how the course in military surgery had progressed during their tenures. The form and function of the course was also discussed with other medical staff in an attempt to evaluate whether there were any real advantages in maintaining a separate Chair in Military Surgery in addition to those already established, most notably the Chair in Surgery. Adding weight to this discussion were the comments of Dr. William Pulteney Alison. His reputation in Edinburgh was seen to provide a sense of balance when discussing the affairs of the University as well as the needs to facilitate innovation, particularly in relation to medicine. It is in keeping with Alison’s reputation that he acknowledged that for a specialist course such as Military Surgery, it was important to have a status within the main body of the university.367

The commissioners also permitted the inclusion of evidence from both Sir James McGrigor and Sir William Burnett, the respective heads of the Army and Navy Medical Boards. Whilst both men praised the Edinburgh experience in terms of the type of medical education being offered, they resisted using the Royal Commission

---

367 At the time of the Royal Commission, Alison had already held the Chair in Medical Jurisprudence (1820-1821) and was currently Professor of the Institutes of Medicine which he held from 1822-1842. From 1842-1856 he also held the Chair of the Theory of Physic. He served as President of the Medico-Chirurgical Society of Edinburgh in 1833 and was President of the Royal College of Physicians of Edinburgh from 1836-1838. Alison was also regarded as a social reformer and opposed the ideas of Chadwick in implementing preventative health measures on the grounds that they failed to address in depth the causation existing between poverty and disease.
as an opportunity to formally make a case for the training of military medical officers within a civilian, academic setting. Within the context of the time, the relationship between the civilian population and the military was increasingly under strain and both forces were keen to promote a level of autonomy in designing and delivering their own particular requirements in terms of medical intervention. However, when the commissioners interviewed university staff in relation to their own subjects and initiatives such as the Chair in Military Medicine, its presence along with that of commissioned students led to a generally favourable response, with no evidence of anti-military feelings.

Any discreet attempts by the army and navy to promote Edinburgh as an ideal location in which to train was also recognised as being superfluous, as the diversity of courses offered by Edinburgh University became an attraction in themselves to those considering a military career. When Alison gave evidence regarding the type of education being offered to the undergraduate body, it is interesting that he felt justified in citing the Army Regulations for the Promotion of Officers (1824) where it outlined that suitable candidates were those offering a liberal education with an emphasis on science and professional experience – something which clearly Edinburgh was in a strong position to offer. Alison himself, whilst never entering into military medicine, also felt compelled to offer his support in ensuring the continued success of the Military Surgery Chair. He not only referred to the recommendations of men such as McGrigor but when questioned by the commissioners, openly supported the concept of having a medical military specialism which he felt would not be adequately covered if it were to be absorbed into the courses being offered in general surgery. Alison also considered the skills
and knowledge of military surgery to be such that it would benefit all medical students to participate in the course.  

When it came to assessing the impact of the new specialist Chair in Military Surgery, the commissioners also had the advantage of being able to interview both incumbents. Dr John Thompson took the opportunity to finally make public what had led to his own resignation, which he said was caused by the reluctance of the university to establish the necessary facilities his specialism required, despite the credibility it bought to the university from both the Army and Navy Boards. This included a failure to provide the specialist teaching rooms he had been promised by the Senate and which forced him to move many of his classes back into Surgeons Hall. Reading the evidence of both Thompson and Ballingall, it becomes apparent that whilst the military and naval medical officers who graduated from Edinburgh were at the forefront of implementing vast changes in preventative medicine, the actual role played by the university in these achievements was far less significant than is generally acknowledged. The Senate remained firmly under the control of established professors such as Dr Monro who openly spoke of his opposition to creating a specialism in military medicine, arguing that all its requirements could be met within general surgery classes. His antipathy towards

---

368 “Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George IV, July 23rd 1826; and Re-Appointment by His Majesty William IV, October 12th 1830. For Visiting the Universities of Scotland.” p 207
369 Ibid.p.470
370 Ibid.p.475
371 The Monro dynasty continued to control the teaching of surgery across all of Edinburgh’s educational institutions.
372 “Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George IV, July 23rd 1826; and Re-Appointment by His Majesty William IV, October 12th 1830. For Visiting the Universities of Scotland.” p.274
a military specialism also led him to refuse requests to extend his own surgical course of four and a half months to a period of six months, which was necessary in order to meet both the army and navy’s criteria regarding length of study.\textsuperscript{373} This type of very open intransigence led the commissioners to question why the university was not prepared to impose changes regarding length of study in order to comply with the needs of military students. In response, the Senate explained that should these changes be implemented, then Edinburgh University could be seen as creating a monopoly with regards the training of military medical officers and also impinge on the livelihood of the private schools which provided the necessary additional training currently being used.\textsuperscript{374}

From such a response, it is fair to suggest that the Senate was not prepared to increase or formalise the military association. The final Report of the Royal Commission provides two explanations as to why this happened. In the first place the course on military surgery was highly innovative for its time, but there were inconsistencies in terms of its relevance to the military challenges of the day. When Ballingall gave evidence he considered that there had been concerns regarding his predecessor’s tenure arising from his personal lack of military training with the consequence that it did not always receive favourable evaluation from those in attendance. Considering the fact that during the early years of it being taught, Britain was at war, Ballingall was openly critical arguing that it

\textsuperscript{373} Both the army and navy required surgeons to have completed two courses in surgery, one of which had to be six months in duration.

\textsuperscript{374} “Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George Iv, July 23rd 1826; and Re-Appointed by His Majesty William Iv, October 12th 1830. For Visiting the Universities of Scotland.” P249.
was not conducted during the war in such a way as to give it the status and consideration in the public opinion, to which I conceive it is entitled. Had Dr. Thomson been bred a Military Surgeon, and had he devoted the energies of his mind to that class alone, I think it would have held a different rank in the public estimation and in the university, from what it now does.\textsuperscript{375}

Thomson did not attempt to conceal his lack of relevant experience to the commissioners, though he reminded them that his courses had elicited praise from the military boards.\textsuperscript{376} He also credited Ballingall with making the necessary changes to develop a direct relevance, particularly with regards the emphasis placed on aspects such as “Diseases of Warm Climates”, an area which continue to be increasingly needed in view of the military support of colonial expansion.\textsuperscript{377}

The second concern raised by the commissioners centered on the nature of training received by medical students at Edinburgh in terms of its long term relevance to contemporary military and naval challenges. Both McGrigor and Burnett acknowledged Edinburgh as being the first medical school in Europe. Burnett added

for several years past it has been my duty... to examine candidates for admission into the Medical Department of the Navy, and all they are all young men of superior medical education, I can with the utmost truth declare, that those young gentlemen who have obtained the Degree of MD at the University of Edinburgh, are by far the best informed in their profession of any I have met with...\textsuperscript{378}

Whilst Burnett’s praise was genuine, he also made it clear that this referred to young medical officers at the start of their military career. For those aiming for promotion to the senior ranks, the initial education offered in Edinburgh was

\textsuperscript{375} Ibid. p.329  
\textsuperscript{376} Ibid.p.470  
\textsuperscript{377} Ibid. p.470  
\textsuperscript{378} Ibid. p.192
insufficient to meet the range, depth and time of training the Commissioning Boards now demanded.\textsuperscript{379} This approach allowed the army and the navy to argue for the control and training of their own officers, without damaging the reputation of the Scottish medical model which had up till then had been so influential in promoting an ideology and epistemology which produced some of the most influential medical texts of the age. The innovation which had been so closely associated with Scottish medical training was now firmly recognised as good practice. Moreover it was being replicated in the new type of Medical Schools appearing in England which were affiliated with hospitals rather than with academia. Allison supported this evolution of needs, acknowledging that whilst the breadth of diverse scientific knowledge accessible for civilian and military medical students alike made them better medical practitioners, the fact remained that this did not directly help in finding a way of overcoming the university experience and the specific requirements of the Promotion Boards of both the army and the navy.\textsuperscript{380}

Edinburgh University was not adverse to what this ultimately meant in terms of drawing to a close their formal military and naval connections. Allison was representing the views of the Senate when he stated that the findings of the Royal Commission would hopefully allow Edinburgh to remodel itself with a more

\textsuperscript{379} The Promotions Board not only required the Diploma from the Royal College of Surgeons (be it London, Dublin or Edinburgh), two years hospital experience, and courses in anatomy of eighteen months, practical anatomy of twelve months, chemistry of six months, materia medica of three months, botany of three months, surgery of six months, theory of medicine and physic of six months and practice of medicine of six months.

\textsuperscript{380} “Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George Iv, July 23rd 1826; and Re-Appointed by His Majesty William Iv, October 12th 1830. For Visiting the Universities of Scotland.” P.248
traditional model of education, which required greater conformity with English universities, rather than continuing long established continental associations. Only then, it was argued, would Scottish degrees be able to offer graduates the chance to compete for careers in all professions within Britain. Allison also announced what he foresaw as an end to the military association when he announced

the situation of the gentlemen at the head of the Medical Army Board, in regard to young men under them, is very different from our situation in regard to our graduates; for they have not only their education, but also the promotion of the young men in their power; whereas we have their education, but not in the least their advancement in the world under our control; and it seems to me that this is the chief error committed by those who recommend to us so strongly, additional literary and scientific qualifications for our graduates. They argue as if we had in our power, at the same time, the advancement in the world and their education in the university. Their advancement in the world is no further in our power than as the regulations, which we lay down for their studies, correspond to the general demands of the public in regard to the education of the higher class of medical men.381

Despite the relevance of Allison’s views and in a move unexpected by all, the commissioners declared that not only could they find no reason for the military association not to be maintained in Edinburgh University but also promoted that it should be put on a more formal basis. Furthermore, they recommended that the university might look at ways of developing the existing medical curriculum in order for it to meet the more rigorous needs of the army and the navy.382 They also proposed that just as the military medical staff required specific training in areas such as Practical Chemistry, Surgery, Practice and Theory of Medicine, Mathematics and Natural Philosophy, such subjects might also prove to be beneficial to students in the Medical Faculty, and as such should become part of the existing medical

381 Ibid. p.248
382 Ibid. p.61
curriculum. This was an unexpected and unwelcomed criticism of both the standard of teaching and the quality of medical practitioners who to date had graduated with an Edinburgh M.D.\textsuperscript{383}

The concerns raised by the commissioners relating to the quality of teaching and learning in the most established subjects, including Medicine, had never been expected and caused great concern. In their final Report the commissioners reported on what they had found, and highlighted that the standard of teaching was far worse than had been expected. The implications of the Royal Commission findings were a significant setback for all Scottish universities and it would take many years for them to respond and introduce reforms which would allow them to offer a standard of education which matched other universities. With regards to the Faculty of Medicine the number of students fell considerably, especially with the reopening of the Paris teaching hospitals after the defeat of Napoleon and the reopening of Europe. In the case of the military and naval connection with the university, despite the findings of the commissioners, no further attempts were made to continue military medicine and with the death of Ballingall in 1855, the Chair of Military Medicine was left unfilled. Initially Peel made it known that it was his intention to appoint a third professor and in 1857 the Edinburgh Medical Journal announced that Surgeon-Major Matthew would be accepting the position. For unknown reasons this never occurred, which encouraged Dr T.A Wise to present himself as a suitable candidate. Despite possessing genuine credentials, his excessive enthusiasm for the post led to him privately publishing a book containing

\textsuperscript{383} Ibid. p.61
twenty-two testimonials he had collected endorsing his surgical skills. Not surprisingly his application was unsuccessful and both the military authorities and the Senate took the continued vacancy as an opportunity to effectively remove the Chair of Military Surgery by default.\textsuperscript{384} In order to ensure that this would permanently be removed from Edinburgh, James Syme, Professor of Clinical Surgery, wrote in person to Lord Panmure demanding the removal of any future government funding, fully aware that the Senate would rigorously oppose any suggestion that they take over the funding of the Chair. Although Syme\textsuperscript{385} led an extremely vociferous campaign to have the Chair of Military Surgery permanently removed from Edinburgh, far greater damage regarding its reputation had been done through the actions of Ballingall in person. In an attempt to apportion blame for the failings of the Army Medical Department during the Crimea, Ballingall was cited, though much of it posthumously, as being responsible for the medical situation being so bad. He had certainly played a prominent administrative role in the Army Medical Department for much of the war, and with the publication of a new military handbook on the construction of hospitals, was considered to be an expert in preventative health.\textsuperscript{386} His death in December 1855 meant he was never able to respond to these allegations and the magnitude of the problems facing the British army in the Crimea was such that it was not so much due to the failings of an individual but was the result of an outdated system of medical care. However, the

\textsuperscript{384} T.A Wise, \textit{Testimonies in Favour of T.A.Wise: Candidate for the Chair of Military Studies in the University of Edinburgh} (Edinburgh: Murray & Gibb, 1855).

\textsuperscript{385} James Syme held the Chair of Clinical Surgery for thirty-six years at Edinburgh and was one of the most influential surgeons of the age.

association was not seen as anything other than damaging to the university and undoubtedly played a role in finally ending the military association. For the army, the losses in the Crimea were of even greater significance in terms of effectively removing its considerable history in initiating and implementing preventative health from the public conscience.

In terms of retaining and developing a commitment to preventative health, both the army and the navy responded positively to replacing the formal association with Edinburgh by focusing on developing their own centres of training. Despite questions being raised over the standard of medical education in the 1820s, the early years had unquestionably produced a highly effective cadre of medical officers who benefitted from the Scottish medical model, evident in both the changes they attempted to bring to the health of soldiers and sailors and the continued belief in promoting change across all sections of society. It is also important to add that during the late eighteenth and early nineteenth centuries over eighty percent of the medical graduates who accepted a medical commission had already received a degree from a Scottish university and at least half of these were from Edinburgh. Therefore, from a quantifiable perspective alone the influence of Scottish education was immense. It is important to add that the same universities continued to produce medical graduates who were attracted to a military or naval career, and as such ensured that the reputation attached to the Scottish model of medical education did not disappear. However, in both the army and the navy, greater emphasis increasingly being placed on developing their own type of specific

---

387 Kaufman, The Regius Chair of Military Surgery. P.224
training in order to enhance the abilities of their commissioned medical officers. To this end, the Admiralty finally responded to the earlier suggestions of Trotter and developed Haslar both as a hospital and as a training institution with its own library and museum, and in doing so, made the Edinburgh experience redundant. The situation in the army was more ambiguous. Despite the increasing number of military hospitals and an extensive series of reforms instigated by men such as McGrigor, little could be centralised in terms of training until the completion of Netley Hospital in 1863. 388 However prior to its opening, the army, unlike the navy, did attempt in 1851 to once again establish a Chair in Military Surgery, though this time in Dublin. On this occasion it was awarded to Dr Thomas Joliffe Tufnell who had established his reputation as an army surgeon at Chatham. In Dublin he taught a series of lectures on military surgery which were officially recognised by the army. However despite the popularity of the courses, his appointment was ended in 1860, in view of the plan to centralise all training in Netley. 389

The legacy of Scotland in relation to military and naval understanding of preventative health has for too long failed to attract the level of discussion it warrants. As seen from this chapter it provided not only a model of medical theory and practice which was prepared to overthrow centuries of traditional dogma, but also provided the moral imperative to do so. At its heart was an early form of egalitarian concept of good health for all which found a way to overcome the constraints of the medical establishment, fiercely endorsed by the Royal Colleges. Scottish medicine was therefore unique in Britain, although it had recourse to the

388 Philip Hoare, Spike Island. The Memory of a Military Hospital (London: Fourth Estate, 2002). P.110
389 Cantlie, A History of the Army Medical Department, 2. P.435
continental universities it sought to emulate. In many ways its achievements are easier to identify within the civilian world of the late eighteenth and early nineteenth centuries. The candidates for all public medical positions, other than the most privileged practices, all tended to be filled by the well-trained though poorly paid Scottish trained graduates. The same can be said of the first generation doctors who implemented the public health and sanitary movement of the mid nineteenth century, acutely aware of the growing dangers posed by urbanisation and industrialisation. However were it not for the precedent set earlier by their military and naval counterparts who extended the concept of duty of care and established an ideology and experimental structure to prove the association between environment, contagion and physical well-being, preventative health would not have been such an established indication of a civilised state.
Chapter Four: The role of military and naval medical officers in the development of quantifiable evidence.

Following on from the discussion regarding the developments which took place in the Scottish medical schools and the way they defined military and naval medicine as a discreet specialism, this chapter will focus on illustrating how quantifiable evidence became increasingly important in terms of providing incontrovertible proof that advances in preventing disease were taking place. In addition to establishing what was meant by quantifiable analysis in an age prior to the appearance of modern statistics, there will also be a review of how this supported the call for an end to theoretical medical tradition, to be replaced by a methodology with the aim of using empiricism and observation to prove the value of a more modern approach. The third aspect of the chapter will be a study of eighteenth and early nineteenth century medical officers who used their postings to show in controlled settings the value of recording data which could be studied with the aim of identifying the greatest threats to all sections of society. Lastly, this material will be discussed in relation to how military and naval medical officers used quantifiable evidence to support their call for applying preventative health measures as a universal way of improving the health of the population and thereby ensuring the status of the country both in terms of its military commitments and plans for economic growth both in Britain and as a world power.

In Britain, the idea that progress in matters of health could be measured and assessed in the form of quantifiable evidence can be traced back to the
seventeenth century when John Graunt developed the concept of “political arithmetic”, outlined in his work of 1652.\textsuperscript{390} Although his interests were mercantile, he recognised the importance of collecting accurate demographic information from Bills of Mortality in order to assess whether Britain’s economic and military status could be assured, according to the state of the population at any given time.\textsuperscript{391} This idea of the need to protect all sections of society through long term investment was further developed William Petty, an army physician and contemporary of Graunt.\textsuperscript{392} He also argued that political arithmetic could be used to identify the most effective ways of introducing improvements regarding the conditions in which people lived.\textsuperscript{393} The most cited example of this was the way in which Petty used a basic calculation to show how the cost incurred in raising a child to adulthood made the monies spent on preventing plague was a viable form of investment by the state.\textsuperscript{394} Such innovative rationalised thinking certainly arose through his own commitment to Baconian thought which even allowed Petty to argue the case that preventative health was not only economically viable but also a moral duty of the modern, developing state.\textsuperscript{395}

Political arithmetic, as developed by Graunt and Petty, also played a major role in terms of giving individuals a common, standardised value. As Porter claims, society

\textsuperscript{390} John Graunt, \textit{Natural and Political Observations Made Upon the Bills of Mortality}.  
\textsuperscript{391} Ibid. p.62. Graunt estimated that there were 81,233 adult males in London who were in a position to take up arms.  
\textsuperscript{392} In 1652 Petty was promoted to the rank of Physician-General to Cromwell’s army in Ireland.  
\textsuperscript{393} James H Ullmer, “The Scientific Method of Sir William Petty,” \textit{Erasmus Journal for Philosophy and Economics} 4, no. 2 (2011). Ullmer supports the view that petty was greatly influenced in his thinking by both Bacon and Hobbes.  
up to this time had largely been constructed in terms of estates. Whilst this gave individuals a sense of place, it did not permit them to be seen as individuals and therefore limited the type of improvements which were regarded as suitable. However, from its earliest days, political arithmetic challenged this archaic view by placing emphasis on common value, rather than an association with one’s station in life. Such a fundamental change in relation to allocating a “worth” to an individual was part of the transition needed if Britain was to maintain and develop its military, economic and colonial status as a modern world power.

Throughout the eighteenth century there was therefore a shift in how all individuals were perceived, regardless of class or status, in relation to a measurable set of criteria, many of which were perceived to be increasingly important. In such an atmosphere of change, preventative health also took on a new sense of worth, not only in terms of altruistic intervention, but also in the way it increasingly identified itself with maintaining the health of populations who were identified as being a highly valuable commodity.

Petty is also significant in terms of being the first British army doctor who began to move away from merely treating the all too common diseases found amongst troops towards recognising the advantages of identifying cause in the hope of preventing its occurrence. Whilst stationed in Dublin, he therefore began to look specifically at the effects of climate and environment in order to see if there was any correlation with the types of illnesses frequently found amongst the troops.

