



The Perception of Medical Ethics Within the Case Study and Campaign of Jennerian Vaccination

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The Perception of Medical Ethics within the Case Study
and Campaign of Jennerian Vaccination

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Abstract

Smallpox is credited as the deadliest infectious disease in history. From the beginning of the eighteenth century smallpox was treated by inserting smallpox matter into the arm of an individual. It was not the ideal method of treatment. Physician Edward Jenner from a young age as an apprentice, was interested in the folklore of cowpox. Cowpox when contracted by a human was rumored to make the individual unsusceptible to smallpox. Jenner sought to bring this folklore to the masses if in fact cowpox did protect against smallpox. He determined through experimentation, that cowpox protected against smallpox. As a result he entered a decades-long campaign in order to see this method save lives from the hell that was smallpox. The ethics of Jenner were questioned throughout his work. This research finds that Jenner conducted his experiments ethically. To understand the ethics of Jenner it is necessary to place him within the medical ethics established prior and during his era.

Dedications

Dedicated to my wife and family, I love each of you dearly!

Thank you for always being there, I thank God for each of you every single day.

I am truly a blessed individual

Acknowledgements

I would like to acknowledge and thank Professors David Shumway Jones and Donald Ostrowski. Thank you both for assistance during this process.

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Chapter I

Introduction

Smallpox is credited as being the deadliest infectious disease in history. It is responsible for killing over three hundred million people. Smallpox did not know class or race; anyone could potentially die from this disease. There are no longer fears of smallpox outbreaks due to the research and experimentation that made the eradication of smallpox possible. These efforts began with eighteenth century researcher and physician Edward Jenner who took what could be considered folklore to the scientific masses and created a vaccination campaign to rid the world of smallpox. President Thomas Jefferson in a letter to Jenner thanked him and recognized the impact he would have on the world. President Jefferson wrote, "Medicine has never before produced any single improvement of such utility... You have erased from the calendar of human afflictions one of its greatest... Mankind can never forget that you have lived."¹ Physicians and scholars generally credit Jenner for his work on vaccination, but some question the ethics as to how Jenner came to his findings. This work will focus on how Jenner came to his vaccination, the resulting vaccination campaign and the ethics he observed along the way.

Edward Jenner completed his case study on smallpox in the late eighteenth century; he performed a series of test on individuals including children, to see the

¹Thomas Jefferson, "Letter to Edward Jenner on his Discovery of the Small Pox Vaccine," May 14,1806, <http://www.let.rug.nl/usa/presidents/thomas-jefferson/letters-of-thomas-jefferson/jefl172.php> 14 February 2018.

effects of cowpox on humans and if the cowpox matter transmitted via vaccination to another individual prevented them from contracting smallpox. He published his findings in a publication he titled *An Inquiry into the Causes and Effects of the Variolae Vaccinae: A Disease Discovered in some of the Western Counties of England, Particularly Gloucestershire and known by the name of the Cow Pox*. This publication was directly responsible for the observation of Jennerian vaccination, which led to saving millions of lives. Jenner started a vaccination campaign that travelled the world well after his death in 1823. His efforts continued for over a century and a half, in 1977 the World Health Organization had finally succeeded in the eradication of smallpox. It speaks volumes to the hellish disease smallpox was, having to work that long to rid the world of one of its worst adversaries. On May 8, 1990, the World Health Assembly announced that the world was free of smallpox and recommended that all countries cease vaccination: "The world and its people have won freedom from smallpox, which was the most devastating disease sweeping in epidemic form through many countries since earliest time, leaving death, blindness and disfigurement in its wake."²

The ethics of medical research and practice like all ethical matters has evolved over time, a modern medical ethic scholar who observed Jenner solely in the standards of today, would almost certainly view Jenner as unethical. From his use of human test subjects, to purposefully introducing individuals to harmful bacterial matter, Jenner is surrounded by ethical questions. But those questions do

² Stefan Riedel, "Edward Jenner and the History of Smallpox and Vaccination," January 2005, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1200696/> (6 March 2018).