---

397 Petty, ” Observations Upon the Dublin Bills of Mortality London “.
Despite its immense strategic importance, the conditions in the Dublin barracks were amongst some of the worst in the British army. Petty used his position to make the first official medical records to establish evidence of a connection with the conditions in which soldiers lived, and the high incidence of disease. Moreover, he was also the first physician to raise concern regarding the potential danger posed by disease not only in terms of physical well-being but also in the way it could be detrimental to a man’s general character. Petty argued

> For as much as Men, who are in a decaying condition, or who have but an ill opinion of their own concernments, instead of being (as some think) the more industrious to resist the Evils they apprehend, do contrariwise become the more languid and ineffectual in all their Endeavours, neither caring to attempt or prosecute even the probable means of their relief.  

The views of Petty were therefore significant in establishing what can be argued as being an early model of preventative health. He not only identified how malignant external forces were responsible for sickness, but also outlined a moral argument for direct intervention by those in a position to bring about change for the good of all.

However, despite the validity of Petty’s work, the idea that disease could be attributed to poor living conditions received no further attention. In a time prior to the certainties of scientific medicine, the need to try to understand both the cause of disease and the way it affected the human body led to the dominance of

---

398 The barracks in Dublin were the first purpose built structure aimed at housing British troops and replacing the common practice of billeting soldiers in local settlements.

399 Petty, "Observations Upon the Dublin Bills of Mortality London". p.78

many medical theories, and consequently this was viewed as being just one more example. Trohler argues that in the case of Petty, his own views on the importance of acknowledging climate and environment was rendered ineffective by the popularity of iatromathematics. Those physicians who defined themselves as followers of this particular school of thought were representative of a new way of thinking which challenged centuries of Hippocratic theory. Instead iatromathematics based its appeal on a rational, mechanical presentation, in keeping with Newtonian science. For this reason, the idea of what were then immeasurable concepts, such as climate and environment, found little appeal amongst those who became converts to a much more rational way of understanding the failings of the human body. Moreover, Petty’s own position as a medical officer carried little weight when set against the powerful academic medical practitioners who dominated and directed the theory and practice of medicine from their positions in the great European universities.

However, the idea that adverse factors such as the weather and inhospitable environments was not completely lost, due to the fact that one of the oldest, most deeply entrenched medical theories simultaneously underwent something of a revival. Galen’s non-natural model of illness and health had, for centuries, upheld the idea that illness was caused by six specific causes which could be broadly catagorised as physiological, psychological and environmental. By the seventeenth century non-natural theories had long been part of the standard medical syllabus

401 Andrew Wear, Knowledge and Practice in English Medicine, 1550-1680 (Cambridge: CUP, 2000). P
402 Trohler, Quantification in British Medicine and Surgery 1750-1830, with Special Reference to Its Introduction into Therapeutics, Doctor of Philosophy. P.20
found across much of Europe, but by the early eighteenth century were also attracting a level of revisionist interest. This can be seen in work such as that of the English physician George Cheyne (1671-1743). 403 He reiterated the importance of preventing illness rather than trying to cure it, which he outlined in his most popular work “An Essay of Health and Long Life.” 404 Cheyne took each of the familiar non-naturals to build a case for actively controlling malign influences acting on the body, with suggestions as to ways these could be removed or limited in order to preserve good health.

Although the work of Cheyne found considerable popular support, it did not present the non-natural model in anything other than the traditional paradigm, and as such limited its effectiveness in bringing about significant change. However, this was redressed in the work of Jean-Noël Hallé who held the Chair of Physique Médicale et de l’hygiène in the Faculty of Medicine in Paris. What was particularly important about his work was the way he purposefully chose to replace the traditional term “choses non naturalles” with a new term “matiere de hygiene”. 405 The significance of Halle’s action was that it not only created an association between the non-natural ideology and a new paradigm more familiarly known as “public health,” but also introduced the idea of civic duty when it came to removing the worst excesses in order to protect all of society.

The idea that health was both a controllable aspect of everyday life, and as such was the most important aim of all modern states, became increasingly common.

across much of eighteenth century Europe. In addition to Halle’s work in France, the earlier, highly ambitious plans of Rau for the creation of an early welfare state through medical police, were just two examples of a new, progressive attitude regarding the importance of implementing preventative health across all sections of society. In Britain, commitment to removing the worst excesses of poverty and destitution did not attract large state-endorsed schemes other than the early attempts to control Smallpox through the endorsement of inoculation. However if one takes examples which include the rise of the dispensary movement and the rapid growth of voluntary hospitals across the country, it would be incorrect to see Britain as altogether negligent in attempting to improve the daily existence for all members of society.406 The extent to which this facilitated any long-lasting improvement in everyday life has attracted very different interpretations ranging from the early, very positive image presented by George407 to the more sceptical discussion promoted by Le Fanu.408 More recently, Porter has shown a far greater diversity of healthcare available throughout the century, emphasising the importance of non-regulated provision which was widely used, even by those with access to trained doctors and physicians.409

However, no eighteenth century study to date has considered in any depth how these improvements were directly influenced by medical officers in both the army and the navy, as part of their commitment to implementing preventative health

across all sections of society. In particular, the most important contribution at this time was the way in which doctors in both armed forces used the century to develop a body of results based on a specifically empirical methodology which would endorse the case relating to the value of avoiding disease rather than attempting to treat it, often unsuccessfully. In an age prior to the certainties of scientific medicine, the realisation by medical officers of the need to create bodies of evidence to show the dangers of dirt and disease, was an essential part of the history of public health, which has also until now, been neglected, and by doing so, fails to provide an accurate understanding of its true origins.

The transition away from an unquestioning reliance on theoretical thinking towards an approach which sought to base decisions upon evidence which could be substantiated, was very much a feature of Enlightenment thought. 410 One of its earliest supporters was the German polymath and physician Gottfried Leibniz (1646-1716) who prioritised the importance of experimentation which should also be formalised through the acquisition of recorded evidence. In 1714 he described ways in which this could be transferred directly to understanding and eradicating the cause of disease

I would wish that greater attention were given to advances in practical Medicine, by distinguishing the simple hypothesis from the plausible conjecture, and the very likely conjecture from the factual certainty. But above all, that more attention were paid to making and recording observations 411

---

410 Porter, Enlightenment : Britain and the Creation of the Modern World. This is just one of the many works assessing the contribution to medical thinking which can be identified as being an outcome of the Enlightenment

As Rey has argued, the importance of such comments by Leibniz were highly significant in that they officially endorsed scientific experimentation and observation as the only way medical practice could advance beyond conjecture into the realms of actual practice.\textsuperscript{412} Such views, along with a growing commitment to empiricism, also provided those who were increasingly committed to proving preventative health to be an achievable target with the methodologies needed to finally establish their views as bone fide medical practice. However, the type of observations promoted by Leibniz could only take on any relevance if they took place within a defined and assessable context. Civilian societies were far from ideal as they were too diverse and generally unable to facilitate measurable experimentation. It was problems such as these which made military and naval populations far more appropriate in terms of being suitable for empirical studies, simply on the grounds that they were a fixed entity.

Nevertheless, one of the first attempts to quantifiably assess medical progress did take place in a civilian setting. The physician, Francis Clifton,\textsuperscript{413} published two highly influential books in which he outlined ways in which quantifiable evidence could be used to measure the results of new medical practise.\textsuperscript{414} The first text “Tabular Observations Recommended as the Plainest and Surest way of Practising and Improving Physick,”\textsuperscript{415} is far better known as it introduced the concept of recording data taken regularly from patients in a tabulated model. Clifton’s aim was to bring

\begin{footnotes}
\item[412] Medical Empiricism and Philosophy of Human Nature in the 17th and 18th Centuries. P.42-43
\item[413] Dates unknown
\item[414] Max Neuburger, “Francis Clifton and William Black. Eighteenth Century Critical Historians of Medicine," Journal of the History of Medicine and Allied Sciences 5 (1950). To date this remains one of the few pieces of research that has been completed on Clifton.
\item[415] Francis Clifton, "Tabular Observations Recommended, as the Plainest and Surest Way of Practising and Improving Physick," (London: Brindley, 1731).
\end{footnotes}
an end to archaic theories which he believed produced very little real medical progress, and replace them with detailed, factual summaries which would elucidate the true origin and nature of disease. To this end, he outlined the type of data which should be gathered, including information on type of disease and treatment, environmental factors and a range of personal facts, which would then be recorded on forms. To help with this process he provided sample forms which could be applied in a range of diverse settings as well as providing examples of how a completed entry should be presented.\textsuperscript{416} However it is only possible to understand the extent of Clifton’s radical ideas by looking at his second, much rarer publication, published in 1732. His text “The State of Physick, ancient and modern, briefly considered: with a plan for the improvement”\textsuperscript{417} was written as a companion piece to explain in detail the methodology and structure which should be implemented in order to collate this type of quantifiable material. Clifton advocated the employment of salaried hospital statisticians to collect data from patients, who at the end of each year “would publish these facts just as they are, leaving everyone to make the best use of ‘em (sic.) he can for himself.”\textsuperscript{418}

Clifton’s work was highly innovative, not just in the methods he devised but the way in which he saw medicine and its practitioners as needing to emerge from a background of privilege into a position whereby issues relating to healthcare were a shared concern by all. His sense of pragmatism provided a model in which illness and its causes could be organised in a way which all those committed to rational

\textsuperscript{416} Ibid. pp 43
\textsuperscript{418} Ibid. p.171
empiricism could also follow and adopt. His early death in Jamaica in 1734 remains unexplained although his legacy was assured by the way in which both military and civilian practitioners rapidly adopted the inclusion of tabulated material in their work. One of his most outspoken early supporters was the physician William Hillary (1699-1763) who argued

...the great Lord Verulam having soon after that, detailed and exploded the Errors of the Aristotelian Philosophy, and shewed Mankind the right Way to arrive at the Knowledge of Truth, especially in all Philosophical, and consequently in all medical Subjects, by the Means of accurate Observations, just Experiments, and true inductive Reasoning...

For Hillary, inductive reasoning was the future for medical theory and practice. Despite having a successful practice in England, he accepted a post in Barbados in 1752 aware of the unique opportunities it afforded him to study a range of different populations confined in one small area. In preparation for the type of evidence he was planning to collect, he took Fahrenheit’s mercurial thermometer, a barometer and a hygrometer with him in order to prove a direct correlation between weather and the outbreak of disease.

Although this was a civilian appointment, Hillary’s work extended to caring for soldiers and sailors stationed on the island. Due to the diverse groups he treated, his work became a valuable point of reference for all Europeans, military and otherwise, who were experiencing a tropical climate for the first time. Hillary

---

419 It appears that Clifton was forced to leave Britain under duress, though there is no existing evidence explaining why this was the case.
advocated that time should be taken to adopt to a new environment, arguing that the hot, humid climate encouraged the fibres in the body to break down and cause chemical changes which would then result in putrefaction. Hillary also introduced the term “torrid zone”\(^{422}\) which took on increasingly ominous significance throughout the century, especially in view of the fact that the mortality rate in such locations remained extremely high. Hillary’s claims that Europeans could eventually settle in such hostile areas, should be seen as highly significant in the wider context of affirming that Britain’s plans for colonial expansion, regardless of location, were achievable.

The first military medical officer to engage in empirical research similar to that of Hillary, was George Cleghorn (1716-1794).\(^{423}\) Having graduated from Edinburgh, he accepted a commission as Regimental Surgeon to the 22\(^{nd}\) Regiment of Foot who were stationed on the island of Minorca. As outlined in the Preface to his work, his major concern on first arriving was the apparent lack of existing medical knowledge regarding effective methods for the preservation of health for those troops under his care. He therefore began making a record of all factors which might affect the health of those living on the island in order to find the most appropriate treatment and whenever possible, avoid the initial point of contagion.\(^{424}\) What was particularly significant regarding the work of Cleghorn was his early understanding that the issues he experienced on one small island were directly transferable to

---

\(^{422}\) The Torrid Zone quickly became associated with climate and environment which was considered to be harmful to Europeans, both military and civilian.


civilian life back in Britain, particularly in relation to the use of empirical methods in order to identify the most pernicious causes of disease and poor health. He therefore argued

Would all who practice physic in our factories and colonies abroad embrace the opportunity which their situations affords, to make proper observations on the sick, and communicate them to the public, we should soon have a more exact and ample history of diseases, than we are yet possessed of; and future practitioners would be enabled to shun the dangers into which many have fallen, and to conduct those committed to their care through the disorders to which they are exposed, with satisfaction and honour to themselves, and no small benefit to their country.425

Cleghorn’s work, first published in 1751, attracted a wide audience and was quickly reprinted on a further four occasions, including a fifth German translation and a separate publication in America.426 The response to Cleghorn’s work was significant in that it showed exactly how commissioned medical officers were in a unique position to provide a level of expertise which their civilian counterparts could not so easily replicate. For the thirteen years he was stationed on Minorca, Cleghorn collated daily climatic data from which he constructed highly accurate thermometric tables.427 Although the information was basic and limited in relation to the variables he included, the material was sufficiently detailed to allow meteorological information to be standardised and comparative studies to be undertaken, reaffirming the danger certain weather and seasons posed to those who were unfamiliar with such extremes. As a military medical officer, he also had

425 Ibid. Preface pp ix-x
426 One of the specific features of medical texts written by medical officers of the time was the increasing tendency for these to have multiple reprints particularly in Europe. America was also a highly lucrative market especially as many doctors were trained in Scotland and understood the way in which the material was presented.
427 Cleghorn, “Observations on the Epidemical Diseases in Minorca, from the Year 1744 to 1749.”
access to the garrison where he studied the short and long term effects of those diseases most likely to affect troops, evaluating both old and new treatments, and implementing the latest treatments. However, as Cleghorn stated in his Preface, this medical progress meant very little unless it was transferred across all sections of society, military and civilian. Only in this context did he feel any information would truly benefit the nation by improving the general standard of living through closer attention to what constituted a danger to health.

Although Cleghorn is regarded as the first medical practitioner to acknowledge the impact of environmental forces on the human body, his work was soon replicated as standard practice across a variety of locations. This was due to the fact that many Scottish-trained medical practitioners were being taught to understand the importance of environment and meteorology as part of their medical education. As Alexander Monro (Primus) explained

> The Register of the Barometer, etc. will, we hope, not only be acceptable to all Lovers of natural Knowledge, but is absolutely necessary to be compared with the epidemical Constitution, in order to determine a Fact, concerning which two of the greatest and best Observations in Physick, Hippocrates and Sydenham, seem to differ; Hippocrates (a) appearing to assign the different manifest Constitutions of the Air as the causes of epidemick Diseases, and Sydenham (b) affirming such Diseases to depend on some undiscovered Quality of the Air, and not upon any of the sensible Changes in it.

With such importance being placed on collecting and collating this type of information, both military and medical text books soon included basic pro-formas

---

428 Ibid. see Preface
429 Monro was father to the Monro dynasty which played such an influential role in the development of Scottish medicine at this time.
430 Primus Dr Alexander Monro, (ascribed), ”Medical Essays and Observations; Published by a Society in Edinburgh,” (Edinburgh: Hamilton, Balfour and Neill, 1752). Preface p.xv
as standard practice which could be adapted for any posting. One of the earliest
examples of this can be seen in the works of Thomas Simes, whose work specifically
included a large collection of standardised pro-formas\footnote{By the time of the Seven
Years War a whole range of military and naval pre-printed forms could be
purchased from publishers such as J Millan in London.} including those for the
monitoring of Sick Returns.\footnote{Thomas Simes, "A Military Course for the
Government and Conduct of a Battalion," (London: Private, 1778). P.148} As a regular serving officer of the Queen’s Royal
Regiment, Simes was representative of a new generation of professional soldiers
who were increasingly willing to be guided by the expertise of their medical
officers, particularly in relation to locating the healthiest sites in order to prevent
excessive cases of preventable disease, and order new standards of hygiene in the
barracks.

Cleghorn’s work marked the beginning of one of the most productive periods of
early military and naval medicine, which included the celebrated achievements of
John Pringle and James Lind as well as many others who did not attract the same
level of popular appeal. The importance of Pringle’s work lay in the way it was
extensively concerned with proving the danger of dirt and disease in the army
which he illustrated through extensive in-text sources of significant figures relating
to the increase in both morbidity and mortality. As he explained

\begin{quote}
Upon first being employed in the army, I soon perceived what little assistance I could expect from books, and therefore I began to note down such observations as occurred, in hopes of finding them afterwards useful in practice. And having contained this method to the end of the war, I have since put these materials into order, and with as much clearness and conciseness as I could, have endeavoured from my own experience to
\end{quote}
supply, in some measure, what I thought so much wanting in this branch of medicine.433

Pringle’s exclusion of recognisable quantifiable material in his best known work, was not so much an unfortunate omission but a recognition on his part that quantifiable assessment served little purpose when it came to prove that pestilential disease was directly associated with the environment in which troops were forced to live. Pringle’s ability to present the strongest case for change was achieved through case studies, each of which was written specifically for a different type of military leader, and was subsequently highly successful in instigating major reforms. Only in his later work, more familiarly known as the Pringle papers, can evidence be found of him using a range of quantifiable evidence to promote a range of medical interventions.434

In relation to advances in the navy, the emphasis was not so much on the living conditions aboard ships but on improving the actual physical condition of sailors, as seen in the work of Lind and his creation of therapeutic trials evaluating the effectiveness of citrus in treating and preventing Scurvy.435 The achievements of Lind are significant in the way that like Pringle, he understood the importance of presenting incontrovertible evidence which would lead to wide ranging improvements. For this reason Lind relied on trialled therapies to show the most

434 "Annotations."
successful treatment of Scurvy.\textsuperscript{436} This type of analysis and early projection regarding proposed outcomes was particularly advanced for its time, and despite the correct outcome, did little to overcome the Admiralty’s resistance to adopting citric acid as opposed to other foodstuffs. This led Lind to having to resort to simplified quantifiable evidence to make his case for ways of preventing future cases of Scurvy. As Chief Physician to Haslar,\textsuperscript{437} part of his role was to collate daily observations relating to the sailors who were admitted to the hospital. During the first two years of his post, he was therefore able to report that out of 5,743 patients, 1,146 had Scurvy. He also recorded that during the Seven Year’s War it was not unusual for him to be presented with up to 400 “scorbutic”\textsuperscript{438} patients each day.\textsuperscript{439} In view of the continual problem of Scurvy, in 1772 Lind chose to publish a written account of his findings in the third edition of his work “A Treatise of the Scurvy in Three Parts.”\textsuperscript{440} The very public declaration of the need and duty to improve conditions amongst sailors was yet another example of medical officers being increasingly convinced that it was possible to bring about reforms through the introduction of preventative health, which would also benefit the whole of society.

By the end of the 1770s it had therefore become common practice for medical officers in both the army and the navy to facilitate change relating to the treatment of troops based on their personal observations and endorsed by carefully recorded

\textsuperscript{436} Ibid. P.4
\textsuperscript{437} Lind was appointed to this position in 1758
\textsuperscript{438} This was the commonly used term for Scurvy.
\textsuperscript{439} Trohler, ”To Improve the Evidence of Medicine” : The 18th Century British Origins of a Critical Approach. P.77
\textsuperscript{440} James Lind, ”A Treatise of the Scurvy in Three Parts,” (London1753).
facts and figures. However there was a growing concern that there was a need to develop observational data into something which was not only far more rigorous, but could also lend itself to detailed analysis, through greater inclusion of mathematics. This call for change was led by an Edinburgh trained dispensary doctor, John Millar (1733-1805). Not only did he keep detailed records of all his patients at the Westminster Dispensary dating back to its opening in 1774, but also published yearly returns. From these, Millar was able to report annual mortality rates which provided him with the opportunity to monitor the health of some of the poorest citizens in the area. Millar was also ambivalent about the claims being made by medical officers in relation to the scale of improvements they introduced. In particular, he questioned the validity of returns submitted by the army physician, Donald Monro, on the grounds that his figures suggested a mortality rate which was better than the official figures held by the War Office.  

In what has become known as the Monro-Millar dispute, this became more than a question of irregularities in military reports but grew into far more serious allegations of professional incompetency. Millar continued to discredit Monro through a series of publications, the purpose of which was to repeatedly show how the army physician had entered false figures relating to the extent of fatal illness amongst the troops. In 1780 Monro took action by publishing his own account of the dispute, though this was not helped by his decision to be somewhat vague.

---

441 Millar is known to have been a medical officer in the army early in his career but appears to have left with great acrimony along with accusations of being a deserter.
442 Cantlie, A History of the Army Medical Department, 2.
443 Trohler, Quantification in British Medicine and Surgery 1750-1830, with Special Reference to Its Introduction into Therapeutics, Doctor of Philosophy. P58
regarding the use of official figures. However it did lead Monro to collate far more specific and accountable data when he was recalled to active service. One of Monro’s more informative and successful medical engagements which he recorded in “Observations on the Means of Preserving the Health of Soldiers” took place in England. Due to concerns that a Franco-Spanish invasion was imminent, plans were passed in 1778 for fortifications to be erected along the south coast of England, which were to be manned by local militia, as the regular army were heavily committed to fighting in North America. Between June and November 1778 Coxheath in Kent became the largest of these temporary garrisons covering over three miles and housing up to 17,000 militiamen and other troops. The site quickly became a place of great local and national interest and found fame in Sheridan’s play “The Camp.” Monro devoted all of Part III of “Observations” to his time spent at Coxheath and made extensive reports relating to weather, soil, temperature and the outbreaks of the various diseases which affected the troops. Two of the most notable features of this work was the emphasis he placed on explaining that the slightest illness had to be reported, leading to far greater sick lists than was really warranted. This is a discussion which was never raised by any other military or naval medical officer of the time and suggests that it may have

---

444 Monro, "Observations on the Means of Preserving the Health of Soldiers and of Conducting Military Hospitals."
445 Trohler, Quantification in British Medicine and Surgery 1750-1830, with Special Reference to Its Introduction into Therapeutics, Doctor of Philosophy. P.60
446 Monro, "Observations on the Means of Preserving the Health of Soldiers and of Conducting Military Hospitals."
448 Richard Brinsley Sheridan wrote “The Camp” which was premiered on 15th October, 1778 at the Drury Lane Theatre.
449 Monro, "Observations on the Means of Preserving the Health of Soldiers and of Conducting Military Hospitals."
been a form of reaction to Millar. He also made reference to the fact that he interacted with local doctors in Maidstone to improve his understanding of the location and its impact on disease.\footnote{Ibid. p.173}

Despite these efforts, Monro’s work was representative of a form of quantitative analysis which was increasingly showing itself to be dated. In the year prior to “Observations” being published, William Lempriere (1763-1834) had seen his own work in print which modelled what seemed to be a far more relevant level of engagement and analysis. Lempriere was typical of the many Edinburgh medical graduates of the time, who took a commission with the army, and quickly rose to the rank of Inspector General of Hospitals. Following a five year posting to Jamaica, Lempriere also published his extensive findings in 1799.\footnote{William Lempriere, “Practical Observations on the Diseases of the Army in the Jamaica During the Years 1792-1797,” (London: Longman & Rees, 1799).} In addition to the usual climatic and environmental studies, Lempriere injected a sense of urgency by arguing that soldiers were fundamentally a community which had temporarily been extracted from civil life. He also argued that unless due consideration was given to their very specific health needs, it was highly unlikely that any military presence in any foreign location would survive. Echoing the early case of political arithmetic, he also incorporated a question of economics, estimating that as the cost of raising, equipping and conveying a soldier “cannot be less than thirty pounds.”\footnote{Ibid. p.232} He added “At this rate, to supply the number of men lost to the service of Jamaica during the
above period, would require the sum of 69,960 (pounds).”\textsuperscript{453} For Lempriere the need for action was clear

These strong and undeniable facts, cannot fail to impress the mind with a melancholy reflection, on the dreadful ravages to which our troops have been exposed in tropical climates; and as the impulse of humanity, the dictates of policy, and the necessity of economy, urge us to enquire, whether it be practicable to adopt such measures as may be the most likely to lessen an evil, so fatal to the population of the country, so destructive to our resources, and so repugnant to the humanity of the British nation.\textsuperscript{454}

Had this simply been a question of economics, then it is possible that Lempriere’s concerns not have attracted further attention. However, previously in 1791 Robert Jackson had used a similar posting as medical officer to look at the general standard of men in the Regiments sent out to the West Indies. He found the majority to be in an extremely poor state of health and stated that there was a twofold cause to this malaise. First, he identified that most British soldiers were recruited from unhealthy urban locations which affected the general health of the men, and secondly, he found that many had also been previously employed in the factories where the sedentary nature of the work carried out in an atmosphere of impure air created an environment where disease easily spread. \textsuperscript{455} It was therefore inevitable that Lempriere’s economic argument created a third issue, namely that money was being invested in training recruits many of whom were physically and pathologically weakened even before their arrival in a hostile climate such as the West Indies, and as such were a financial loss.

\textsuperscript{453}Ibid.p.232-233
\textsuperscript{454} Ibid.p.233
\textsuperscript{455} Jackson, "An Outline of the History and Cure of Fever, Epidemics and Contagion, More Especially of Jails, Ships and Hospitals and the Yellow Fever. With the Observations on Military Discipline and Economy, and a Scheme of Medical Arrangements for Armies.." p.38
Whilst this was representative of a new level of medical thought and engagement, the concerns it raised did not make it popular with either the military or civilian authorities. Questions were already being raised with regards how industrialisation and urbanisation were impacting on the general population, long before the era of Chadwick. In relation to the need to maintain a strong military and commercial presence in the West Indies, Lempriere was at least able to prove through highly detailed numerical and written accounts, including comparative studies with local settlers, that different parts of the island provided healthier locations for the troops. He also argued for the continuation of quarterly returns to ensure constant monitoring of the health of all regiments posted to the island.\textsuperscript{456}

Despite Lempriere posing solutions to finding ways of overcoming the very real health problems faced by British troops stationed in places like the West Indies, the mortality rates remained stubbornly high. This led the army doctor, Thomas Dickson Reide to continue to call for all medical practice to be applicable to the entire population, aware of the fact that preventative health could never be successful if it remained selective. Dickson Reide has, in the past historiography been incorrectly overlooked in terms of acknowledging the influence he exerted in developing early measures of “public health.”\textsuperscript{457} He initially trained at the Westminster Dispensary under the guidance of John Millar, though left in 1776 when he accepted a commission in the army. In the following years he was posted throughout Britain, North America and the West Indies. During this time he

\textsuperscript{456} Lempriere, “Practical Observations on the Diseases of the Army in the Jamaica During the Years 1792-1797.” p. xi

\textsuperscript{457} Biographical detail has been taken from Dickson Reide’s own publications
developed an early interest in fever. Despite early nosological attempts to define different types, the term “fever” was widely and often appropriately used. Diseases such as Typhus and Typhoid Fever were all too familiar in cramped, filthy housing and were as common in the cities as in the barracks. Dickson Reide became interested in finding ways of implementing a more efficient form of treatment for fever cases amongst the troops.\footnote{Trohler, *Quantification in British Medicine and Surgery 1750-1830, with Special Reference to Its Introduction into Therapeutics*, Doctor of Philosophy.} The results of this extensive study was published in 1793\footnote{Dickson Reide, "A View of the Diseases of the Army."} and whilst it represented a highly advanced example of quantifiable evidence and analysis, for the first time it prompted an unfavourable reaction from the military medical authorities. He stated in the work that in an attempt to save money, certain medicines were withheld for those diseases classified as incurable. The authorities attempted to suppress its publication and although this was unsuccessful, he was expelled from the Army Medical Service\footnote{For an account of this event see John Millar (1798).}.

Dickson Reide had no personal issues with the army but more with the medical infrastructure contained within it. As seen from his obituary\footnote{The Gentleman’s Magazine vol.79 pp 983-4} he continued to hold positions of responsibility in both the militia and the regular army and wrote a series of manuals aimed at improving military efficiency, though he never returned to the Army Medical Board which limited the changes he could realistically introduce. However he remained a fervent advocate of quantifiable evidence in an empirical setting and provided one of the clearest definitions of the time

> A practice founded on uncertain theories and opinions, unsupported by well-authenticated facts, is the cause of great mortality in public and private practice, particularly in the army and navy. Theory is a rock on which too
many practitioners split. A scrupulous attention to the division and subdivision of diseases occupies too much of their time, which might otherwise be employed in attending to clinical practice, and keeping proper registers of diseases. A physician, without the assistance of regular registers, can form no idea of the result of his own practice, much less of its comparative success. Partial registers are yet worse than none, as they are not only defective, but fallacious, leaving abundant scope for error and mistake, into which physicians must unavoidably be led by their prejudices, even though their intentions should be perfectly upright.462

Dickson Reide, like other military and naval contemporaries increasingly recognised the need to avoid differentiating between the military and civilian population when it came to understanding, treating and preventing illness. Rather he recognised and promoted the idea that empirical medicine had the potential to create a safe system applicable to all, regardless of status. As he concluded in his work

These records not only prove at one view the event of the practice adopted, but also afford materials from which intelligent statesmen, naval and military commanders, physicians, philosophers and mathematicians may form various calculations in political arithmetic, which may be of use in the deliberations of the Cabinet, in the direction of military arrangements, the practice of medicine, operations of finance, commerce, manufactures, agriculture, and in every branch of political Oeconomy; and may contribute effectively to eradicate obstinate prejudices concerning the invincible virulence of certain diseases, and the inevitable mortality of particular climates which have too long screened a destructive practice, and led unwary politicians into dangerous errors to the ruin of fleets and armies, the disappointment of the best-concerted and best-conducted military enterprises, the loss of many settlements and to the imminent danger of all our remaining colonies.463

Dickson Reide is therefore central to emphasising the argument that the army and navy played a far greater role in establishing preventative health for all than as yet has been acknowledged. His understanding of the importance of quantifiable

462 Dickson Reide, "A View of the Diseases of the Army." Preface p. xii-xiii
463 Ibid. p.334-335
evidence developed beyond the point of providing models for the identification and treatment of disease but focused on the wider issue of how all branches of society could benefit from this type of information. No other medical author of the time created such as all-encompassing argument for the maintenance of health to take on such a central role until the sanitary movement of the nineteenth century, and although Dickson Reide made no further contributions to this discussion, his work provided a significant point of reference to those who followed.

Within the military setting, quantitative analysis was now an expectation of all medical staff who were required to record their daily practice, in order to accumulate a range of different statistics. In some cases these records were developed by men such as Dr John Rollo who was stationed for lengthy periods of time in the West Indies.\(^{464}\) Rollo was a prolific recorder throughout all his postings.\(^{465}\) As well as documenting weather, geology and other physical entities, he altered the standard record sheets as he felt it was important to include the colour of the patient’s hair in order to understand their temperament. This early physiological interest was an extension of the wider discussion beginning to take place on whether human attributes could explain a proclivity towards certain diseases. Rollo also believed that social status played a significant role in making groups and individuals more vulnerable to particular diseases. He also claimed that the military structure enforced and even replicated social segregation, to the detriment of the rank and file.\(^{466}\) However Rollo himself appears not to have


\(^{466}\) "Observations on the Means of Preserving and Restoring Health in the West-Indies." Preface p.iii
suffered unduly from certain views and was made the first Surgeon-General of the Ordnance Medical Department, which allowed him to initiate a range of far-reaching reforms regarding improving the health of garrisons, including hospital and healthcare administration. What is particularly significant is that when Rollo published his work outlining his plans for reforms in the army medical services, it was reviewed by the London Medical Review. In addition to finding much to recommend, the journal emphasised that Rollo’s methods for collecting data were so valuable that it should be read and copied by all medical practitioners and administrators concerned with establishing or regulating an infirmary.

By the early nineteenth century, the inclusion of quantifiable material had become standard practice and was regarded as an indicator of professional scientific and medical achievement. Whilst the military and naval medical officers had tended to predominantly look at the problems of environment, climate and confined living conditions which matched their most pressing needs, civilian medical authors tended to focus more on specific diseases as typified by the control of Smallpox.

Moreover, it is also possible to see that general discussions relating to how shared studies could benefit all sections of society tended to come from the military and naval practitioners. There were indeed very few reciprocal attempts from civilian doctors as to how general medical improvements could help the many thousands of soldiers and sailors who were engaged in what appeared to be a state of constant conflict. Civilian medicine, both in theory and practice therefore continued to

468 London Medical Review, 1808;6:p.283-294
predominantly reflect the needs of the non-military sections of the British population.

One of the most interesting discussions on the civilian/military divide at this time came from Dr Edward Bancroft (1772-1842) who had been central to the discussions surrounding the Fifth Report.469 Despite enjoying a highly successful military career, Bancroft was representative of a very different but equally significant group of medical officers who were trained in England, in his case, at Cambridge University. The predominance of Scottish graduates in the army and navy was accepted as accurate though it would be inaccurate to acknowledge that there were also a small but significant number who received their training in England. Bancroft was one such example and following many postings abroad, he became Inspector General of Army Hospitals.470 As with other medical officers of the age, he also held a civilian post as physician at St. Georges Hospital, London, which led him to state that not only did he believe civilian medical practitioners to be better trained to meet the medical needs of the army and navy, but also considered it to be incorrect to see military diseases as in some way different approaches to all others. 471 He argued that those looking to prove the existence of this idea through either observational or quantitative methods were incorrect on the grounds that

...believing, doubtless, that men who enlist as soldiers, thereby change their physical constitutions and become susceptible of diseases which do not exist in civil life; or that causes of disease operate on soldiers differently from what they do upon other men. How you come to adopt an opinion so

---

470 RCP Lives of the fellows, vol. III p.31
471 Bancroft, "Letter to the Commissioners of Military Enquiry Containing Some Animadversions on Some Parts of the 5th Report." P.17-18
destitute to all solid foundation, I will not determine. Certainly you did not find it in the works of Sir John Pringle, or Doctors Cleghorne, Brocklesby, Donald Monro, John Hunter, and others, who have written professionally on the diseases most prevalent in armies. 472

Bancroft did not see what could be gained by understanding and responding to disease by relying on unnecessary divisions arising from aspects such as occupation rather than looking at ways of removing the primary causes. In this respect he was correct in citing men such as Pringle and other commissioned medical officers who from the earliest days, had promoted the importance of using preventative medicine to ensure a strong healthy society in its entirety, rather than focus on the most susceptible sectors. Despite the sophistication of Bancroft’s argument, no further discussion of this type took place, with events in Scotland establishing military medicine as the correct specialism to ensure the care of all soldiers and sailors.

Despite the continued concern that disease remained a major problem amongst the ranks, military and naval medical officers continued to look for ways of implementing preventative health as an initiative for all, firm in their conviction that theirs was the correct approach. They also remained committed to an empirical methodology which was presented with increasingly more sophisticated numerical analysis. As the naval surgeon Gilbert Blane stated

There is a great difficulty attending all practical inquiries in medicine; for in order to ascertain truth, in a manner that is satisfactory to a mind habituated to chaste investigation, there must be a series of patient and attentive observations upon a great number of cases, and the different trials

472 Ibid. p.17-18
must be varied, weighed and compared, in order to form a proper estimate of the real efficacy of different remedies and modes of treatment.473

Blane was not the only one committed to standards such as these. Throughout the eighteenth century fellow naval and military medical officers had established a level of excellence with regards collation of relevant quantitative material. However it is important to note that it still tended to rely on basic comparison between groups who were either sick or well which limited the value in terms of more detailed breakdown of information. It is therefore interesting to see that men such as Blane were beginning to acknowledge the need of more critical evaluation as seen by his use of the term “weighed” in the above quote. Unfortunately there was no attempt on his part to try to incorporate new methods of analysis, possibly due to his own limitation of mathematical knowledge.474

Nevertheless Blane remained a staunch advocate of quantitative analysis, even at the most basic level on the grounds that

It is only the matter of fact, as established by evidence, with which those civil and military authorities have to do, to whom is entrusted the sacred charge of public health. These authorities perceiving the jarring opinions of medical men, may, without deference or reference to them, undertake to judge for themselves, on a point to which any man of good sense and understanding is competent, as it hangs upon matters to be decided on by the rules of evidence, not involving professional knowledge.475

Blane was fortunate in that his reputation ensured that his views carried far greater weight amongst both civilian and military communities than many of his

474 This development in analysing quantitative data first appeared in early nineteenth century France with the work of Louis, Laplace, Poisson and Gavarret.
predecessors. Although his medical career had initially been with the navy, in 1783 Blane was also elected to the staff of St Thomas’s Hospital\textsuperscript{476} where he met William Black. In 1785 the two men opened the Dispensary for Poor Married Women which gave him additional experience in understanding the needs not just of the poor as one vast collective, but also in recognising the needs of specific groups such as women and children, which he recorded in the form of detailed patient notes. This material was later presented during his term of office as President of the Medico-Chirurgical Society of London in 1813 when he introduced fellow members to the value of comparative studies such as those used in the navy.\textsuperscript{477} Blane also considered himself well-placed in order to attempt to provide an overview of the state of the nation in relation to specific aspects including food, habitation and occupation in relation to the effects they had on health and disease of the general, though predominantly working-class, population. With regards the state of Birmingham he wrote

\begin{quote}
The operation in metals have been alleged as the cause of this; but it is much more probably owing to the want of attention to cleanliness and ventilation, particularly with regard to the streets, which are said to be very narrow and dirty.\textsuperscript{478}
\end{quote}

Blane also commented on the state of Manchester in relation to the rate of urban sprawl and the deterioration of areas where the poorest sections of the town were found to be existing in increasing squalor. However, he also directly commented on

\textsuperscript{476} It was common practise for military physicians to be affiliated to civilian hospitals or dispensaries throughout the period.
\textsuperscript{477} Trohler, \textit{Quantification in British Medicine and Surgery 1750-1830, with Special Reference to Its Introduction into Therapeutics}, Doctor of Philosophy. P.246
\textsuperscript{478} Gilbert Blane, "Select Dissertations on Several Subjects of Medical Science," (London: Underwood, 1822). p.173
the achievements of civilian doctors and the work they were undertaking to improve living and working conditions. Blane particularly admired the work of Thomas Percival who is credited with being one of the most influential empirical physicians of the age. As a result of his studies in the textile mills of Manchester, Percival led the demand for direct government legislation to control the conditions inside factories and mills.\textsuperscript{479} Blane, perhaps more than most, was particularly aware of the changes being imposed on the country through industrialisation and urbanisation, and saw this as not just a threat to the health of military recruits but in terms of how it was likely to affect the population in general.