not reside solely in the present; the ethics of Jenner were highlighted and argued at the time of his campaign too. While one can place Jenner within the ethics of today, to truly view the ethics of Jenner, it would be necessary to place him within the ethical standards created prior and around the time of his smallpox case study. The term “medical ethics” was not coined until 1803 when physician Thomas Percival introduced it in his eponymous book *Medical ethics*.³ Jenner had already performed his experiments and published his findings by 1803. (*Medical Ethics* will still be a critical piece to this work as it is such an important resource in the history of medical ethics) Thus what were the ethical guidelines and procedures for a medical researcher or practitioner to perform proper medicine before and during the late eighteenth century? What elements of Jenner’s case study and campaign were seen as being controversial ethically? How did Jenner’s peers view himself, his discovery, and the overall ethics of his campaign? It will also be interesting to place Jenner within the scope of modern medical ethics to see why some modern ethic scholars can view Jenner unethically. However, with a proper understanding of the history of medical ethics prior and during the life of Jenner, it may become evident that Jenner practiced his case study and campaign ethically.

This work will argue the ethical nature of Jenner based off his personal publication, *An Inquiry*, as well as other publications about smallpox and cowpox. While Jenner and his work are critical, the works of others are of an even greater importance because Jenner always wrote in a very simple manner, he did not go into much detail. His lack of detail is a major point of argument for those who stood

³ Robert B. Baker and Laurence B. McCullough, *The Cambridge World History of Medical Ethics* (New York: Cambridge University Press, 2009), 3.

against Jenner. Luckily scholars have written about Jenner and his campaign, providing ample insight.

Chapter II.

Definition of Terms

Jennerian vaccination: the act of taking cowpox matter and inserting the matter into small incisions on the arm of the test subject. Performing the vaccination is believed to make one immune to the illnesses associated with smallpox; though more than one vaccination was sometimes required.

Variolation: the method used to immunize an individual against smallpox prior to Jenner's vaccination. Smallpox matter was taken from an individual with smallpox and implanted into the arm of an individual who has yet to become infected. Variolation caused an individual to become infected with smallpox; a majority of the time symptoms were far less severe than if contracted normally. It was not ideal, as variolation often left the patient very sick, the method was deemed unsafe and outlawed after Jenner's method was widely accepted.⁴

Medical Ethics: Moral principles established by various physicians, they state what is deemed proper behavior for a physician. Covering matters such as the necessity to heal patients, proper treatments, and the relationship established between the physician and patient.

⁴ Riedel, "Edward Jenner and the History of Smallpox and Vaccination."

Cowpox: An infectious disease that is the part of the orthopoxvirus family, meaning it is in the same family of disease as smallpox but refers to the type that infects cows. Sores would appear on the udder of the cattle.⁵

⁵ Edward Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae: a Disease Discovered in some of the Western Counties of England, Particularly Gloucestershire and known by the name of the Cow Pox*, London: Sampson Low, 1798, 3. Accessed February 20, 2018, <https://books.google.com/books?id=QDXShHV2z0MC&printsec=frontcover&dq=Jenner,+Edward.+An+Inquiry+into+the+Causes+and+Effects+of+the+Variolae+Vaccinae:+a+Disease+Discovered+in+some+of+the+Western+Counties+of+England,+Particularly+Gloucestershire+and+known.>

Chapter III.

Background

Smallpox was a hellish disease, often killing its victims or leaving them with permanent disfiguration. The exact origin of smallpox is still debatable, the latest research suggests smallpox began in East Asia then spread to the Middle East and India.⁶ Variola major was the more severe form of smallpox; it was also the most common. Variola minor was the other less common strand; it encompassed symptoms far less severe. By the eighteenth century according to one estimate, smallpox claimed four hundred thousand lives annually. A third of all survivors suffered from some blindness from the disease.⁷ Variolation, the practice of taking smallpox matter and inserting it in a subject to provide protection against smallpox was introduced to Europe by Lady Mary Wortley Montagu.⁸ After her return to England in the early 1720s she began to campaign for the technique. While not ideal, the individual was still susceptible to undesirable symptoms associated with smallpox such as blisters and fatigue, variolation limited the spread of smallpox. Inoculation was the standard method used in the prevention against smallpox until Edward Jenner brought forth Jennerian vaccination.