Throughout his life, Blane therefore exerted a considerable influence over many aspects of preventative health measures across all sections of society. However he never failed to recognise the need to improve the life expectancy of sailors in the navy. To achieve this he remained a staunch supporter of monthly returns which were sent to him by all surgeons in the fleet.\textsuperscript{480} However the one major change which he alone implemented was in finding the most effective way of assessing basic data in ways which gave it more meaningful results. Blane clearly understood that naval data on its own would reiterate the same response and he therefore decided to access insurance tables and population returns.\textsuperscript{481} He acknowledged that results taken from The Equitable Assurance Office were biased in favour of only the healthiest being offered insurance and so looked solely at population

\textsuperscript{479} Percival is recognised as the originator of occupational health in addition to publishing the first textbook on Medical Ethics
\textsuperscript{480} Blane, "Observations on the Diseases Incident to Seamen." See Preface.
\textsuperscript{481} "Select Dissertations on Several Subjects of Medical Science." As taken from “The Health of Seamen. Selections from the Works of Dr. James Lind, Sir Gilbert Blane and Dr. Thomas Trotter” ed. C. Lloyd p.188-189
returns for 1811.\textsuperscript{482} Whilst this gave Blane a point of reference that the mortality rate in the navy was higher than it should have been, it nevertheless showed him how inaccurate all records were in relation to providing reliable information. He even applied this to the navy, questioning what was meant by mortality in terms of whether it specifically applied to deaths in hospital or if it included fatalities whilst at sea.\textsuperscript{483}

Blane was keenly aware of the need to openly promote the improvements made in the navy regarding the health of the ships crews. Therefore in 1830 he published his findings for public readership in "Progressive Improvement of the Health of the Royal Navy" all be it aware that the information was not as accurate as it may have been. In a response which was reminiscent of the earlier Millar-Monro dispute, this time it was led by none other than Thomas Wakely, editor of the Lancet who took issue with what he perceived to be what he considered to be inadequate attention relating to the accuracy of such returns. Furthermore, he went on to exhort the medical directorates of both the Army and the Navy to issue standardised and tabulated returns annually.\textsuperscript{484} Wakley’s pro-military position should however be seen as part of his own radical politics which questioned the right of any part of the establishment to inflict its actions on the under privileged, rather than directly endorsing the rights of the country’s armed forces to be credited with a level of protection which was denied the rest of civilian society. Moreover, what can be

\textsuperscript{482} Ibid. p.188  
\textsuperscript{483} Ibid. p.189  
\textsuperscript{484} Thomas Wakley, "Relative Conditions of Navy and Army Surgeons," \textit{The Lancet} 30, no. 775 (1838).
seen in the views of men such as Wakley was an inherent distrust of military and naval intentions when it could not be directly controlled and monitored by society.

Blane must have been aware of views such as these, though it did not stop him from actively promoting preventative medicine as seen in his endorsement of vaccination. He continued to promote this as what he saw as an example of excellence in relation to the benefits that it could bring to all sections of society and celebrated the fact that both the army and navy saw fit to enforce vaccination and berated the failure of those who were in a position to achieve the same intervention amongst civilian society.485 However Blane was convinced that this should be blamed on the actions of the press who he accused of “licentiousness”486 and promoting “votaries of depravity and error” 487 rather than being “advocates of truth”.488

This level of investment in the importance of quantitative analysis to promote preventative health, continued in the work of Henry Marshall (1775-1851) who is generally acknowledged to be one of the army’s most important medical statisticians and reformers.489 Having graduated from Glasgow, Marshall originally accepted a naval commission but transferred to the army where he remained for the rest of his professional life. His extensive travels and interest in Botany were recorded in his extensive published works. However he became increasingly concerned about the state of health of those troops under his care, particularly

485 Blane, "Select Dissertations on Several Subjects of Medical Science." "Vaccination" p.14
486 Ibid. p.14
487 Ibid. p.14
488 Ibid. p.14
with regards to diseases such as Cholera. Following a series of international postings, Marshall returned home in 1821. Two years later he published “Observations of the State of Health of the Troops in North Britain.” This work was significant in a number of ways. To begin with, its title is somewhat misleading as Marshall had much wider objectives in mind. As he explained, the work had three main objectives. Not only did he wish to gather information which would show the exact extent of diseases in particular situations, but he also wanted to establish accurate ratios of fatality, and finally work out the proportional mortality among people within a certain district. However as he soon found out, it was a virtual impossibility to get a comparative set of data on civilian health as the structure for doing this was not present. He therefore resorted to using army medical returns as they “…possess a precision superior, perhaps, to all others on account of their exactness with which the (troop) strength may be ascertained.”

Marshall was, like all other military and medical officers of the time increasingly concerned by the continued, and in many cases, worsening state of the population in relation to meeting the needs of recruitment. It was therefore pertinent to these concerns that five years later he published “Hints to Young Medical Officers”. This work was primarily aimed at standardising the medical examination process as well as to provide advice with regards to identifying cases of feigned sickness. What is

---

491 Ibid. p.275
492 In most cases soldiers who were classed as no longer fit could leave the army with a pension. This led to a significant number attempting to feign a sufficiently dangerous condition.
particularly relevant was the concern shown by Marshall in relation to the standard of health of many potential recruits

There is a very objectionable description of recruits often met with in large cities, namely, young men whose health has suffered from debauchery of various kinds. Their peculiar appearance is commonly well marked; complexion wan and colourless, doughy sodden look, tremulous lips and hands, clean teeth, breath and smell peculiar to spirit drinkers; often fullness of the belly and tendency to fatness ..I know of no species of recruits more unfit for service.493

The problems which Marshall identified are interesting in the way they show a development beyond previous concern relating the unhealthy environment of urban living to something far more insidious, namely the moral degeneration of those who lived in such places. These were the type of men which Marshall did not regard as suitable either physically or mentally to be recruited as soldiers in the British army. The response to this publication by its civilian reviewer is equally informative.494 Reminding the reader that many who volunteered were acting out little more than boyish whimsical fancies495, the inevitable degradation and depravity was made to seem all the more indicative of the horrors of military life. In the post-Napoleonic era, publications such as Marshall’s achieved little in terms of showing the real dangers of urban living, but were increasingly being read in terms of military life being responsible for brutalising the innocent recruits who joined in the belief they were serving King and Country.

493 Henry Marshall, Hints to Young Medical Officers of the Army (London: Burgess & Hill, 1828). P.69
494 Edinburgh Medical & Surgical Journal, 1828, 30. Art, V p.172-181
495 Ibid. p.175
Marshall continued to attempt to improve conditions for all troops by focusing on detailed statistical returns. Having attempted to standardise medical practices in the army he returned once again to looking at the effects on climate upon troops and associated civilians. He also remained acutely aware of any scientific explanation as to why certain diseases affected some countries and not others. He also continued to study the health of Europeans in particularly hostile climates. At a time when Britain’s colonial aspirations were gathering momentum, Marshall’s work was taking on a new level of significance and acceptability. When he further suggested that there should be an official study made of regular returns from all military posts across the Empire, the response was more than favourable.

Marshall acknowledged that what could be termed official military statistics dated back to the time of McGrigor, who introduced the practice in 1816. Twenty years later there were over one hundred and sixty volumes of numerical information relating different aspects of army health. The realisation that this served little purpose unless it was given a specific focus was finally acknowledged in 1835 when Earl Grey in his capacity of Secretary at war ordered Marshall and Tulloch to prepare a definitive statistical evaluation of the West Indies which would finally bring the area into a state of manageable control for civilian and military settlers alike. The success of this venture began a new era in military medical statistics which was defined by the commitment of Marshall, Tulloch and Balfour. Yet despite

---

496 Blanco, "Henry Marshall (1775-1851) and the Health of the British Army." P.267
497 Edinburgh Medical & Surgical Journal, 1832, 38. P330
498 Blanco, "Henry Marshall (1775-1851) and the Health of the British Army." P.267
the advances made with regards military health, no further attempt was made to apply the material to a civilian context.

One of the most important reasons for this was the growing interest in statistical analysis by civilians and government departments. The first official quantitative material was produced in 1832 by the Statistical Office which had been established within the Board of Trade, followed by the creation of the General Register Office in 1837, an establishment which created some of the most influential and reliable data. In addition to these public departments, there was also the private statistical branch of the British Association for the Advancement of Science as well as the Statistical Society of London with its own journal which became one of the most influential publications of the age. Yet regardless of whether it was a private or government venture, all groups with an interest in statistics shared the belief that only when complete sets of figures had been collated could attention turn to overcoming the many issues of the age. As the Council of the Statistical Society explained

The science of Statistics differs from Political Economy, because, although it has the same view in end, it does not discuss causes nor reason upon probable effects: it seeks only to collate, arrange and compare, that class of facts which alone can form the basis of correct conclusions with respect to social and political government...like other sciences, that of Statistics seeks to deduce from well-established facts certain general principles which interest and affect mankind...but its peculiarity is that it proceeds wholly by the accumulation and comparison of facts, and does not admit any kind of speculation.  

499 The Journal of the Statistical Society of London, first printed in 1838  
500 “Introduction” Journal of the Statistical Society, 1, 1838, p.1
Initially the aim of the journal was to provide a publication where papers read before the Society could be disseminated to a wider population beyond London and report on similar provincial meetings. However, it also became a valuable point of publication by military medical office who recognised the potential it offered with regards dissemination of information. As early as the third volume of July 1838, the lead article was a report on the lecture given by Tulloch he and Marshall had been ordered to write. The Editor personally acknowledged the importance of this work in relation to supporting the expansion of the British colonies, and considered it appropriate to remind the readership that such information had done much to improve the conditions of the British military, which played such a vital role in securing the prosperity of the country.

The formal response, printed the following year was written by a civilian practitioner, Dr J W C Lever. What is interesting about Lever’s article is the extent to which he critically analysed the findings of Tulloch’s report, bringing to the fore concerns regarding its basic statistical value as well as highlighting missed opportunities in relation to possible discussion in relation to wider societal issues. Lever was particularly interested in appraising the state of health of the military but by re-establishing it within the context of the needs of society as a whole. He proposed that the general wellbeing of soldiers could only be measured effectively if it was compared against the health of other occupational groups found in London. Using the data available and working on the premise that during peacetime the soldiers living quarters and rations were certainly likely to be superior to civilian

---

counterparts, Lever argued that one should expect to see military populations showing an improved mortality rates compared to society in general. However Lever’s own analysis found that this was not the case. He therefore looked for other explanations and in doing so claimed

This, at first sight, indicates that the military profession operates prejudicially on the health and constitution of its members; but it may in some degree be explained by the great difference between the mortality in the towns, where the troops are generally quartered, and that in the rural districts; in comparing, therefore, the mortality of military with that of civil life, it is necessary to take for our standard of comparison, not the average of the whole kingdom, but of those towns in which the troops are generally quartered, and where the density of the population is found to operate so prejudicially on health.502

Lever is therefore particularly significant in that he was one of the first civilian medical practitioners to respond to military health issues in terms of presenting the relationship which existed between the state of the country, the standard of health of the armed forces and the impact of ongoing socio-economic changes. This was a concern long held by military medical officers but for the first time there were indications regarding a possible dialogue of shared responsibility with their civilian counterparts. However, any hope for this was short-lived and in the following years the emerging public health movement was defined as much by its concentration on the needs of society as by Chadwick’s personal influence which led to not only the exclusion of the military experts but also a large proportion of the medical profession of the time. Only with the demise of Chadwick and the introduction of the sanitary movement was scientific medicine permitted to directly influence decisions and policies affecting the health of the entire nation. But by this time both

502 Ibid. p.252
the army and the navy had also withdrawn from any general concerns relating to
the needs of society and were developing their own specialism of military medicine.
Following the work of men such as McGrigor and Guthrie the military and naval
medical services combined extensive statistical information along with a growing
commitment to scientific studies centred within their own medical institutions,
such as Haslar and eventually the hospital at Netley. Here the physical health of
troops became the priority of the medical boards rather than relying on the initial
state of health of recruits when they first enlisted. Although much has been written
concerning the findings of the 1858 Royal Sanitary Commission and the decision to
formally integrate medical statistics in order to bring about reforms in of the
military503, in reality this was a process which had already been introduced by both
the army and the navy dating back to the previous century, and had achieved
considerable improvement in terms of proving the value of preventative health
measures.

In conclusion, quantifiable analysis therefore played a major role in the emerging
specialism of military and naval medicine in terms of endorsing the importance of
preventative health measures by providing a measurable set of criteria which not
only defined specific problems but which also allowed early attempts at comparison
which could be used to assess achievements or failures. Its adaptability in terms of
the type of data it could accommodate made it an ideal model for both military and
naval medical officers who in turn were some of the earliest practitioners to

503 S Rosenbaum, "More Than a Century of Army Medical Statistics.," *Journal of the Royal Society of
promote its use when it came to illustrating both the state of health and the possible causes of disease amongst those men who were placed under their care.

The importance of moving away from purely theoretical medicine towards practical models which recognised the value and scope of empirical methodologies, was a response which gained momentum during the European Enlightenment. The changing nature and demands of society, particularly in regards to matters of health, required a level of modernity which archaic, traditional thinking could not accommodate. Although this was not solely confined to medical officers in the armed forces, as illustrated by the events surrounding the early control of Smallpox, the distinct needs and characteristics of the military and naval health care provision created an ideal environment in which data could be collected, collated and analysed. As seen by the individual examples discussed in this chapter, the true potential of incorporating quantifiable analysis was therefore quickly recognised by those practitioners whose distinct postings provided an ideal study in which the early attempts to create preventative health as standard practice could be developed. This was also endorsed through the specific training many received in Scottish universities which encouraged experimentation and the facility to recognise cause and effect when attempting to understand the nature of disease.

In an age prior to the advent of scientific medicine, it is also important to recognise quantitative analysis was the most accurate way of evaluating innovation. The increasing detail it demanded and the inclusion of concepts such as comparison also gave it a value, despite the fact that for much of the eighteenth century it was without the benefit of more sophisticated mathematical procedures. Nevertheless
the findings of both military and naval medical officers carried sufficient weight for the authorities to act accordingly and implement reforms. It is unfortunate the limited success of many of these has often been emphasised through reference to the fact that disease continued to be one of the main causes of mortality in both the armed forces until the second half of the eighteenth century. However had it not been for the adoption of quantifiable methods by medical officers, it is possible to argue that the state of health of soldiers and sailors would not have attracted the level of attention it did prior to the reforms of the later nineteenth century. Moreover, the evidence that the same medical officers collated also served to reinforce their belief that any attempts to implement preventative health measures could only be successful if they were applied to the British population in its entirety.
Chapter Five: The battle for supremacy regarding the control of Yellow Fever and Cholera.

The aim of the following chapter is to illustrate the extent to which both the army and navy had, by the beginning of the nineteenth century, developed a level of specialism and expertise in relation to aspects of early preventative health which now surpassed that found in civilian medicine. The significance of this became increasingly apparent in relation to two diseases, both of which were initially regarded as solely the concern of the army and navy, now threatened to affect the British population. In the case of both Yellow Fever and Cholera, their prevalence in the most remote but strategically important areas of British control led to extensive studies by medical officers which will be examined in terms of the empirical methodology which by this time defined the training of many of the medical officers. This also led to an increasing level of engagement with civilian bodies regarding the wider issue of how disease was transmitted. Therefore a second aspect of the chapter will also focus on the debate surrounding contagionism and how this affected controls such as quarantine. The third area of discussion will include a detailed analysis of the actions taken to prevent the appearance of Cholera which illustrate the extent to which military medicine in particular was increasingly being regarded as being at variance with civilian communities. This is of particular significance in terms of identifying the growing anti-military feelings which were taking hold across the country, and the long term effects this had in isolating military medical expertise in preventative health from becoming a major aspect in future civilian initiatives.
By the early decades of the nineteenth century military and naval medicine was sufficiently well established to be regarded as a discreet specialism in its own right. The expert knowledge acquired through modern and relevant studies, supported by a methodology which facilitated standardisation of treatment, ensured that increasingly larger numbers of soldiers and sailors were benefitting from preventative health in ways which their civilian counterparts rarely experienced. Yet for much of the period this difference in experience meant very little. Most military and naval medicine was delivered in a context which was increasingly removed both geographically and conceptually from the homeland. The diseases common amongst troops stationed in the East and West Indies meant very little to those who were not able to observe them at first hand. Only if this experience was replicated back in Britain would it be likely that the highly specialised knowledge of commissioned medical officers might begin to bear any relevance to the general population.

For much of the period under discussion, the diseases experienced by soldiers and sailors formed a lengthy and generally fearful list. Whilst there was no such entity as an illness which only affected these men, there were nonetheless, certain pathogens which showed a marked propensity towards military and naval settings. Hence Dysentery increasingly became the scourge of the army, whilst Typhus was a particular problem for the navy where the cramped, filthy holds created a near-perfect environment for its transmission. In the case of both of these diseases and many like them, it is important to emphasise that similar environments could easily be found in a civilian setting, not least the ever-worsening slum areas, packed workhouses and jails, but the numbers of those infected did not appear to match
the many thousands of soldiers and sailors who were infected time and time again. This was inevitable as military conflict by its very nature involved gathering large numbers of men, many of whom were already suffering from the effects of poverty, who were then confined in small, poorly equipped areas such as temporary camps or poorly built barracks. Consequently it not only exacerbated problems, such as the high incidence of disease, but also led weight to the idea that soldiers and sailors were more prone to illness, than those employed in non-military occupations.  

Added to this was the increasingly relevant aspect of location which lent itself to the additional problem of the unfamiliar, both in terms of physical environment and new types of disease, which had no point of reference back in Britain.

Throughout the eighteenth and early nineteenth century medical officers in both the army and the navy therefore increasingly became aware of the urgency to try to eradicate the cause of illness rather than rely on existing methods of treatment, many of which were generally ineffective. As seen in the previous chapters, medical officers increasingly used the unique opportunities which came about in their postings to understand through empirical methods how elements such as climate and environment negatively impacted on health. Moreover, the advantages of specific training in Scottish universities and a wealth of publications which

---

504 By this time, the detrimental effects of industrialisation were being felt particularly in the northern cities.
505 The health issues in places such as India led the East India Company to establish its own medical department. This would become a centre of expertise in relation to both the theory and practice of diseases common to the area under its control.
506 Throughout most of this time the most common treatments were bleeding and purging, supported by a limited collection of medical preparations which for centuries had been passed down in various pharmacopeia.
discussed the nature of disease and ways of preserving health provided medical officers with the confidence to talk as specialists not just in a military and naval context, but also in relation to events in the civilian world.

By the early nineteenth century preventative health was therefore inextricably linked to the work of medical officers in both the armed forces. With the exception of early events surrounding the introduction of inoculation, civilian medical practitioners were rarely in a position to take on a similar role and looked to their military and naval counterparts to initiate change in relation to controlling the worst excesses of disease. This became particularly apparent with the appearance of Yellow Fever and Cholera, both of which had a reputation which instilled a genuine sense of alarm.\textsuperscript{507} Although each of the diseases had long been known to both soldiers and sailors, it was only when there appeared to be a very real fear that they could spread to Britain that the medical profession at large acknowledged a need to find ways of preventing this from happening. Consequently, for the first time one sees unprecedented involvement by medical officers not just working alongside civilian practitioners but actively taking the lead in response to the fact that they possessed the most appropriate knowledge to ensure that the British population would not fall victim to this very real threat to the country’s well-being.

However, as will be seen in the following discussion, at the very point at which military and naval intervention was noted as being highly appropriate and transferrable, the same question of expertise also became a contentious issue,

\textsuperscript{507} Of the two diseases, cholera continues to attract more research than yellow fever despite the fact that the death rate from the latter remained particularly high for much of the period.
primarily in the way that it was feared as being the point at which military medicine could effectively exert undue influence over civilian affairs. Unlike other European countries where militarism was an acceptable part of life, in Britain there was far greater reticence to granting more power to the military than was absolutely necessary. In the years following the defeat of Napoleon, the patriotic fervour of the previous century was replaced with the stark reality that military and naval victories had effectively ruined the economy both in terms of financial outlay and the social instability which followed in the wake of returning soldiers to communities which were increasingly unable to accommodate them. The sympathy and compassion for the ordinary soldier and sailor which Colley identifies in the eighteenth century was now replaced by mistrust and public rejection. Questions were even raised in parliament regarding whether it was appropriate to maintain a standing army.