⁶ Rob Boddice, *Edward Jenner: Pocket Giants* (Stroud: History Press, 2015), 22.

⁷ Boddice, *Pocket Giants*, 22.

⁸ Boddice, *Pocket Giants*, 24.

Jenner's entry into the study of cowpox was out of curiosity and an evolving intrigue as to how cowpox may impact an individual's ability to contract smallpox. Edward Jenner may have desired to study cowpox due to his hellish variolation as a child.⁹ In 1754 both of Jenner's parents perished, his mother from complications during the birth her sixth son (the son also passed) soon after his father passed away as well.¹⁰ While orphaned Edward's sisters took care of him for the next two years prior to sending him away in 1757 to attend the Wotton-under-Edge Grammar School for boys at the age of eight. While at the school there was likely a smallpox outbreak and it was decided the boys would undergo variolation by local surgeon Mr. Holbrow.¹¹ Variolation involved deep purging and a strict diet.¹² According to one of Jenner's friends, Fosbroke, the variolation process took six weeks, he stated "He was bled to ascertain whether his blood was fine; was purged repeatedly, till he became emaciated and feeble; was kept on very low diet, small in quantity, and dosed with a diet drink to sweeten the blood. After this barbarism of human-veterinary practice he was removed to one of the inoculation stables, and haltered up with others in a terrible state of disease, although none died."¹³ "This

⁹ Paul Saunders, *Edward Jenner: The Cheltenham Years 1795-1823* (London: University Press of New England, 1982), 2.

¹⁰ Richard Fisher, *Edward Jenner 1749-1823* (St. Edmunds: St Edmundsbury Press, 1991), 14.

¹¹ Fisher, *Edward Jenner 1749-1823*, 14.

¹² Fisher, *Edward Jenner 1749-1823*, 14.

¹³ Fisher, *Edward Jenner 1749-1823*, 14.

barbarism of human-veterinary practice' had reduce him to a skeleton.¹⁴ The variolation had a physiological impact on young Fosbroke, he could never sleep, was haunted by imaginary noises.¹⁵ The hellish variolation likely had a similar impact upon Jenner as he and his family decided to leave the school and continue his education elsewhere.¹⁶

Years later at the age of thirteen, Jenner became an apprentice for surgeon John Ludlow, the medical abilities and knowledge of Jenner grew immensely. Under Ludlow, Jenner learned of cowpox, about 1768 Jenner learned of a report from those in dairies of a distemper named the cowpox.¹⁷ The report states cowpox occurs from the infested teats of milk cows, the infection is then spread to the hands of the milkers, the result being sometimes a preventive of smallpox.¹⁸ Many overlooked this report, like a lot of early cowpox research, but it resonated with Jenner and started him down a path towards greater cowpox research.

After Ludlow, Edward continued his education in London with John Hunter, the greatest surgeon of his time and one of a handful of eighteenth-century scientists who believed that knowledge grew only out of experiment and

¹⁴ George Milbry Gould, *Anomalies and Curiosities of Medicine* (Philadelphia: W.B. Saunders, 1900), 906.

¹⁵ Fisher, *Edward Jenner 1749-1823*, 14.

¹⁶ Fisher, *Edward Jenner 1749-1823*, 19.

¹⁷ Fisher, *Edward Jenner 1749-1823*, 21.

¹⁸ Fisher, *Edward Jenner 1749-1823*, 21.

observation.¹⁹ Jenner grew from the habits of Hunter, John Baron friend of Jenner, who authored the first bibliography of Jenner after his death titled *Life of Edward Jenner, M.D. Physician Extraordinary to the King with Illustrations of his Doctrines and Selections from his Correspondence* spoke of what Jenner saw in Hunter. He remarks “He saw a kind, free, and manly nature devoted to the acquisition of science, and putting away from him entirely the selfish and personal considerations, which are too apt to encumber the researches, and to circumscribe the objects, of less enlightened minds.”²⁰

Jenner was fortunate to learn under John Hunter as well as his brother William who was Physician Extraordinary to the Queen, his education under the brothers was better than that obtained at Oxford at the time.²¹ John Hunter was a worldly surgeon and man of science, he was a Fellow of the Royal Society, a society of scholars who study the scientific arts and desired to determine worldly discoveries in the world of science. Hunter was interested in all of the sciences, however as a man of medicine he focused mainly on the study of the human body. Hunter’s works include the study of venereal diseases, the development of the child, and the study of the lymphatic system.²² Having mentors who believed there is no absolute truth but only an approximation, which must be tested and revised by

¹⁹ Fisher, *Edward Jenner 1749-1823*, 22.