The dilemma which accompanied the threat of Yellow Fever and Cholera was therefore extremely complex in relation to the realisation that the only way to protect society involved finding a balance between granting military doctors sufficient freedom to establish adequate control and the medical civilian body, represented as always by the Royal College of Physicians, from retaining some autonomy without placing thousands of lives at risk. In the early years, some common ground was possible through the common practice of quarantine which was first used as a method of epidemiological control when bubonic plague first

508 Colley, Britons: Forging the Nation 1707-1837.
509 In the aftermath of victory, the realisation of what the years of fighting had cost the country led to general questions being raised as to the need of maintaining an army particularly at a time when Europe appeared to be without possible areas of conflict.
appeared in Europe from 1347 to 1352.\textsuperscript{510} The use of a physical cordon was for many years the only effective way of stopping disease from entering a town or port. The first quarantine of forty days was established in 1377 in Dubrovnik and remained the favoured modus operandi of dealing with epidemics of plague until its demise in the seventeenth century.\textsuperscript{511} The concept of quarantine was supported by the classical belief in the non-naturals which had as a central feature the interaction of air on an individual’s health. Despite the work of the Veronese physician Fracastoro (c1478-1553) whose work on contagion developed a more sophisticated model to explain how disease was transmitted, for centuries, quarantine remained the most common response to protecting populations from the most contagious diseases.\textsuperscript{512}

However, the actual act of restriction became increasingly unpopular, particularly in the way it adversely affected trade and were frequently broken. For this reason, quarantine regulations had to be enforced by public health officials or others who held some level of rank.\textsuperscript{513} The apparent reluctance to use the military in this role, certainly in the early period, says much about how societies across much of Europe viewed the function of the military in terms of being exempt from holding any policing rights within the civilian setting. Such conflicts of interest appeared to be

\textsuperscript{510} Eugenia Tognotti, "Lessons from the History of Quarantine, from Plague to Influenza A," \textit{Emerging Infectious Diseases} 19, no. 2 (2013). P.255
\textsuperscript{511} Sheldon Watts, \textit{Epidemics and History: Disease, Power and Imperialism} (New Haven & London: Yale University Press, 1997). P.8
\textsuperscript{512} Girolamo Fracastorius, \textit{De Contagione Et Contagiosis Morbis Et Eorum, Libri 111} (1546). In this work he argued that there were three types of contagion, indirect, direct and at a distance. This was the result of “seeds” entering the body and causing putrefaction all of which were therefore harmful but it was those which had travelled over a greater distance which were the most dangerous.
alleviated when plague disappeared from Britain in the mid seventeenth century. Nevertheless, few believed that this was permanent particularly in Britain where increased trade made ports vulnerable to a range of illnesses. Therefore throughout the eighteenth century quarantine was official status with no less than fourteen Acts being passed, four of which took place in 1721 alone.\textsuperscript{514}

Quarantine was in itself a complex process, as befitting an action which required effectively closing the country to the rest of Europe and beyond. Mercantile interests continued to campaign against it as did those supporters of anticontagionism who claimed that it served no purpose.\textsuperscript{515} Resentment was also mounting amongst staff in the Admiralty. The Quarantine Act of 1710\textsuperscript{516} now directly called on naval ships to provide a guard for quarantine stations, of which there were nine in England alone. This drain on resources was bitterly resented by the Admiralty, whose ships were not exempt from also being kept offshore if quarantine orders were imposed. Booker discusses this conflict of interest which became worse in 1721 when the country was also at war, and which resulted in the navy being significantly undermined by the demands of legislation.\textsuperscript{517} Furthermore the Quarantine Act of 1721 also extended a similar contract of duty to the army. Previously law and order in Britain came under the duress of the magistracy. The first Act (7 Geo 1, c3) stipulated that boundary lines around cities and the construction of trenches to prevent any movement between infected locations.

\textsuperscript{514} These were 7 Geo 1, c3; 8 Geo 1, c.8; 8 Geo 1, c10; 8 Geo 1, c18.
\textsuperscript{515} Anti-contagion theories saw quarantine as unnecessary in relation to preventing the spread of disease. This would become one of the most complex medical arguments of the late eighteenth and early nineteenth centuries.
\textsuperscript{516} 9 Anne, c10
\textsuperscript{517} John Booker, Maritime Quarantine. The British Experience, C.1650-1900 (Routledge, 2007).
should now be guarded by soldiers. This was not a popular decision particularly in light of the punishments which also accompanied any breach of orders. Therefore subsequent Acts throughout the year did not reiterate the military presence whilst simultaneously reducing the time limit of compulsory isolation.

Another group who began to doubt its use were the physicians. In 1694, parliament first chose to consult with the Royal College of Physicians as to whether quarantine would remain an effective way of preventing any further outbreaks of plague in Britain. This type of discussion required an assumption of expertise on the part of parliament that the medical profession was in a position to make informed decisions not just in relation to medical issues but also with regards framing national policy. The inability of the fellows to provide a definitive response possibly explains why further attempts at interaction were not repeated sixteen years later when the Quarantine Act of 1710 was passed without any external consultation. However, ten years later, when news broke that plague had not only appeared in Marseilles, but also spread through France and had reached St Malo, the seriousness of the situation again led to general agreement that medical advice was required. This time, the Lords Justices approached the physician Richard Mead directly, asking for his views on contagion and the possibility of him personally outlining plans which would ensure effective quarantine. Mead was both a highly influential member of the Royal College of Physicians and a renowned expert on the subject of contagion. Mead therefore responded with one of his best known works

---

518 Ibid. p.150
519 As early as 1828 a biography of Mead had been written by William Mcmichael in commemoration of his work as a leading physician in London.
“A Short Discourse.” Although this was effectively a government commissioned consultation, it appears that no attempts were made to prevent the publication of the work prior to the passing of legislation in 1721. The text itself was immensely influential and went through seven editions in the first year. Mead argued that whilst quarantine was an effective deterrent, it was also important to remember that the nature of contagion was highly complex and as such several approaches should be adopted. He also advocated that control needed to be matched by compassion, and emphasised the importance of acknowledging the different needs of society. What is most interesting however was his reluctance to see the rural areas as being any safer than towns when he argued that “the Air of any one of our Towns shall be so corrupted, as to spread and maintain the pestilence in it, there will be little reason to believe, that the Air of the rest of the Country is in a much better state.”

The influence of Mead was in many ways pivotal to the development of quarantine in Britain both in terms of his own presence and in influencing others, which included medical officers of the day. This included Pringle, who acknowledged the debt he owed to Mead in understanding the importance of preventative medicine to the extent that he dedicated his first book to him and included Mead’s own name in the title. It is also possible that in addition to providing Pringle with an understanding of contagion, which was increasingly important in a military setting,

521 Ibid. Section 1
522 Ibid. p.58
Mead’s views on the sense of community may well have encouraged Pringle to establish a similar model when discussing the needs of the army and its interaction with society.

Despite very real concerns, plague never reappeared in Britain. However as the eighteenth century progressed, one particular disease came very close to instilling a similar sense of impending pathological chaos, namely Yellow Fever.\textsuperscript{524} From its earliest days this disease instilled a genuine and lasting sense of terror.\textsuperscript{525} Various descriptions suggest that it had long been active across much of the world wherever its vector, the mosquito \textit{Aedes aegypti} could colonise. It is possible that it arrived in the West Indies from Africa where it became the most feared of all diseases, particularly amongst the European troops who were posted there in ever increasing numbers as the conflicts of the eighteenth century spread westward. The climate and environment of the area became increasingly lethal for both troops and settlers who arrived “unseasoned” and were generally unprepared for the conditions they had to endure. One of the earliest indicators of how serious the situation could become was seen in the infamous events in Cartagena when forty percent of the British army and navy died from an epidemic of Yellow Fever.\textsuperscript{526} 

Amidst the many fevers and fluxes of the time, Yellow Fever was one of the easiest to diagnosis through the rapidly violent and distressing way it acted on the human body.

\begin{footnotesize}
\textsuperscript{524} Yellow Fever was a relatively modern name for the disease which was known as the black vomit.
\textsuperscript{525} Yellow Fever is known today as a viral haemorrhagic disease spread by mosquitoes which has no known cure. It remains one of the leading causes of mortality in many of the poorest areas of the world and can only be limited through vaccination.
\textsuperscript{526} Cantlie, \textit{A History of the Army Medical Department}, 2.Pp.77-78.Cantlie also provides a complete breakdown of the figures lost amongst the different regiments.
\end{footnotesize}
body, giving rise to its more familiar name, “the black vomit”. The devastation it caused amongst all Europeans who contracted the disease initiated one of the most extensive epidemiological studies of the age, attracting the attention of medical officers such as Lind, Pringle, Hunter and Moseley. By 1764 a definitive diagnosis could finally be made through the work of James Makittrick Adair. As an army surgeon posted to the West Indies, he took advantage of the lack of legislation regarding morbid anatomy, which was not the case for civilian practitioners in Britain. He submitted his findings as his MD thesis for Edinburgh University, which also provided one of the most accurate descriptions to date on the pathology of yellow fever.

This attention to detail was increasingly representative of the many naval and military texts of the time, written with the intention of finding ways of successfully preventing further outbreaks of Yellow Fever. It was generally agreed that the disease was a result of a particular set of environmental and climatic issues, and as such was not contagious in other locations which were unfavourable to its existence. This is seen in work such as that of the naval surgeon, Elliot Arthy, who was posted to both Africa and the West Indies. His text book was written in response to what he saw as a serious lack of suitably qualified medical staff and was therefore presented in a style which would be accessible to all, regardless of

---

527 There is no reliable record to date this term but it appears to have been widely used and refers to the darkening of the skin as the virus takes hold of a body.
529 The first official change to these restrictions came in 1832 with the passing of the Anatomy Act.
530 Harrison, *Medicine in an Age of Commerce and Empire. Britain and Its Tropical Colonies 1660-1830*. P.68
professional background.\textsuperscript{531} However his analysis of the mortality rates from Yellow Fever called for a note of caution in response to the panic it generated.

In England, more persons are of opinion that the yellow fever is more violent in its nature and effects in the west Indies, during war than peace, which I conceive to have originated from our having in wartime a greater number of troops and ships of war in the West Indies, and from perhaps, many additional persons going there to transact either public or private business, whereby more deaths must consequently happen by the yellow fever, which through the medium of newspapers, and of private letters and persons, oftener engage the public as well as individual’s attention, and very naturally, excites a belief that the yellow fever is, at such times, unusually malignant, when infact, it is only the effect of an additional number being exposed to its influence.\textsuperscript{532}

This was a sophisticated concept in terms of understanding aspects such as proportion rather than reacting to a set of basic figures, which instilled a note of caution about over-reacting. Yet Arthy still remained very concerned that Yellow Fever was responsible for the deaths of over five thousand sailors each year and looked for ways of reducing it. He concluded that the only way to limit the worst effects of diseases like Yellow Fever was to look more closely at the initial state of health of all recruits coming from rural and urban locations across Britain, aware that this would also act as an indicator of how they would respond to adverse conditions and disease.

Similar concerns could also be found amongst the army. Robert Jackson whose extensive career and expertise on the fevers of the West Indies made him a leading advocate of reform argued that whilst there was often considerable ill-placed fear of Yellow Fever, the poor quality of recruits did little to prepare them for foreign

\textsuperscript{531} Elliot Arthy, "The Seaman's Advocate," (London: Richardson, 1798).
\textsuperscript{532} Ibid. p.17-18
postings. In the second of his two works, Jackson specifically argued that urban living and manufacturing created a class of workers who were physically unable to meet the demands of military life unlike those who were taken from rural settings.\textsuperscript{533} He also claimed that the same group of men had no sense of belonging and as such were unreliable when it came to defending their country.\textsuperscript{534} It was therefore likely that such men would be more susceptible to a range of diseases, including Yellow Fever. This certainly appeared to be the case when British troops once again failed to secure the key island of Martinique due to the unacceptably high incidence of disease among the soldiers. Therefore in 1759, Barrington acting in an unprecedented move as Secretary at War, approved the recruitment of American troops from the Colonies in the hope that they would offer some type of natural immunity. It was an unfortunate decision as it soon became apparent that even these troops showed no sign of greater resilience to tropical diseases than the British. Moreover the high levels of sickness and mortality recorded amongst the colonial regiments acted as a further source of discontent amongst those who questioned Britain’s imperial presence in the area.

As the eighteenth century passed, there was a growing conviction that Yellow Fever was a disease which despite its ferocity, was at least reliant on a very specific set of environmental criteria. This related to the infamous “torrid zone” which covered much of the area identified as eminently suitable for colonial expansion. However mercantile benefits came at the price of a stubbornly high death rate for all

\textsuperscript{533} Jackson, "An Outline of the History and Cure of Fever, Epidemics and Contagion, More Especially of Jails, Ships and Hospitals and the Yellow Fever. With the Observations on Military Discipline and Economy, and a Scheme of Medical Arrangements for Armies.." p.58

\textsuperscript{534} Ibid. p.350
Europeans whose constitution generally proved unable to adapt. This was witnessed in 1796 when another severe outbreak of Yellow Fever led to the death of 14,000 soldiers, which equated to just under half of the annual number of troops sent out to maintain ownership of the West Indies. Despite this creating concern on a number of levels, there was still a sense that this was a military issue and should be treated as such. It was also geographically sufficiently removed to prevent it from becoming a public concern back in Britain. However in 1804 the British authorities were informed of an outbreak of Yellow Fever in Gibraltar, which raised concerns to an entirely different level.

Used extensively by merchants as well as the army and the navy, Gibraltar had long been a key strategic outpost for Britain. The news of Yellow Fever so close to home therefore caused an unprecedented level of alarm the likes of which had not been seen since the days of plague. The main difference was that this time there at least appeared to be in existence a vast library of information relating to all aspects of the disease, specifically been produced by generations of military and naval medical officers. However, rather than consulting this knowledge base, the appearance of Yellow Fever inadvertently led to one of the most fundamental medical questions needing to be answered, namely whether or not the disease was contagious. It is important to reiterate that the term “contagion” was not an early presentation of its modern use but instead promoted an archaic belief that illness resulted when

some chemical or physical material was passed from one person to another. The limitations of such an interpretation were not lost on those medical practitioners who were increasingly becoming aware that illness in any form could be transmitted through a variety of vectors, including climate and environment. Generally referred to as anticontagionists, many were military and naval medical officers, who cited empirical studies to illustrate the superiority of understanding the initial cause of disease and attempting to remove this at the point of source. Many also argued against quarantine, one of the most popular responses by those who believed in contagion, stating that this only served as a temporary response with little in the way of long term benefits.

The contagion debate dominated writing on disease transmission prior to the emergence of the germ theory. It became increasingly complex and often cut across professional affiliation. Not all commissioned medical officers condoned contagionism, with both Blane and McGrigor spending much of their professional careers supporting it both philosophically and practically. Moreover the most ardent adherents also acknowledged that certain diseases such as Syphilis and Smallpox could be explained by the contagion model. However in the case of Yellow Fever, the general consensus amongst medical officers was that it was a disease which required very specific environmental conditions which promoted

539 Harrison, Contagion: How Commerce Has Spread Disease. Despite being concerned primarily with commerce, this work also provides a detailed understanding of how the terms contagion and anticontagion developed over the period.
540 John Hennen, "Principles of Military Surgery: Comprising, Observations on the Arrangement, Police, and Practice of Hospitals, and on the History, Treatment, and Anomalies of Variola and Syphilis," (Philadelphia: Carey & Lea, 1830). In addition to the extensive secondary material, texts such as this provide an understanding of contemporary thinking for this particular disease.
putrefaction and as such did not involve a specific contagion. The fact that many of these criteria could not be replicated beyond places such as the West Indies also added weight to those who supported the anticontagionist dogma.

Back in London, the Royal College of Physicians remained committed to the contagionist argument. Whilst Yellow Fever remained a predominantly medical problem of the West Indies, there appeared little need for direct action. However in 1793 the disease appeared in Philadelphia where over five thousand inhabitants died.\textsuperscript{541} Seven years later another epidemic was confirmed in Cadiz, where it rapidly spread around the Mediterranean. Notification in 1804 that Yellow Fever had also arrived in Gibraltar led to the Lords of the Privy Council urgently approaching the Royal College of Physicians for advice on how to prevent the disease from entering Britain, and what type of information should be made available to the public.\textsuperscript{542} The College responded with what it considered to be the most appropriate advice.\textsuperscript{543} In keeping with their traditional views regarding the transmission of dangerous diseases, the Fellows declared Yellow Fever to be contagious and a threat to the nation's wellbeing. Moreover, they announced that only way of preventing its appearance in Britain was to ensure “the most rigid execution of the Laws of Quarantine”,\textsuperscript{544} which would protect London, major centres of trade and the naval arsenals.\textsuperscript{545} The Royal College also called for the introduction of a military guard to

\textsuperscript{541} This was recorded in detail by Benjamin Rush
\textsuperscript{542} “Annals of the Royal College of Physicians,” (London: Royal College of Physicians, 1805).
\textsuperscript{543} Letter from College of Physicians to the Privy Council, 10\textsuperscript{th} January, 1805. Cited in Fraser Brockington, p.20
\textsuperscript{544} Ibid. p 3
\textsuperscript{545} Ibid. p 3
enforce quarantine. If this was breached, martial law should then be established to isolate those already infected.

The Privy Council accepted all these recommendations in addition to establishing a Central Board of Health to ensure that all preventative health measures were implemented. In order to monitor their success, the Privy Council also called for official notification from all Consulates in countries where the disease was active, which were to be collated by the relevant military medical officers. By April 1805 the Board of Health had presented the Privy Council with the first of the five reports it would produce during the fifteen months of its existence. In the absence of Yellow Fever appearing in Britain, the fourth and fifth Reports chose to look more closely at the medical problems in the West Indies, where the mortality rates among the military stationed on the islands remained worryingly high. The Board therefore proposed that for every Regiment sent out to the West Indies there should also be attached one or two black companies whose role would be to do all fatigues as well as guard the most inhospitable environments. In response to this Report, the Privy Council took the decision to Order the Board of Health to undertake a full enquiry regarding the state of health of the West Indies which was published in September, 1805.

547 As yellow-fever failed to appear in Britain, the Board of Health was dismissed on 14th August 1806.
549 The existence of this Order is contained in the Fifth Report of the Board of Health for Ascertaining What Are Healthy Stations in the West Indies. September 13th 1805. Sent to M.A.Cooke.
In 1806, following the death of Pitt, the Board of Health was disbanded. The actions it took throughout its brief but influential existence not only reflected the power of the Royal College but also the influence of individual members such as William Pym. His position illustrates most clearly how complex the question of contagion had become. As an army physician who had served in the West Indies, Pym like Blane and others remained advocates of contagionism, and could not be convinced that the Yellow Fever he witnessed was a product of the environment. Instead he argued that the disease he witnessed was a different type of fever and therefore should be treated through isolation. Despite being at variance with many army colleagues, Pym rose to be Inspector of Army Hospitals and continued to implement quarantine amongst infected garrisons throughout his career. In the case of the Royal College of Physicians, their involvement in preventing Yellow Fever from entering the country appears to have created more doubt than certainty. In an unprecedented step, the fellows acknowledged that many of their decisions had been based on a selection of reports, some of which were possibly questionable. They also emphasised that medical opinion was always in a transient state and as such their advice needed to be heard in a given context. The outcome of this admission was immense in that it resulted in the Privy Council effectively forgoing its historical association and reliance on the Royal College in relation to all medical issues, pertaining to the control of fever, and from this point

550 Both Pym and Chisholm claimed that this was bulam fever
551 Statement of the Royal College of Physicians, 15 November 1815. “London Medical Repository” September 1816
onwards, now began to independently consult both the Sick and Hurt Board and the Army Medical Board.

The threat of Yellow Fever only briefly reappeared in the 1820s but did not attract the official response of earlier years. Quarantine remained an option should it be required, but even with men such as Pym promoting its introduction when and if necessary, there was a marked reluctance to see it used in anything other than the most extreme circumstances. One of the most outspoken commentators was Bancroft who not only argued that it was economically precarious to isolate a country which depended on foreign trade but also highlighted the immorality of an act which effectively imprisoned innocent men, women and children in a hazardous and often fatal conditions.  

However of all the opponents of quarantine, one of the most outspoken was Charles MacLean, a leading anticontagionist whose views exerted an unmatched influence regarding preventative health policy in the early decades of the nineteenth century.

Maclean’s often erratic and confrontational life has attracted considerable biographical interest. He held posts with both the East India Company and the British army and travelled widely through the opportunities presented to him. However he did not suit a restrictive military professional structure and had it not been for his outstanding two volume work on the transmission of disease, it is

---

possible that he would not have acquired the following he enjoyed. Maclean had first become interested in the issue of contagion having read Rush’s account of the 1793 Yellow Fever epidemic in Philadelphia. Like other military and naval medical officers of the time, he believed that only a few diseases were contagious in terms of being passed from one person directly to another, whilst the majority of illnesses were the result of climate and personal predilection.