²⁰ John Baron, *Life of Edward Jenner, M.D. Physician Extraordinary to the King with Illustrations of his Doctrines and Selections from his Correspondence* (London: Henry Colburn, 1827), 5.

²¹ Fisher, *Edward Jenner 1749-1823*, 25.

²² “John Hunter,” *Illustrated Magazine of Art* 4, no. 22 (1854): 210.

experiment and observation, was critical in the development of Jenner and his cowpox experimentation.

Jenner stood by this principal later in life during his cowpox research, opposing the one who original stood by those words, John Hunter. Hunter wrote to Jenner stating his cowpox research was not that promising and likely to hurt his standing within the scientific community, that he should enter another endeavor. Jenner did not listen to his mentor and began to seek greater knowledge and experimentation on cowpox. Sadly Hunter passed in 1793 and did not get the chance to see the success his student became.

In 1780 while traveling with his friend Edward Gardner, Jenner began to explain his opinion on cowpox and how the disease attacked the hands of milkers, thus providing protection against smallpox. After his explanation Jenner began to feel deep emotion as he felt the practice of cowpox could lead towards the extinction of smallpox. Jenner concluded his discussion on cowpox with these words directed towards his friend: "Gardner, I have entrusted a most important matter to you, which I firmly believe will prove benefit to the human race. I know you, and should not wish what I have stated to be brought into conversation; for should any thing untoward turn up in my experiments I should be made, particularly by my medical brethren, the subject of ridicule-for I am the mark they all shoot at."²³ Jenner knew his research needed to be thoroughly conducted and studied prior to presenting or publishing any finds for the scientific community was very opinionated and dismissive.

²³ Baron, *Life of Edward Jenner*, 128-129.

The Royal Society was not a supporter of Jenner and his cowpox research prior to his experiment or upon the release of his publication. However, Jenner was elected to the body from his work on the cuckoo, Jenner began to research the cuckoo under the advice of Hunter as Jenner was seeking a way to enter the Royal Society.²⁴ The cuckoo was seen as a subject worth studying due to its irregular egg nesting habits.²⁵ Cuckoo birds do not build their own nest to lay and hatch their eggs; instead they lay eggs in the nest of other various birds. Jenner proved the young cuckoo and not the parent bird removes the egg and the young from the nest to which it is deposited.²⁶ Jenner becoming a member of the Royal Society and other societies that centered more towards medicine were critical; they exposed Jenner to feedback and relationships that assisted him in the formation of his campaign.

When Jenner came to London in 1788 or 1789 to either read his cuckoo paper before the Royal Society or to be elected into the society, he brought a drawing of a dairymaid's hand that he believed had possibly contracted cowpox.²⁷ Jenner brought the drawing to show his colleagues and hear their opinions upon the drawing. The likes of John Fewster, Joseph Banks, and Hunter were shown the drawing, they all mentioned hearing of cowpox milkers being unable to take smallpox. However, the same scholars, including Fewster who knew the most about

²⁴ Stefan Riedel, "Edward Jenner and the History of Smallpox and Vaccination."

²⁵ Fisher, *Edward Jenner 1749-1823*, 47.

²⁶ Fisher, *Edward Jenner 1749-1823*, 49.

²⁷ Charles Creighton, *Jenner and Vaccination: A Strange Chapter of Medical History* (London: Sonnenschein, 1889), 24.

cowpox, refused to accept the idea, as they all mentioned instances were cowpox milkers had been attacked by smallpox.²⁸ Remembering the words of Hunter, Jenner knew from the beginning of his research that experiment and observation would be required to determine the effectiveness of cowpox. Jenner did not discover the use of cowpox as a preventive against smallpox but he took what was once a rustic lore and made into a scientific matter.

²⁸ Creighton, *A Strange Chapter*, 24.

Chapter IV

History of Medical Ethics and the Figures Who Created Them

This chapter observes numerous practitioners who created ethical codes to better the conduct deemed proper of a physician inclusive of diagnosis, healing, the relationship between a physician and his patient among others. It is difficult to say if Jenner had access to every ethical guide created by the figures below, but observing Jenner against these works holds merit. The individuals to be discussed created codes and guides that represent the foundation of today's medical ethics.

In the late eighteenth century when Jenner performed his smallpox case study there was no set medical ethics established that “had” to be followed by physicians. Medicine was for the most part was uncontrolled; professor of medical ethics at Boston University Michael Grodin in his book *The Nazi Doctors and the Nuremburg Code* discusses this manner. He writes “It should be noted that up to the nineteenth century, almost all medical practice may be considered uncontrolled, unstandardized and innovative therapeutics, or quite simply, human experiment of a purely empirical nature.”²⁹ However, that does that mean ethics did not exist at the time of Jenner's case study; physicians had created and practiced their own set of ethics for centuries.

No conception of medical ethics and the practice of medicine traces back to the beginning of medicine. Scholars Robert B. Baker and Laurence B. McCullough

²⁹ Michael Grodin, *The Nazi Doctors and the Nuremburg Code* (New York: Oxford University Press, 1992), 124.

authors of *What Is the History of Medical Ethics?* make a very influential argument when they state until the twentieth century the history of medical ethics is cemented in the works of traditionalism.³⁰ Traditionalism arises from the legitimization of ancient authorities, such as Jesus, Muhammad, Hippocrates, Confucius, Galen, among others, the more ancient and noble a heritage the stronger the claim.³¹

Aside from God, Hippocrates may be the most traditionalist source found in the history of medical ethics, Hoffmann, Gregory, and Percival (all medical ethic scholars whom will be critical towards the ethical argument of Jenner) relied on Hippocrates as they created their own ethical guides. The Hippocratic writings were the first to discuss the ethical principles within medicine. Many view Hippocrates as the father of modern medicine; he believed medicine was based on the observation of clinical signs and rational conclusions.³² His ethics did not rely on religious conceptions; this separated him from many medical ethics scholars. Hippocratic medicine was based on the Pythagorean theory that Nature was made of four elements, water, earth, wind, and fire.³³ Hippocrates in turn analogously viewed the body as consisting of four fluids or 'humors' (black bile, yellow bile, phlegm, and

³⁰ Baker and McCullough, *What Is the History of Medical Ethics*, 5.

³¹ Baker and McCullough, *What Is the History of Medical Ethics*, 5.

³² Christos Yapijakis, "Hippocrates of Kos, the Father of Clinical Medicine, and Asclepiades of Bithynia, the Father of Molecular Medicine," Review, *In Vivo* (Athens, Greece) 23, no. 4 (2009).

³³ Yapijakis, "Hippocrates of Kos."

blood) and four elemental conditions (cold, hot, dry, and moist).³⁴ According to Hippocrates a proper state of health was achieved when these were in balance, and in case of sickness, a physician had to figure out how to restore the balance.³⁵ To achieve that balance the physician had to examine a patient, observe symptoms carefully, make a diagnosis, and then treat the patient.³⁶ Hippocrates created the basics of clinical medicine that are still used in the process of treatment today. Hippocrates and his followers wrote many works within the field of medical theory and practice, over sixty were produced and are now known as the *Hippocratic Corpus*.³⁷ Scholars Helen Askitopoulou and Antonios N. Vgontzas remark on Hippocratic Corpus they state "This collection of manuscripts created over 200 years, transformed medical concepts from an oral theocratic and hieratic tradition to a written rational medical science and education."³⁸ William Henry Samuel Jones author of *Hippocrates and the corpus Hippocraticum* states "the greatest message of the Hippocratic Corpus is that medicine is an important but "difficult art,

³⁴ Yapijakis, "Hippocrates of Kos."

³⁵ Yapijakis, "Hippocrates of Kos."

³⁶ Yapijakis, "Hippocrates of Kos."

³⁷ Baker and McCullough, *What is the History of Medical Ethics*, 355.