Throughout his career, MacLean became increasingly determined to understand and promote the true cause of disease. This led him to becoming an outspoken supporter of John Brown who earlier had controversially proposed that there was a single cause of a disease to which a body responded.\(^{555}\) The Brunonian system had widely been dismissed by the medical establishment, though it found greater support in places such as Edinburgh where innovation was not regarded with such suspicion. Maclean even developed some of Brown’s ideas by arguing that the body also responded in a given way and as such medical theory could be presented and taught as “constant laws.”\(^{556}\) As part of his commitment to proving the superiority of empirical medicine, Maclean also became one of the most outspoken supporters of anticontagionism, arguing that those who believed otherwise were motivated by factors which took the needs of the common people. He proclaimed that in certain seasons, the air became pestilential and was able to exert a malign influence on the human constitution, resulting in disease. As Kelly has argued, it was therefore MacLean’s ability to promote controversy, and his reputation as a radical, which


\(^{556}\) Maclean, “Results of an Investigation, Respecting Epidemic and Pestilential Disease: Including Researches in the Lavant, Concerning the Plague.” P.13
generated such an unprecedented level of discussion by all sections of society regarding the continued use of quarantine as a viable way of protecting the nation’s health.\textsuperscript{557}

MacLean’s ability to politicise the validity of contagion and methods of control was highly significant from many perspectives. Kelly argues that leading these was the fact that contagion was now removed from the medical sphere, and as such threatened the authority of the Royal College of Physicians.\textsuperscript{558} The problem with this interpretation is that it implies that historically the fellows had exerted a greater influence in relation to establishing quarantine orders than actually was the case. Only since the fear of yellow fever entering Britain had the Royal College enjoyed the status of providing expert advice and even then, this had to be shared with military and naval authorities. Rather, one should emphasise that Maclean and other anticontagionists created a sense of uncertainty relating to preventative health which provided the government with the assumed authority to return to a position whereby they could act autonomously. This in itself is acknowledged by Kelly when discussing the two Select Committees of 1819 and 1824 and the noticeable lack of medical expertise\textsuperscript{559}.

The 1819 Select Committee\textsuperscript{560} was ostensibly called to discuss the issue of contagion with regards to the continued threat from plague which remained a persistent problem in Constantinople. Of the twenty-six witnesses called, three

\begin{footnotes}
\item[557] Kelly, ""Not from the College, but through the Public and the Legislature: Charles Maclean and the Relocation of Medical Debate in the Early Nineteenth Century." P.558-559
\item[558] Ibid. p.561
\item[559] Ibid. p.561
\item[560] "Report from the Select Committee Appointed to Consider the Validity of the Doctrine of Contagion in the Plague," (1819).
\end{footnotes}
were from the army amongst whom were McGrigor and Pym, recognised supporters of contagionism. Maclean was called twice, as the first and last witness. In his summary he attempted to explain the limits of contagionist thinking by providing an explanation of why it failed to provide a relevant model of disease transmission stating:

Contagious diseases are such maladies as are capable of being propagated in a certain succession, by means of a specific virus, by contact of a sick person with a person in health...the matter thus propagated from person to person is called “contagion”, (as in) the contagion of small-pox...An infectious disease is a disease capable of being propagated by means of a specific virus, whether by contact of persons, by the air...or by goods, wares or merchandise...but incapable of being produced by any other cause.\(^{561}\)

He concluded:

... the question of contagion in epidemic diseases, as acknowledged even by its advocates, is entirely one of fact, not of physic, of which all persons of a liberal education are as competent to judge as physicians.\(^{562}\)

This was Maclean presenting his views in the most succinct and informed way. The years of empirical methodology were finally encapsulated into a proposal which defined the need for modern thinking in relation to successfully protecting society from the worst ravages of illness. Although the Select Committee concluded that there was insufficient evidence to permit a change in professional and political thinking with regards the received doctrine of contagion, there remained dissent. This was led by none other than the Chair, Sir John Jackson\(^{563}\), who announced in the Commons that the level of expert testimony regarding the superiority of

\(^{561}\) Ibid. p.95
\(^{562}\) Ibid. p.97
\(^{563}\) Sir John Jackson was M.P for Dover. His father had been a surgeon in the East India Company.
anticontagionism was such that he could not bring himself to add his name to the final Report.\textsuperscript{564}

MacLean’s intentions of removing the influence of all medical practitioners, military and civilian, in relation to matters of contagion and quarantine can therefore be seen as something of a triumph for him both in relation to the 1819 and the 1824 Select Committees. His commitment to anticontagionism continued by way of personal petitions which he made to the House of Commons, such as that made in March 1824 entreati\textsuperscript{565}ng that the “anti-commercial, anti-social, and anti-Christian quarantine laws” be repealed.

The latter was initially called to look at ways of improving opportunities for foreign trade though this could not be achieved without discussing ways in which this was affected, adversely or otherwise by quarantine. Therefore a second report was attached having called a selection of witnesses though none of these were tasked with discussing the question of contagion, on the grounds that it was considered as having been addressed five years earlier. The most eminent of these was Gilbert Blane who had long been concerned about anticontagionist views. In the 1819 edition of “Medical Logick”\textsuperscript{566} he had emphasised the danger not only of what he saw as attacks on the medical profession but also by failing to present a united front, those in charge of public health would

\begin{quote}
ask the assistance of some members of the bench or the bar accustomed to weigh evidence, and investigate facts, or even of such plain men as to
\end{quote}

\begin{flushright}
\textsuperscript{564}Hansard, 1\textsuperscript{st} ser., vol.40. (1819), col. 1133-34
\textsuperscript{565}Hansard, vol.12. p.993
\textsuperscript{566}Blane, “Elements of Medical Logic.” p.181
\end{flushright}
compose juries, than medical men, having so much reason to suspect that our minds are warped by prejudice.\textsuperscript{567}

The concerns of Blane were to an extent justified with the publication of the findings in 1824 and the legislation which followed. The Privy Council granted power to the Crown to adopt any measures it felt necessary to avoid the spread of contagious disease either from beyond the country or within.\textsuperscript{568} This set a precedent which was used both in relation to the appearance of Yellow Fever on Gibraltar in 1828 and most significant of all, in response to the arrival of Cholera in England in 1832 when a Quarantine Act was not only introduced without recourse to the medical profession but also extended the following year.\textsuperscript{569}

The 1820’ was a difficult time for medicine in Britain. Internal arguments on the most fundamental aspects of aetiology, only served to place further strains of an increasingly fragile and disparate profession. In such an atmosphere of uncertainty, the government continued to distance itself from relying on medical expertise, even in matters as significant as ensuring the health of the nation. This in itself was significant as seen in the fact that it was only with the rise of the sanitary movement from the 1840’s onwards which was run by cohorts of highly efficient, knowledgeable medical officers, did the civilian medical profession manage to rebuild its reputation as being in a position to add to ways of preserving the health of the population in a consistently reliable way. However, until such time, a second

\textsuperscript{567} Ibid. p.182
\textsuperscript{568} 6 Geo IV ca.78
\textsuperscript{569} 2 Will IV, c.10; 3 & 4 Will .IV, c.75

217
pathological disaster was noted as making its way across Europe, which would do more to fragment the medical profession than any other similar event.

The appearance of Cholera in Britain presented the medical profession with a dilemma. There had long been a common gastric illness which was known by the various terms of cholera morbus, cholera nostra, autumnal cholera and English Cholera. Although it was rarely fatal, it attracted the attention of both civilian practitioners such as Sydenham and their military counterparts led by Pringle. At the time, there was common consensus that it was closely associated with climatic conditions and as such could be treated in the worst cases by the usual regime for disorders of this type. Later, in 1782 Charles Curtis, surgeon aboard the frigate HMS Medea gave a description of what he termed “spasmodic cholera” which had led to many cases from HMS Hero and Superb being admitted to the Naval Hospital in Madras.⁵⁷⁰

However in 1817, reports of a far more virulent gastric disease appeared amongst British troops stationed in Jessore, India.⁵⁷¹ Medical staff of the East India Company who were stationed in the area, were the first to publish three highly influential reports in 1819, ¹⁸² ¹⁸²⁰ ¹⁸²⁴. These provided the first detailed information on the transmission, symptoms and treatment of an illness which was temporarily called “Cholera” due to certain shared similarities with existing gastric

⁵⁷⁰ C Curtis, An Account of the Diseases in India (Edinburgh: Laing, 1807). P.44
⁵⁷¹ This is attributed to Dr William Baly who recounted the history of the disease in his report to the Royal College of Physicians in 1854
⁵⁷² “Reports on the Epidemic Cholera Which Has Rages Throughout Hindostan and the Peninsular of India, since August 1817,” (Bombay1819).
⁵⁷³ J Jameson, “Report on the Epidemic Cholera Morbus as It Visited the Territories Subject to the Presidency of Bengal in the Years 1817,1818, and 1819,” (Calcutta1820).
disorders. However there was little sign of initial alarm as this was considered to be essentially an Indian disease, and as such carried little relevance in places such as Britain, even though a large number of British soldiers were affected whilst posted in the country.  

The complexity of Cholera also inadvertently led to an interesting development in the contagionist versus anticontagionist debate. It became increasingly obvious that this was a disease which not only appeared to have different clinical manifestations, but was also requiring re-evaluation as to how it was transmitted. The answer lay in “contingent contagionism” which effectively could be presented as positioning itself between the two extremes of contagionism and anticontagionism. It was first promoted by a naval surgeon, James Johnson (1777-1845). He had begun his career as a surgeon’s mate, serving on several ships. In 1807 he published his first medical text on diseases common to the Far East, particularly Cholera and Malaria. Five years later he published a work aimed for far wider readership and which established his reputation as an expert in tropical medicine. Johnson retired from the navy in 1814, and set up his own medical practice in Portsmouth. Whilst here he had become one of the editors of the medico-chirurgical Journal. In 1818 he decided to move to London and set up his own journal, The Medico-Chirurgical Review of which he was the first editor until  

---

575 Hasting’s army was significantly affected by cholera  
576 “The Oriental Voyager or Descriptive Sketches and Cursory Remarks on a voyage to India and China in His Majesty’s ship Caroline”  
577 “Influence of tropical Climates on Europeans Constitutions”

219
1831

During this time he also gained his M.D from Aberdeen University in 1821, which allowed him to become a Licentiate of the Royal College of Physicians.

To date very little consideration has been given to Johnson despite the influence he exerted at the time. Durey claims that he was responsible for calming the panic which arose when Cholera first appeared in Britain. This accolade is difficult to substantiate in terms of evaluating his actions. However Johnson was certainly important in calling for an end to the polarity which existed in terms of trying to explain why the disease was able to travel and affect populations in the way it did by combining all interpretations into what he termed contingent contagionism.

Using his own journal, Johnson explained

In epidemic cholera, as in most other epidemics, a poison or sedative principle, whether emanating from the earth, or engendered in the air, strikes a predisposing individual, and after an uncertain period of incubation... (produces the disease.)

Johnson also believed that contingencies were predominantly environmental rather than constitutional. Given the right conditions, he believed that

Diseases arising from ariel or terrestrial influences, far beyond our control, have, in the hovels of the indigent, in crowded populations, in concentrated filth, and in the absence of ventilation, taken on a character of infection or communicability which they did not originally possess, and of which they are quickly deprived under opposite and favourable circumstances.

---

578 Biographical detail taken from Munks Roll, Lives of the Fellows, Royal College of Physicians.
580 Ibid. p.144
582 Ibid.
Johnson continued to argue that diseases such as Cholera and Typhus were therefore avoidable. His clear, unambiguous statement regarding the inter-relationship of dirt and disease and methods by which they could be avoided, reached both a professional and general readership and in doing so revisited the earlier arguments presented by medical officers of the eighteenth century in terms of the importance of removing causes of disease as part of establishing lasting professional health.

In the meantime, the lack of understanding regarding what was considered to be the inevitable arrival of Cholera into Britain briefly led to an alliance once again between the Royal College of Physicians and the Privy Council. By September 1830, “ Asiatic Cholera” as it was now generally termed, had reached Moscow. The British ambassador in St Petersburg, Lord Haytesbury, not only recorded the spread of Cholera across the country but in official dispatches also emphasised how ineffective quarantine measures had proved to be. These were sent directly to the Privy Council who once again responded by temporarily imposing quarantine orders on all goods arriving from Russia.\textsuperscript{583} The unpopularity of this type of action was not lost on a government already deeply immersed in the question of parliamentary reform. Moreover, as Greville noted, whilst the issue of public health had to take priority, the demands of trade and commerce had also to be seen as being protected.\textsuperscript{584} The Privy Council therefore acknowledged the need for definitive advice as to whether Cholera was contagious. Despite it being an almost impossible question to answer, the Privy Council opted to approach the Royal College rather

\textsuperscript{583} 6 Geo. IV c.78
\textsuperscript{584} C Greville, “Memoirs,” 2. p.154
than military personnel, despite the fact that the latter had the most extensive knowledge and experience of the disease to date.

Sir Henry Halford, President of the Royal College of Physicians, quickly responded by claiming that Cholera could not be spread by contaminated goods, but within the week the fellows overturned this response, arguing that there was insufficient evidence to prove this was the case. 585 Aware of the validity of this concern, the Privy Council responded by sending two doctors to Riga with the task of proving whether Cholera was infectious, whilst in Britain a Board of Health with eleven members was created. 586 Six of these were members of the Royal College, with the army and navy represented by James McGrigor and William Burnett as well as Admiral Sir Thomas Byam Martin who was considered particularly suitable for the task due to his extensive prior knowledge of Riga. 587

The Board after due deliberation agreed that Cholera was contagious and called for a system of control which would be overseen by the police and the military, who would be responsible for the removal of the sick to lazarettos. The timing of these proposals could not have been more inappropriate for a government which was facing agricultural disturbances, the possibility of food shortages and violent public protest over the Reform Bill. Yet it was events in Wales which reinforced how precarious public order had become. Between 1st and 7th June, 1831, riots broke out in and around Merthyr in response to demands for far reaching reforms. The

---

585 Report of the Royal College of Physicians, 15th June, 1831
586 These were Dr William Russell and Dr David Barry
government sent in two Regiments to restore order and it is estimated that approximately twenty people were killed in the fighting which followed.

Events such as these reinforced any concerns regarding excessive use of the military even in a civilian public health setting. Since the triumph of Waterloo, the army in particular had lost much of its public support, particularly with repeated use to quell what were seen to be genuine civilian grievances. The military was therefore seen to be representative of authoritarian, repressive actions which aimed to remove fundamental rights. Therefore whilst Cholera may have been causing untold distress across Europe, there were many in Britain who were prepared to take their chances with a disease which may or may not be worse than what was part of everyday life.

With issues such as these needing to be addressed, the Privy Council chose to implement a far less restrictive code of action if Cholera should appeared in Britain and removed any mention of compulsory intervention. Simultaneously, the military role in securing the pathological safety of the country faded into obscurity. At the same time, the Board of Health organised a sub-committee led by Sir William Burnett, of the Royal Navy and aided by Dr Warren and Dr McMichael.588 All three agreed that the control of Cholera should hereafter become a civilian matter and as such have regulations implemented by local magistrates, which would also be an indication of responding to diverse local needs.589

---

588 Neither Warren nor Macmichael had any military experience though both had extensive medical experience in hospitals which had given them an understanding of the problems of infectious disease.
589 Letter to the Privy Council from the Central Board of Health, 11th July 1831.
In October 1831, news arrived in Britain that Cholera had broken out in
Hamburg.\textsuperscript{590} As one of Britain’s most influential trading partners, few were now
prepared to believe that this country would escape an epidemic. Ports were
identified as the most likely point of entry, though as winter approached, the
likelihood of this happening seemed increasingly unlikely until the following spring.
However regulations remained in place to report any unusual cases of illness, and
although the worst excesses of quarantine had been removed, a strict policy of
isolation was made public knowledge. \textsuperscript{591}

On the 27\textsuperscript{th} October 1831, James Butler Kell, surgeon to the 82\textsuperscript{nd} Regiment
barracked within the town of Sunderland was called to identify an unusual death.
Local doctors were unwilling to reach a diagnosis that this may be more than
English Cholera, aware of its implications for a town which relied heavily on trade.
However Kell had been stationed in Mauritius where he had overseen two Cholera
epidemics and was in no doubt that he was looking at the first case of Asiatic
Cholera. \textsuperscript{592}Subsequent histories of the event describe Kell notifying the Board of
Health in London that the disease had finally arrived in Britain. Later in his own
published account, Kell emphasised that he was fully aware of the precarious
position he was in and was careful to adhere to the official protocol. This involved
calling for the Reverend Grant to come to the victim’s house where Kell officially
informed him that it was Asiatic Cholera. Grant was then instructed to visit Mr.

\textsuperscript{590} Hamlin, \textit{Cholera: The Biography}. Pp.124
\textsuperscript{591} Asa Briggs, "Cholera and Society in the Nineteenth Century," \textit{Past and Present} 19 (1961). This
highly influential article was the first to establish the social effects of cholera and focused on the
public response to government action.
\textsuperscript{592} Mauritian Public Records catalogue Vol.1-3 “Cholera”. These records chart the history of cholera
on the island. At present they have not been subject to any further research
Robinson, the chief magistrate who in turn was ordered to inform Lord Melbourne in London. At all times Kell was clearly aware of being a military doctor acting within a civilian context, and as such needed to proceed with great care.

Kell was also aware that he was unable to act alone. In order to implement quarantine regulations he was joined on 6th November by Lieutenant-Colonel Michael Creagh who, as an officer in the regular army, was given charge of overseeing and implementing the fifteen day quarantine which was now to be enforced around Sunderland. If this was plague, the Privy Council was taking no chances of it spreading beyond the city and as such was prepared to contravene its own earlier decision to keep the military away from civilian problems out of fear that this could exacerbate tensions. As was expected, the news that Cholera had appeared in the town was met with extreme reactions, and even local doctors disputed the diagnosis. Yet Kell’s initial diagnosis had by this time been endorsed by a second army physician, Robert Daun (1785-1871) whose extensive medical career with the Indian Army had also provided him with first-hand experience of identifying and treating Asiatic Cholera. He endorsed Kell’s findings without any hesitation and sent two separate Reports to the Board of Health confirming that this was without question the first mortality from Cholera.

Despite the number of Cholera cases which followed in rapid succession, the Sunderland Herald responded with claims that this type of mortality was simply a

593 James Butler Kell, "On the Appearance of Cholera at Sunderland in 1831; with Some Account of That Disease," (Edinburgh: Adam and Charles Black, 1834). P.46
594 HO 44/49/11; HO 44/49/16
normal state of affairs for the poorest section of the town. Creagh, realising the implications of what was being said, ordered the immediate cleaning of the streets. He along with Daun were said to have been appalled by the state of the town and both men were quick to see the association between dirt and disease. All three men were shocked to find such poverty and filth, noting that in thirty residences only two blankets were found. Yet despite attempts to remove the worst excesses, the cases of Cholera continued to rise, leading Daun to begin officially recording all mortalities and make plans for a Cholera hospital to take in all victims. Such actions continued to be met with hostility but Daun chose to stay in the town until such time the number of Cholera cases had been controlled. By December 1831 there had been three hundred reported cases of Cholera in Sunderland with an estimated fourteen new diagnoses each day. Although Daun retained his strong faith in anticontagionism, Kell became increasingly convinced that Cholera was both infectious and contagious. His work also illustrates an increasing frustration that the disease could have been avoided had basic interventions been followed for ships arriving in port from foreign locations. He also added that once the disease was under control it would at least “operate as an

595 Kell, "On the Appearance of Cholera at Sunderland in 1831; with Some Account of That Disease." p.42
596 Ibid. .p.43
598 Kell, "On the Appearance of Cholera at Sunderland in 1831; with Some Account of That Disease." p.43
599 Hempel, The Medical Detective. John Snow and the Mystery of Cholera. p.61
600 Ibid. p.66
601 Kell, "On the Appearance of Cholera at Sunderland in 1831; with Some Account of That Disease." p.18-19
additional inducement to the lower classes to submit with alacrity to the
regulations prescribed or imposed as to cleanliness, temperance, etc.”

Of all the three military personnel involved with the Cholera outbreak in
Sunderland, Kell appears to have attracted the most vocal opposition from the local
people. He therefore decided that once systems were in place, to return to the
barracks where he ordered a state of quarantine for all troops and their families.
This ensured that Cholera was kept at bay until such time the threat had passed.
However Kell was aware that this would prove to be unpopular for all concerned
and therefore ordered that sports such as quoits, football and cricket and theatrical
performances were made available for the three months the barracks isolated itself
from the rest of the area.603

The involvement of the army in Sunderland was significant on a national level as it
showed that military intervention was an inadequate response to stopping the
spread of Cholera across the country. Moreover, whilst medical officers were
officially required to report all cases of Cholera they were called to attend, there
was little support amongst them as a professional body to oversee any type of
civilian isolation.604 Following the creation of a new board of Health in November
1831, hereafter known as the Central Board of Health a decision was reached that
the policing of any restrictive action was considered untenable and should
therefore cease.605 Yet Medical officers like Kell and fellow Indian Army doctor,

602 Ibid. p.19
603 Kelly, War and the Militarization of British Army Medicine, 1793-1830, 5.
604 The order was given by the Army Medical Board in September 1832.
605 This new Board removed all mention of quarantine as a way of controlling the spread of cholera.
William Twining⁶⁰⁶ were becoming increasingly concerned by the lack of medical knowledge seen amongst civilian practitioners in terms of identifying and treating Cholera victims. The Central Board was also considered to have failed to recognise the need to provide specialist care in view of the fact that all existing hospitals refused to admit a patient suffering from any form of infectious disease. To try and meet such an obvious need in the time of what was clearly a Cholera epidemic, the Navy began to establish specialist wards for Cholera victims in its own institutions. At the Royal Naval Hospital all Cholera victims amongst the naval communities were offered admission though in reality few were prepared to risk admittance for fear that their illness would worsen⁶⁰⁷.

An account of the way in which the army dealt with Cholera can be Somerville’s “The Autobiography of a Working Man.”⁶⁰⁸ This is the only known existing narrative of the disease written by a soldier and recounts the appearance of the disease in Brighton. The local barrack was clearly concerned by the arrival of recruits travelling from Scotland, aware that it took them through cities where the disease had already appeared. On reaching Brighton, all new troops were forced to forfeit clothes and possessions for fear that they were contaminated. These were then

---

⁶⁰⁶ Twining (1790-1835) also published a text book explaining the best method of treating cholera, along with advice as to how it could be avoided. Although it was based on his experiences in the Calcutta Hospital his intention was to present material in a way which could be used by both military and civilian practitioners, which he emphasised by dedicating the work to both McGrigor who was Director-General of the Army Medical Board and Dr William Russell, member of the board of Health in London.

⁶⁰⁷ McLean, Public Health and Politics in the Age of Reform: Cholera, the State and the Royal Navy in Victorian Britain. P. 71

burnt under the supervision of the hospital doctor to ensure “that the work of purification by fire was effectually done.” Somerville comments on the unjustness of such actions, along with the fact that he was detained for fourteen days in the Cholera ward, especially created within the hospital, where he and the other new arrivals acted as nurses to Cholera sufferers.

In this the patient Miller had been placed, and in the same ward with him, he writhing in agony with cramps all over his body and raving in delirium, we were placed, the door bolted upon us, and orders given through a window, that we were to employ ourselves in heating flannels, and rubbing liquids with the hot flannels on the cholera-stricken patient.

As the number of Cholera cases continued to rise, particularly amongst the civilian population, the Central Board underwent a series of changes, particularly in relation to membership. By February 1832, it comprised not just medical staff but predominantly those connected with both the army and the navy. In the same month the first Cholera Act was passed which finally gave the Board greater jurisdiction it needed to be effective. Although legislation was now in place, the reality of the situation was that by the end of 1832 Cholera had all but disappeared from Britain. The much feared epidemic was never as widespread as initially feared, although over thirty thousand victims died in the first epidemic and the disease created a genuine sense of panic. However Cholera had played a far more

---

609 Although uniforms were replaced, the cost was taken from the wages. Personal items were not compensated.
611 According to Somerville there was only this one case of cholera in the Brighton barracks.
613 Guiliem IV. Regis. Cap. X An Act for the Prevention, as far as may be possible, of the Disease called the Cholera, or Spasmodic or Indian Cholera, in England. 20th February, 1832
significant role in terms of showing just how pronounced the inequalities of life in Britain had become. As Greville commented

The disease spreads gradually in all directions in town and country, but without appearing like an epidemic; it is scattered and uncertain; it brings to light horrible distress. We, who live on the smooth and plausible surface, know little of the frightful appearance of the bowels of society.  

Cholera also reaffirmed the idea that there was a connection between dirt and disease which posed not only a medical problem but also an increasing sense of social injustice. Although the disease appeared to have run its course, there was an innate concern that its return was inevitable. James Kay Shuttleworth, an Edinburgh medical graduate who had left medical practice to follow a career in medical journalism, reiterated these views. In 1832 he published a tract calling for wide scale reform of the way the lower orders were allowed to live. This work was written as a result of Kay-Shuttleworth’s personal intervention in dealing with Cholera whilst working for the Manchester Board of Health. He became convinced that the circumstances in which the poorest sections of society were forced to live was responsible for their susceptibility to disease as well as encouraging a tendency towards hypochondria. However the worst problem exacerbated by squalor was the gross dehumanisation, vice and immorality, which in his opinion was becoming the standard by which most people were living. Kay-Shuttleworth identified these problems as cumulatively being responsible for “the enfeebled constitution” of the working classes. Despite providing such a detailed study, it is interesting that Kay-

614 Greville, "Memoirs."
616 Ibid. 4
Shuttleworth made no reference to any military expertise, as either theory or practice which had long known of the connection between dirt and disease. This was, in itself, an indication of the increasing disassociation on the part of civilian practitioners to distance themselves at every opportunity from any type of military or naval medical expertise, even though it was often detrimental to large numbers of people.

Despite the significant influence of kay-Shuttleworth, it was the views of Thomas Southwood Smith, another Edinburgh doctor, who exerted the greatest influence in framing the sanitary ideas which were recognised and implemented by Edwin Chadwick. 617 His extensive medical career as physician to the London Fever Hospital provided him with opportunities to understand that dirt not only caused disease but was, in his view, responsible for the moral corruption which appeared to be prevalent amongst the lower classes. Southwood Smith remained the only civilian sanitary physician to acknowledge the earlier work of military doctors. In his most popular work, “Treatise on Fevers” he even acknowledged the importance of Pringle, particularly in the way he linked environment to outbreaks of various febrile illnesses. 618 However Southwood-Smith refrained from any discussion on the way the health of the nation impacted on the needs of either the army or navy, and may no reference to the influence of medical officers from either service in terms of the way they had already promoted a model of preventative health applicable to all sections of society.


231
In 1848 Cholera appeared in Britain for a second time, Lord Morpeth introduced a Cholera bill on 10th July 1848, which on 31st August entered into the statute book as the Public Health Act. Morpeth had already persuaded Lord Lansdowne at the Privy Council to transfer any plans for the future control of Cholera to a General Board of Health. The action, which was reminiscent of the events surrounding the control of yellow fever in 1805 was also similarly ineffective inasmuch as the Board was also denied power to legally enforce decisions. It was also the first gathering of medical experts who were taken entirely from civilian medical practise, bringing to an end the input of military and naval medical officers in relation to their expertise in matters of preventative health. Instead, the Act set a precedent in placing environmental control within the remit of local government, and in doing so marked the beginning of the public health and sanitary era so long associated with nineteenth century Britain. This transference also led to the sanitary movement becoming associated with medical officers of Health such as Snow and Simon. Under their aegis, public health became a defined scientific intervention, staffed solely by members of the civilian medical profession. The events of the 1840s were therefore significant in not only defining public health as civilian society’s own responsibility, but by doing so, bought to an end to nearly a time in which military and naval medicine actively influenced the way in which disease amongst the population of the country as a whole, was both defined and treated.

619 Public Health Act 1848 (11 & 12 Vict. C.63)
The 1840s is generally regarded as marking the origins of the public health movement in Britain, initiated by Edwin Chadwick’s Report of 1842.\textsuperscript{620} The combined efforts of legislation at both central and local level gradually began to improve the state of Britain, though the debate as to what caused disease remained a constant source of contention until the appearance of scientific medicine in the 1860s. In towns such as Portsmouth, Cholera continued to as an impetus in order to motivate the town authorities into not only removing the worst excesses of dirt and contamination, but also identify areas of habitation in the town where disease was particularly rife. When the government inspector, Robert Rawlinson (1810-1898) made his first visit to Portsmouth, he described in detail the worst areas of the town. This made for difficult reading, and yet it is pertinent that he directly commented that the town’s position as both a leading garrison and port was sufficient reason to improve general conditions.\textsuperscript{621}

It is unfortunate that the achievements of Robert Rawlinson has failed to attract the research it credits with regards the history of preventative health. One reason may well lie in the fact that he was neither medically trained nor officially connected to the Amy. However, his training as an engineer, combined with his personal commitment to implementing sanitary measures aimed at improving the conditions in which people were forced to live, made him ideal for the role of Commissioner to the General Board of Health. Later in 1855 his reputation in identifying ways of implementing change also led to him to becoming a member of the Sanitary


\textsuperscript{621} Robert Rawlinson, "Report to the General Board of Health on the Drainage and Water Supply of Portsmouth," (1850).
Commission sent out to report on the conditions which had proved so detrimental to the British army in the Crimea. The findings of this particular group left the public readership in no doubt that the lives of British soldiers were made worse by an inept, failing army medical service which was not only unable to provide the most basic medical care, but also seemed incapable of recognising and acting in ways which would ensure the most basic standards of hygiene. The events in the Crimea therefore initiated a demand for wide reaching reforms, particularly within the army, including the creation of an efficient, modern medical department. There was no recognition of the extensive body of knowledge which medical officers from both armed forces had previously created in relation to the theory and practice of preventative health and the projected model of excellence was one entirely based on civilian initiatives.

In relation to events of the nineteenth century the relationship between medical officers and the civilian population became notably complicated. The theories and practices relating to implementing the most efficient forms of preventative medicine increasingly faced opposition from commercial interests, as seen in the question of contagion. Furthermore, the medical profession also underwent a series of reforms, beginning with a new modern identity which emerged from the new teaching hospitals and legislation which created a regulated profession with increasingly clear roles and responsibilities. With such changes, there also came opportunities for practicing medicine which no longer involved having to accept a

---

622 Many of these chose to teach a curriculum based on that taught previously in Scotland rather than continue with the traditional approach still found in English universities.

623 This can be seen in the first two medical Acts of 1815 and 1851
commission in the armed forces who in turn increasingly removed themselves from public view and focused on developing military and naval medicine within their own institutions such as Netley and the Haslar.

Even in response to the continued threat of Cholera, which continued to affect Britain until 1866, there was far less discussion with military medical officers despite their continued expertise in dealing with these types of diseases in the ever-expanding British Empire. Diseases such as this were therefore significant in terms of identifying the point at which preventative health became a priority of society but in doing so, also marked the point at which military expertise was no longer seen to be required. The legacy of ways in which it had aimed to create an earlier version of universal application was also forgotten, which is particularly significant in light of the way it has been perpetuated in subsequent research relating to understanding the history of public health in nineteenth century Britain.
Conclusion

In 1772 the eminent Scottish physician and professor, John Gregory published a highly influential series of six lectures, entitled “Lectures on the Duties and Qualifications of a Physician.” He dedicated the work to none other than to Sir John Pringle, explaining the relevance of this action on the grounds that

There is, besides, a peculiar propriety, in addressing to you the following lectures, intended for the use of the young students in physic, as it affords me a very proper occasion of pointing out to their imitation, a Gentleman, whose honour and probity, whose genius and learning, have done so much credit to the profession, and whose ardent zeal and unwearied labours have so much contributed to its advancement.

As a young man, Gregory appears to not have shown any personal ambition with regards pursuing a medical career in either the army or the navy, preferring instead to remain in Scotland. The decision was a wise one, as he went on to pursue a highly successful careers as one of Scotland’s foremost medical educators of the day. Therefore his very public endorsement of Pringle’s achievements is particularly interesting as it derived not only from what was a genuine appreciation of his work aimed at improving the health of the army but also in recognition of what this meant in terms of advancing medical knowledge and treatment to all sections of society and the benefits which would follow.

---

625 Ibid. p. v-vi
626 There is no evidence that both men met in person although this is likely in terms of their association with Edinburgh.
This action of Gregory is also particularly relevant in terms of providing additional evidence of the type and extent of professional dialogue which clearly existed between military and civilian medicine from the eighteenth century onwards. To see the two groups as separate entities co-existing within the medical profession is not only inaccurate but fails to take into consideration the complex, and often progressive relationship which gradually emerged. This is not surprising if one considers that military and naval medical officers had never been purposefully excluded from civilian life. They also frequently returned to an urban or rural practice when they were put on half pay during times of peace and needed to supplement what little money they received. The same was true for those who were retired from both services having completed their commission. For many this was still at a relatively early age which meant that many military and naval doctors were effectively given access to a second, often highly successful civilian medical career. In the same way civilian physicians were in no doubt of the fact that they could gain much from engaging in dialogues with their armed services colleagues. In places such as Portsmouth and Plymouth local medical societies continually provided an ideal forum for shared debate at their regular meetings throughout the late eighteenth and nineteenth centuries. In the same way, the growing number of medical journals remained a favoured route for advancing new ideas regardless of their point of origin.

However the most significant discussion led by military and naval medical officers at this time was that pertaining to the need for all members of the medical profession to fully understand the relevance of connecting factors such as environment, climate and filthy conditions to the cause of disease. Moreover, it is also important
to recognise that it was the same medical officers who became increasingly aware of the fact that the only way they could hope to implement successful and lasting preventative health measures amongst the soldiers and sailors under their charge, would be through implementing radical changes which extended beyond the garrison and port, into the very societies from which recruits were taken. This is where the true significance of what Pringle and other medical officers really lay, as they were calling for a universal approach to preventative health long before the more familiar initiatives of men such as Chadwick, Snow and Simon.

Furthermore, for such efforts to be successful, the same military and naval medical officers went one stage further by identifying that their own plans for introducing preventative health required an entirely new understanding of the nature of disease which also involved rejection of centuries-old medical knowledge. This was not only a major break with tradition but also challenged the very core of established medical professionalism. The concept that disease was very much a personal emanation had long defied any attempt to modernise medical treatment such as classification or standardised treatment. It was also completely unsustainable in relation to treating the ever increasing numbers of sick soldiers and sailors. Out of expediency, medical officers such as Pringle and the others who followed him, therefore recognised the need to commit themselves as a profession to a new paradigm which would facilitate a greater level of success in relation to meeting the medical demands increasingly being made of them.

The advances in preventative health led by both military and naval medical officers were indeed far more than a series of sporadic attempts to remove the worst
excesses of dirt from garrisons and ships. At the heart of these endeavours lay radical ideologies which were increasingly tested through the adoption of empirical methodology which made it essentially very different to what was being experienced in the civilian context. This approach also led the same medical officers to recognise the need to actively promote the idea that preventative health was not just about ensuring a healthy army and navy, but also had to be extended to all populations if the long term security and prosperity of the nation was to be assured.

The origins of these military and naval achievements undoubtedly arose from the close association with the Scottish universities where the teaching of a modern curriculum ensured that medical students were provided with knowledge and practice relevant to the health of society at large. Furthermore, the type of training offered north of the border not only provided innovation in terms of theory and practice, but also increasingly provided generations of doctors with a moral justification in relation to what was perceived to be an increasingly intrusive level of intervention when it came to controlling disease. This can be seen from the earliest actions of men such as Pringle whose early introduction to European philosophy and ethics which endorsed state intervention in matters of health certainly influenced his later medical career. In the same way, even McGrigor felt justified in openly claiming that until such time all disease could be overcome, every aspects of a soldier’s professional and personal life should come under the sole command of those whose role was to ensure the physical well-being of all troops.627

---

627 McGrigor, Medical Sketches. P.43
Yet despite the meaningful intention of this type of medical officer, the idea that the way in which all people lived could be controlled by those in authority was never going to find wide-scale support in eighteenth and early nineteenth century Britain, regardless of the rationale which motivated thoughts and actions. This can be clearly seen with early initiatives such as Medical Police which failed to gain anywhere near the same level of popularity in Britain, compared to many other European countries. In the same way, there was no attempt to introduce public health initiatives as part of early urban reform such as those seen in late eighteenth century France. The intricacies of civilian initiatives as a way of ensuring the health of the French population has been analysed in depth by Garrio.\textsuperscript{628} Whilst it is significant that the bureaucratic model along with the public and professional response initiated a complex response particularly by the urban population in places such as Paris, there is no evidence that this informed either informal discussion or formal government policy back in Britain. It is however interesting to note that public health initiatives in both countries throughout the eighteenth and nineteenth centuries continued to attract a sense of distrust amongst the populations most in need to improvement, be it in response to the urban planning pursued in France\textsuperscript{629} or the attempt to introduce mass vaccination programmes in Britain which would be responsible for wide scale protest amongst many of the working classes who resented government intrusion into what was felt to be private matters.

\textsuperscript{628}David Garrio, \textit{The Making of Revolutionary Paris} (Berkely: University of California Press, 2001). P.231
\textsuperscript{629}Ibid. p.235
Therefore, even in the armed forces, medical staff when promoting standardised preventative health measures remained wary of acting in ways which could be seen as undermining the rights of the individual, even when they involved the most humble members of the rank and file. Due to this fear of infringing personal liberty, it became increasingly necessary to focus on factors such as climate and environment as these gave medical staff a less controversial position when it came to arguing for the implementation of preventative health measures as opposed to actions of a more personal nature. However the benefits of taking such an approach rapidly took on greater significance when it was acknowledged that the environmental conditions could readily be transferred beyond the port and garrison, into society at large. This can be seen in the early work of Cleghorn who was one of the first military medical officers to use the term “public” to differentiate from military populations, but who also argued that only by providing both groups with the same level of consideration in relation to removing the worst excesses of dirt and disease, could the standard of health of either group be ensured. Moreover, the continued use of ideas such as these ensured that the term “preventative health” came to mean more than an act of “preventing” disease or poor health in relation to the needs of an individual or a relatively small group. Rather it increasingly associated itself as being an imposed action on the part of an external agency, all be it at this time military and naval, which was increasingly seen as relevant to improving the health of all sections of society.

The route which medical officers in both the army and navy pursued in order to create the specialist knowledge required in order to identify and remove the cause of disease, has been the focus of each of the previous chapters, as has aspects such
as training and the early use of methods such as quantifiable analysis. It can also be said that the inclusion of case studies involving the control of diseases such as Yellow Fever and Cholera provide a framework in which these advances could be more accurately assessed. However the need to commence this research with attempts to control Smallpox has major significance to the argument outlined in this thesis. It was this disease in particular which created a point of entry for commissioned medical officers in relation to understanding how their intentions compared to their civilian colleagues, as well establishing some of the most basic parameters in terms of implementing wide-ranging change.

Early attempts to control smallpox, in the form of inoculation, was very much a civilian initiative first led by the Royal Society and the Royal College of Physicians of London, and only later did it begin to attract military and naval interest. The idea that a disease could be actively controlled through direct intervention was a concept which was without precedence. Inoculation also provided the first opportunity to discuss ethical considerations in terms of imposing on an otherwise healthy person, a process which involved receiving a mild, yet sometimes potentially fatal dose of smallpox. Less easy to define but in many ways more complex, was the problems surrounding moral obligation, which was inherent in the decision as to whether a person should receive inoculation in order to protect those around them. It was this particular problem which the army and navy experienced to the greatest extent, as opposed to the civilian population where compulsory inoculation rarely became an issue until compulsory vaccination programmes appeared in the mid nineteenth century. However when it came to being used by the armed forces, inoculation particularly became a more complex
problem as seen in the case of the British army in North America. When General Howe issued orders to carry out compulsory inoculation on all troops who had not had smallpox, it not only initiated a response from the highest level of command but also led to his own loss of office. Therefore in an age when the rights of the common soldiery were at best described as minimal, and the dangers of smallpox were far from being exaggerated, the medical officers of both armed forces were acutely aware of the complexity regarding what could be feasibly introduced even in the name of preventative health.