³⁸ Askitopoulou, Helen, and Antonios N Vgontzas, "The Relevance of the Hippocratic Oath to the Ethical and Moral Values of Contemporary Medicine. Part I: The Hippocratic Oath from Antiquity to Modern Times," *European Spine Journal: Official Publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society*, 2017, *European Spine Journal: Official Publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society*, 2, <https://link-springer-com.ezp-prod1.hul.harvard.edu/content/pdf/10.1007%2Fs00586-017-5348-4.pdf>. 2 March 2018.

inseparable from the highest morality and the love of humanity” with emphasis on the individual patient and his illness.”³⁹ Within *Hippocratic Corpus*, one of the most influential works in the history of medical ethics was published, the *Hippocratic Oath*.

The *Hippocratic Oath* defined moral code and distinguished professional expertise from person morality within the practice of medicine.⁴⁰ Before the *Hippocratic Oath*, Hippocrates in his treatise *Law* criticized the discipline of medicine he wrote “of all the arts by far the least esteemed” because no rules were established against physician misconduct.⁴¹ The *Oath* is not a sacred script or legal document, it can be observed as a “short “elegantly complete” document that appears to have been designed for the swearing in of a person at the beginning of a medical apprenticeship.”⁴² The *Oath* establishes the general moral conduct of the physician-patient relationship, including the ideas of beneficence, non-maleficence, confidentiality, and accountability within the medical community.⁴³ The moral code section of the *Oath* has the physician first giving priority to dietetics, the physician pledges “I will apply dietetic measures for the benefit of the sick according to my

³⁹ W. H. S. Jones, *Hippocrates and the Corpus Hippocraticum* (London: G. Cumberlege, 1945).

⁴⁰ Askitopoulou and Vgontzas, “The Relevance of the Hippocratic Oath,” 3.

⁴¹ Askitopoulou and Vgontzas, “The Relevance of the Hippocratic Oath,” 3.

⁴² Steven H. Miles, *The Hippocratic Oath and the Ethics of Medicine* (New York: Oxford University Press, 2004), 3.

⁴³ Askitopoulou and Vgontzas, “The Relevance of the Hippocratic Oath,” 3.

ability and judgment; I will keep them from harm and injustice.”⁴⁴ Aside from dietetics, the ethical norms of pharmacology and the use of drugs in the treatment of patients are discussed. It begins with the physician pledge stating “I will neither give a deadly drug to anybody if asked for it, nor will I make a suggestion to this effect.”⁴⁵ Physicians who swear under the *Hippocratic Oath* are forbidden from performing or recommending euthanasia. The pharmacology portion of the *Oath* concludes with the quote “In purity and holiness I will guard my life and my art.”⁴⁶ A physician has a duty to be ritually clean, to not fall from the standards of the *Oath*, to always remember and practice medicine in a proper fashion.

The *Hippocratic Oath* discusses the physician and patient relationship being one based on healing. The physician must adhere to confidentiality and avoid speaking of patient’s diagnosis and treatment to others. The *Oath* concludes by stating “If I fulfill this oath and do not violate it, may it be granted to me to enjoy life and art, being honored with fame among all men for all time to come; if I transgress it and swear falsely, may the opposite of all this be my lot.”⁴⁷ A physician will earn salvation if he follows the oath he pledged to, he must treat and observe patients in a moral fashion or else fail and be unable to enjoy life. The Hippocratic Oath has had

⁴⁴ Robert M. Veatch, *Hippocratic, Religious, and Secular Medical Ethics: The Points of Conflict* (Washington, DC: Georgetown University Press, 2012), 13.

⁴⁵ Veatch, *Hippocratic, Religious*, 15.

⁴⁶ Ludwig Edelstein, “The Hippocratic Oath,” *Philosophical Review* 53 (1944): 609.

⁴⁷ Edelstein, “The Hippocratic Oath,” 609.

numerous versions throughout its history; it continues to be the standard for the proper conduct for a physician.