Nevertheless, both the Admiralty and the War Office allowed medical officers to continue to look for ways of limiting the incidence of smallpox amongst its soldiers and sailors, and as a result of this action smallpox certainly played a major role in some of the first discussions relating to the increasingly poor physical state of civilian society and how this could negatively impact on meeting the needs of the armed forces. The constant demands made on both the army and navy throughout the eighteenth century led to an unprecedented call for a constant flow of new recruits taken from both rural and urban locations. Whilst the fact remains that the number shown to be physically unfit for any type military duty did not come close to the crisis which accompanied events leading up to the Boer War, there was an unprecedented and increasingly ominous sense of urgency that the changes arising from urbanisation and industrialisation, were not as benign as generally believed.

Hence commissioned medical officers were amongst the first professional group to identify and promote ways of maintaining a level of good health across all sections of society. To this end, naval surgeons such as Gilbert Blane and Thomas Trotter not
only supported inoculation but as products of their training and experience, were also able to recognise the superiority of vaccination, which they publically endorsed. The army was also quick to follow this trend by initiating the first compulsory vaccination programme amongst its troops in order to finally try to eradicate smallpox in all regiments. However, within the civilian population, government legislation to implement a similar level of control was viewed with far more reticence with the outcome that vaccination not become compulsory until as late as 1853. This disparity in approach meant that smallpox remained a major public health issue and in many ways, negated the advances achieved in the army and navy as both rural and urban locations continued to record a significant level of mortality directly attributed to smallpox. Moreover the threat of smallpox did little to offset the greater fear posed by compulsory intervention which continued to be seen by many people in Britain, particularly the working classes in terms of representing yet another infringement on personal liberty. When set against the wide scale demands for reform in political, social and economic affairs, few governments were therefore prepared to risk social unrest, even when set against matters of health.

The sense of certainty which defined the theory and practice of military and naval medical officers in their support of preventative health was indisputably linked to the training many received in universities north of the border. The role played by universities such as Glasgow and Edinburgh was immense in terms of not only providing what became known as the Scottish model of medical education but also in the way it facilitated an entirely new specialism which was designed solely to meet the needs of troops and sailors alike. It is important to note that Scotland’s
universities were not only an overt expression of the Scottish Enlightenment, but were purposefully created in rejection of traditional English scholasticism, preferring instead to align themselves to the modernity and freedom of continental universities. In terms of medical education, Scottish graduates were therefore taught a curriculum which introduced and welcomed innovative approaches such as clinical diagnosis, along with range of associated subjects which were all designed to enhance the core of modern medical knowledge. As a result of this, and set within a framework of empirical enquiry, the purpose of medicine gradually emerged into a model which focused specifically on finding ways of preventing illness rather than just relying on inefficient and outdated therapy.

Nevertheless the real influence of the Scottish universities lay in the vast numbers of medical students they trained, and who in turn disseminated this new approach to medicine across an increasingly wide field. It is interesting that the restrictive practices exerted by the Royal Colleges continued to have little effect on those who were prepared to forgo privileged private practice. Instead, large numbers of Scottish graduates filled the rapidly increasing number of vacancies which arose in places such as dispensaries, workhouses, factories, friendly societies and a range of other institutions, all of whom were prepared to pay for the services of a trained doctor. Although many such posts were salaried, the demands were onerous with little security of tenure. Such a situation made the growing opportunities in both the army and the navy increasingly attractive particularly as medical officers enjoyed a range of significant privileges. From 1789 to 1814 the number of doctors
needed in the Army Medical Department alone increased from 152 to 1,274. The demand for suitably qualified staff was therefore continuous and whilst doctors had to acclimatise to lengthy postings in unfamiliar and unaccommodating locations, they could rely on status conferred by rank and the opportunities and freedom to engage in types of medical study which were not so accessible to their civilian colleagues.

Yet despite the level of innovation and growing professionalism which came to define medical staff, even the most impressive reforms could face fierce, illogical opposition from the archaic Army Medical Board. Its members for the most part had little relevant experience to hold the posts they were awarded and it was facts such as this which were increasingly perceived as being responsible for the continuously high rates of disease common amongst troops. In comparison the navy had already undergone its own internal reforms beginning with the creation of the Sick and Hurt Board, with the outcome that the general health of sailors showed a marked improvement which was not seen for many years in the regiments. Only with the publication of the damming Fifth Report on the State of the Army were events put into action beginning with the radical reorganisation of the medical services which were protected by formalising the association with Scottish medical education. This also marked the official period of military medicine in Edinburgh as dating from the publication of the Report in 1806 to the death of Ballingall in 1855. Furthermore with the creation of a Chair in Military Medicine, the

---

630 Marcus Ackroyd, Brockliss, Laurence, Moss, Michael, Retford, Kate, Stevenson, John, *Advancing with the Army: Medicine, the Professions and Social Mobility in the British Isles 1790-1850* (Oxford: Oxford University Press, 2006). P.44-45
aim was to give the subject a permanent status. However, the fact that this was a Regius Chair, gave the academic community the opportunity the perfect opportunity not to extend this into being a permanent feature of the senate, with many staff remaining openly concerned by such an overt association with the British army.

In many ways, events in Scottish universities such as Edinburgh replicated the growing distrust on the part of the civilian population in response to the increasing levels of military and naval involvement in matters perceived to be beyond their jurisdiction. Even though the Royal Commission on Scottish universities highlighted the success of military medicine as one of the most significant achievements of Edinburgh University, and proposed that it remain integral to the teaching and learning offered to students, the Chair was eventually disbanded after only two appointments, with the Senate taking direct action to halt all future funding as a way of ensuring that no further appointment would be made. However the real legacy of Scotland lay not so much at the official level but unquestionably in the type of training it afforded its growing number of medical graduates. Even without the recognition of an academic Chair, many young doctors on completion of training continued to pursue a military or naval career and in doing so ensured that the emphasis in preventative health remained at the forefront of medical intervention. Such was the value of this type of medical curriculum that it was replicated both in the naval hospital at Haslar, followed by the creation of the army training hospital, Netley, opened in 1856. In such institutions, along with similar training opportunities afforded by organisations such as the East India Company, the control of the environment was considered to be one of the most important
factors in maintaining the health of those who came under the care of the continually specialist medical staff, most of whom continued to maintain a strong link to the now famous Scottish model of medical thinking.

For much of the period under discussion the successes of medical officers in promoting preventative health models meant an increasing reliance on quantifiable evidence quite simply in order to substantiate the claims being made regarding the importance of introducing preventative health measures as opposed to relying on ineffective treatments. For much of the eighteenth century there were significant mathematical limitations, though the approaches used were still able to provide tangible and substantial evidence to show the success of an empirical approach towards identifying and understanding the cause of disease. The mathematical techniques heavily relied on the collation of raw data and extremely elementary levels of analysis. However, even the most basic use of quantifiable methods still constructed a standard which could be used by medical staff to illustrate what was acceptable or not in relation to the way in which soldiers and sailors were living. Towards the end of the period, this was greatly enhanced by the introduction of probability which became widely used and was particularly useful in terms of projection, and establishing targets relating to health. Doctors such as Thomas Dickson Reide typified the type of military medical practitioner who understood and promoted the importance of conclusions drawn from data which could be analysed and given values in ways which helped create specific domains within the rapidly increasing library of material relating to preventative health. The trust allocated to quantifiable analysis therefore not only grew but also illustrated the potential to damage the most illustrious careers, as seen in the Millar-Monro
argument. Only with the introduction of statistics could new standards of interpretation be verified, a fact recognised by army physicians such as Henry Marshall, whose work led to many of the military reforms of the mid nineteenth century. In a similar move, the growing army of civilian medical officers also recognised how this type of evidence was one of the most effective ways of removing the very worst excesses of poor conditions across much of the country.

Despite such innovations, diseases continued to endanger the state of both the army and the navy, with some of the highest mortality rates resulting from Dysentery, Typhus and Typhoid Fever. As a consequence of their severity, matched by an all too frequent appearance, disease was therefore met with a degree of inevitability particularly during periods of conflict where makeshift garrisons exacerbated problems which rapidly became a health hazard. At least in peacetime, the rates of illness began to fall, due to the continuing advances bought about through the programme of modernisation in many of the garrisons where increasing attention to cleanliness became standard military and naval practice. This was particularly evident on ships where modifications relating to ventilation such as that designed by Stephen Hales and the recognition of the need to improve all ships quarters resulted in a marked fall in the number of cases of the worst type of contagious diseases.

However, the fact remained that there was an association of certain diseases within a military or naval context, which even today is still incorrectly cited by those who argue that preventative health was not a concept which existed in the British army until the shameful events of the Crimean War forced the War Office into
implementing wide-scale reforms across all aspects of military life. Even within civilian society certain diseases were presented as primarily a military problem, seen in the events surrounding the imminent threat of Yellow Fever and Cholera. Both diseases were generally unknown in Britain, though held a frightening reputation in countries where the climate and environment provided ideal conditions. Yellow Fever had long been regarded with great fear amongst troops stationed in the West Indies where it was one of the leading causes of morbidity and mortality. In the same way, Cholera was associated with India and the East where it was known to be an indigenous disease though many worryingly noted ways in which it appeared to affect more and more European troops stationed in the most remote locations.

Hence, both diseases became the main priority of military and naval medical officers as seen in the vast library of material written with the purpose of attempting to understand both the modes of transmission as well as identifying the most effective forms of treatment. Yet what is most significant was the way in which this work illustrates the more complex challenge medical staff embraced in relation to the question as to whether such diseases were contagious. As seen in chapter 5 this willingness to enter into one of the most complex medical concerns of the age illustrates the way in which military and naval medicine had grown in confidence, not only in relation to methods used but also in the way they were prepared to challenge the very core of established medical thinking. Moreover the debate surrounding the terms “contagionism” and “anticontagionism” did more to illustrate the level of modernity in relation to the advances made by medical officers in the army and navy compared to their civilian colleagues. What is
interesting is the way in which the willingness of many military medical staff to support the anticontagionist view drew directly from what was now years of experience in specifically looking for the actual cause of disease, as opposed to continual reliance on the merely theoretical argument. This should also be seen as one of the most significant endorsements by military and naval medical staff regarding the need to improve the state of well-being for all, based on the way people lived and the particular state of all locations, which could only be assured through the implementation of wide-scale preventative health interventions.

The threat of Yellow Fever appearing in Britain never materialised though the same could not be said for Cholera. Despite evidence of the chaos and fear it created across much of Europe, before reaching Britain via the port of Sunderland, the British government chose to turn to the Royal College of Physicians for advice regarding the most suitable course of action as opposed to accessing the extensive military expertise which was already to hand. The very lengthy and complex reasons for this have been previously discussed though it is important to avoid seeing this in terms of simply mistrusting military medicine when applied to a civilian context. The medical profession at the time remained fully aware of the existence of specialist knowledge acquired by army and naval medical officers, and the fact that it was more accurate than that recently gathered in a sense of urgency by civilian practitioners was also noted. However, it was more a question of how and to what extent could this be applied in a public setting here in Britain, rather than an explicit rejection of military intervention, borne out of misplaced distrust.
Furthermore, the events surrounding the early control of Cholera serve greater purpose by emphasising the fact that that Britain in 1831 was a country driven by a very different set of needs to those of the previous century. With her military and naval status secure, attention increasingly turned to protecting the needs of colonialism and trade. Nowhere was this more evident than in the powerful and highly vocal objections to the introduction of possible quarantine, particularly the disruption to trade which came with it, even when set against the likely appearance of a disease as deadly as Cholera. Consequently, the authorities in Sunderland did not call into question Kell’s ability to identify the disease but were motivated by the very real concern that his subsequent actions would bring to a halt the continued working of the port, so threatening the prosperity of the area. Military intervention, even when representing the most constructive form of protecting society at large, could no longer be accommodated in ways which previously had previously attracted little concern, even when the health of the nation was under threat.

There was also the undeniable fact that the unprecedented levels of urbanisation and industrialisation continued to have an immense impact across much of the country, not only in terms of physical changes but also in bringing an end to a way of life which no longer could be maintained. The social problems and the way in which all sections of society were affected was without precedence. Nowhere was this more obvious than in matters relating to the health of the nation, which was deteriorating at a rate never previously witnessed. Despite the subsequent attempts to restore a level of humanity through the aims and intervention of both the public health and sanitary movement, the sheer scale of dirt and disease across the country was such that the early efforts of bureaucrats such as Edwin Chadwick
were rapidly overtaken by nothing less than a new type of army comprising medical officers typified by Snow and Simon who talked openly on waging a war against dirt and disease, and the need to be victorious in the battle for ensuring the nation’s current and future health.

Set in such a context, military and naval medical officers therefore found themselves to be increasingly without any defined role when it came to adding their support in the control and treatment of disease and issues relating to preventative health. Their early advances, which had been considerable, now appeared to have little in the way of sustained or transferable value either in terms of acting in an advisory capacity or directly influencing decisions regarding treatment. It is this particular situation which in the past has all too often led histories of the public health and sanitary movement to see the absence of armed forces medical staff as evidence that they were totally absent. However, as this particular research has illustrated, whilst the events of the nineteenth century were very much about responding to the county’s rapidly deteriorating state of health, it must be acknowledged that the concept of preventative health, whereby the threat to wellbeing was seen as essentially something which could be avoided at the outset, not only had its origins much earlier in the eighteenth century but was, in the most part, initiated by military and naval medical officers. As has been shown, it was they who, having been initially charged with the task of improving the state of health of the men under their control, were amongst the first of their profession to appreciate that this had to be extended to include all of society, firm in the belief that this was the only way to ensure the security of the nation. Furthermore, by developing such an ideology, the same group of practitioners were also establishing
the concept of preventative health as being the right of every individual, regardless of their rank, status or class.

As nineteenth century Britain emerged under a barrage of filthy conditions, poor standards of health and a rapidly increasing population which only served to exacerbate these problems, attention increasingly turned to an eclectic group of social reformers who came from a variety of backgrounds including the medical profession. However, military and naval medical officers continued to find themselves being distanced from playing an active role when it came to matters relating to the health of civilians. They therefore took the opportunity to step back into their own institutions and hospitals, where they continued to develop many of the specialisms relating to improving an understanding of preventative health. As in earlier times, medical staff were once again tasked with maintaining the state of health of troops now needed to support Britain’s vast imperial expansion, though there was now a notable absence of any discussion as to how this might also be applied to a civilian context. However it is important to acknowledge that this sense of distance was something which had certainly not defined the very early achievements of military and naval medical officers. The immense influence they exerted in understanding the dangers posed to all of society by dirt and disease were introduced with the specific goal of improving all sections of society, not just those men under their command. Moreover, considering what the same practitioners accomplished, as illustrated by this research, there is without question a case to be made for extensive further academic study to redress the many continuing misunderstandings in relation to the early role played by both the
military and naval medical officers in laying the foundations of preventative health in Britain.
Bibliography

Primary Sources:

Magazines and Periodicals:
———. "Memorial Concerning the Present State of Military and Naval Surgery. Addressed Several Years Ago the the Right Honourable Earl Spencer, Firts Lord of the Admiralty; and Now Submitted to the Public." 1800.
Quier, John. "Chapter Xix : An Account of the Success of Inoculation for the Small-Pox at Jamaica." Medical Transactions, 1772.

Newspapers:
Anon. Diary or Woodfall's Register, 1793.

Parliamentary Papers:
"Evidence, Oral and Documented Taken and Received by the Commissioners Appointed by His Majesty George 1v, July 23rd 1826; and Re-Appointed by His Majesty William Iv, October 12th 1830. For Visiting the Universities of Scotland." London: W Clowes, HMSO, 1830.
"Report from the Select Committee Appointed to Consider the Validity of the Doctrine of Contagion in the Plague." 1819.

Printed books:
Brocklesby, Richard. "Oeconomical and Medical Observations, in Two Parts. From the Year 1758 to
the Year 1763 Inclusive." London: T. Becket & P. A De Hondt, 1764.
Cleghorn, George. "Observations on the Epidemical Diseases in Minorca, from the Year 1744 to
Clifton, Francis. "The State of Physick, Ancient and Modern, Briefly Considered: With a Plan for the
Improvement of It." London: W. Boyer, 1732.
———. "Tabular Observations Recommended, as the Plainest and Surest Way of Practising and
Improving Physick." London: Brindley, 1731.
Cuthbertson, Bennett. "A System for the Complete Interior Management and Oeconomy of a
Dr Alexander Monro, Primus, (ascribed). "Medical Essays and Observations; Published by a Society in
Duncan, Andrew. "A Short View of the Extent and Importance of Medical Jurisprudence, Considered
as a Branch of Education." edited by Edinburgh, 1798.
T. Cadell, 1772.
1770.
Haygarth, John. "An Inquiry How to Prevent the Small-Pox. And Proceedings of a Society for
Promoting Generl Inoculations at Stated Periods, and Preventing the Natural Small-Pox in
———. "A Sketch of a Plan to Exterminate the Casual Small Pox from Great Britain; and to Introduce
Hennen, John. "Principles of Military Surgery: Comprising, Observations on the Arrangement, Police,
and Practice of Hospitals, and on the History, Treatment, and Anomalies of Variola and
Syphilis." Philadelphia: Carey & Lea, 1830.
Hillary, William. "An Inquiry into the Means of Improving Medical Knowledge, by Examining All
Thiose Methods Which Have Hindered, or Increased Its Improvement." London: Hitch and
Hawes, 1761.
———. "Observations on the Changes of the Air and the Concomitant Epidemical Diseases in the
Island of Barbadoes." London, 1759.
His Royal Highness, Frederick, Duke Of York And Albany. "General Regulations and Orders Relative to
the Duties in the Field and in Cantonments." Whitehall: Egerton, 1798.
London: W. Bent, 1788.
———. "Observations on the Air and Epidemic Diseases from the Briginning of the Year 1738 to the
End of the Year 1748 (Volume Two)." London: J. Hinton, 1738.
Especially of Jails, Ships and Hospitals and the Yellow Fever. With the Observations on
Military Discipline and Economy, and a Scheme of Medical Arrangements for Armies."
Edinburgh, 1798.
Jameson, j. "Report on the Epidemic Cholera Morbus as It Visited the Territories Subject to the
Presidency of Bengal in the Years 1817,1818, and 1819." Calcutta, 1820.
Kay-Shuttleworth, James. "The Moral and Physical Condition of the Working Classes Employed in the
Cotton Manufacture of Manchester." 1832.
Kell, James Butler. "On the Appearance of Cholera at Sunderland in 1831; with Some Account of That
Disease." Edinburgh: Adam and Charles Black, 1834.


Massey, Edmund. "A Sermon against the Dangerous and Sinful Practice of Inoculation, Preach’d at St Andrew’s Holbourn, on Sunday July the 8th, 1722." London, 1722.


Sparham, Legard. "Reasons against the Practice of Inoculating the Small-Pox." London, 1722.


Secondary Sources:

Books and Journals:

Ackroyd, Marcus, Brockliss, Laurence, Moss, Michael, Retford, Kate, Stevenson, John. Advancing with the Army: Medicine, the Professions and Social Mobility in the British Isles 1790-1850. Oxford: Oxford University Press, 2006.


Mathias, Peter. ""Swords and Ploughshares: The Armed Forces, Medicine and Public Health in the Late Eighteenth Century."


McGrigor, James. Medical Sketches.

———. The Scalpel and the Sword.


Skelly, Alan Ramsey. The Victorian Army at Home

261


**Uncategorized References**