In 1347, the Black Death, a pandemic of bubonic plague, arrived in Europe evoking a deontological theme about the obligation a physician had to serve the sick and strengthen the role of the physician in the community.⁴⁸ However, many physicians did not believe in their ethical obligation instead following advice they gave their patients known as the Hippocratic Prescription: cito, longe, tarde: “leave fast, go far and return slowly.”⁴⁹ Medical Ethics professor Albert Jonsen states a relevant question about physicians during times of disease and plague he remarks “the question of service to the sick even at the cost of danger to oneself might trouble the conscience of a virtuous person who practiced medicine, but should it be the mark of the profession as a whole?”⁵⁰ Apothecary William Boghurst, stated an ethical ideal for physicians and everyone else who fought disease outbreaks, he states “everyman that undertakes to be of a profession or takes on himself an office must take all parts of it, the good and the evil, the pleasure and the pain, the profit and the inconveniences all together and not pick and choose; for Ministers must preach, Captains must fight and Physicians attend upon the sick.”⁵¹ A morally right

⁴⁸ Albert R. Jonsen, *A Short History of Medical Ethics* (New York: Oxford University Press, 2000), 45.

⁴⁹ Jonsen, *A Short History*, 45.

⁵⁰ Jonsen, *A Short History*, 47.

⁵¹ Jonsen, *A Short History*, 46.

physician had the conscience to put himself in danger for the treatment of others during plague and disease outbreaks.

During the late Middle Ages physicians were emerging in a new world of medicine. In 1495 Gabriele de Zerbi released *Advice to Physicians (De Cautelis Medicorum)*, historian L.R. Lind believes this to be the “first systematic account of medical ethics.”⁵² Zerbi describes “the physician as an educated person of the middle or upper social class whose primary ethical obligation is to earn the trust of patients.”⁵³ That the central virtue of being a good physician was “fidelity” which is described as wide-ranging advice about intercourse with patients, fees, and consultations.⁵⁴ Physicians must avoid false doctrines because their application leads to public disgrace, the most despised member of the profession is “the physician only in name.”⁵⁵ Zerbi thought that it is impossible to gain a satisfactory knowledge of medicine just from studying doctrines and theories.⁵⁶ Physicians must be faithful to the learned traditions of medicine and to the church, the rules of medical morality and ethics rest on the written words of the gospel. Zerbi states, “The physician is like a priest, to whom God has revealed the divine powers of healing and to whom men reveal their souls for the cure of their bodies. A physician

⁵² Jonsen, *A Short History*, 49.

⁵³ Jonsen, *A Short History*, 49.

⁵⁴ Jonsen, *A Short History*, 50.

⁵⁵ David E. J. Linden, "Gabriele Zerbi's *De cautelis medicorum* and the Tradition of Medical Prudence," *Bulletin of the History of Medicine* 73, no. 1 (1999): 22. <https://muse.jhu.edu/> (accessed February 22, 2018).

⁵⁶ Linden, “Gabriele Zerbi.”

must cultivate a life worthy of the priesthood.”⁵⁷ Theology begins to play a larger role in the determination of what is ethical in the field of medicine.

In the sixteenth and seventeenth century, there was an increase in moral theology based medical ethics, during the fifteenth century Catholic theologians developed a special branch of theology concentrating on the moral duties of Christians.⁵⁸ Italian Physician Giovanni Codronchus applied moral theology to the work of physicians. In 1591 he published a book titled *De Christiana ac tuta medendi ratione (Christian and Careful Method of Medicine)*. In his book he warns of sins physicians must stray away from, such as concealing illness, wishing sickness upon others for increased business, or giving medicine to a healthy person so they may fall ill.⁵⁹ He summarizes: “The physician may have many virtues, but “if he lack justice, all other virtues will fail him, for justice is the sum and source of all virtues.””⁶⁰ Ahasverius Fritsch published a Protestant version of moral theology in medicine in 1684 entitled *Medicus Peccans (The Sinning Physician)* the book list twenty-three sins commonly committed by physicians.⁶¹ The list included practicing medicine without sufficient education, fleeing the city in contagion, and damaging the reputation of other physicians.⁶²

⁵⁷ Jonsen, *A Short History*, 50.

⁵⁸ Jonsen, *A Short History*, 48.

⁵⁹ Jonsen, *A Short History*, 49.

⁶⁰ Jonsen, *A Short History*, 49.

⁶¹ Jonsen, *A Short History*, 49.

Friedrich Hoffmann, the first professor of medicine at the University of Halle in Germany, was a traditionalist whose lectures played a critical role in the development of medical ethics. These lectures were published in 1738 by his students and titled *Medicus Politicus* (The Politic Physician), after its release the work saw wide success around Europe as a guide towards ethics and the relationships between a physician and his patient.⁶³ *Medicus Politicus* was originally written in Latin then translated to French but was never translated to English.⁶⁴ Since it was not translated to English many English-reading thinkers in the generations that followed were not familiar with this work. Though Jenner and his peers were educated in Latin thus he may have read or studied the work of Hoffmann in his lifetime. *Medicus Politicus* was divided into three parts: the personal characteristics required by the new politic physician, second the physicians relationship with other members of the medical community, and lastly the relationship between patient and physician.⁶⁵

Hoffmann believed proper scientific investigation in medicine required both observation and reasoning.⁶⁶ Science required logical inference and a rejection of

⁶² Jonsen, *A Short History*, 49.

⁶³ Thomas Ettinger Baril, "Philosophical Analysis of the Concept of the Politic Physician in Friedrich Hoffmann's 'Medicus Politicus'," Order No. 3589880, University of Texas at Austin, 2008, accessed Feb 13, 2018, viii, <http://search.proquest.com.ezp-prod1.hul.harvard.edu/docview/1430963607?accountid=11311> (13 February 2018).

⁶⁴ Baril, "Philosophical Analysis," viii.

⁶⁵ Baril, "Philosophical Analysis," 65.

anything not experienced in observation, a true medical scientist must observe nature to restore and maintain health of others.⁶⁷ Discussing nature Hoffmann discusses Hippocrates, he states “Hippocrates, the ancient father of medicine, writes reverently and wisely, Try to acquire a knowledge of nature. It is unfortunate and disgraceful that up to the present time the warning of the divine elder is neglected by those who practice the rites of medicine.”⁶⁸ Hoffmann comments on natural philosophy, he remarks “Without natural philosophy the whole science of healing is maimed and weak, and is not suitable to explain any disease or wisely direct any cure. The natural philosopher peers into the recesses of nature, examines the hidden structures, proportions and mixtures, and from these he draws conclusions most fruitful for medicine.”⁶⁹

Medicus Politicus Part One’s title “The Rules of Prudence concerning the Personal Qualities of the Physician himself” represents fully what is discussed to the reader. Part One contains five chapters and eighteen rules, the three longest rules are: rule 5 which states let the physician be a philosopher (106 lines long), rule 6 let the physician be erudite (79 lines), and rule 7 let the physician learn clinical and individual practice (66 lines).⁷⁰ Hoffmann’s first lectures are on the moral character of the physician; Hoffmann’s idea of morality is based on the development of virtues

⁶⁶ Baril, “Philosophical Analysis,” 73.

⁶⁷ Baril, “Philosophical Analysis,” 73.

⁶⁸ Baril, “Philosophical Analysis,” 73.

⁶⁹ Baril, “Philosophical Analysis,” 74.

⁷⁰ Baril, “Philosophical Analysis,” 98.

and the avoidance of vices.⁷¹ Students and physicians became virtuous by applying religious, rational, and practical considerations in their daily lives and work, also by learning the Christian virtues of compassion, humility, and moderation.⁷² The first rule given in *Medicus Politicus* states “Let the Physician be a Christian” speaking to Hoffmann’s devotion to the Christian faith and how adamant he was that having a relationship with Christ was necessary to be a moral physician.⁷³ Hoffmann states:

“God is the model of benevolence: ... the most benevolent God made the art of medicine gracious. Good Christians in general must imitate this model: ... the Christian exercises kindness. Good Christian Physicians, on the other hand, must go even further because God has determined that (the art of Medicine) is to be practiced out of pure benevolence. For it is in medicine that we have the greatest opportunity to imitate the model: ... nor will an occasion be lacking, indeed, the daily misery of man will remind him to give help to the needy. Just as compassion is the appropriate form God’s love when dealing with our fallen nature so is compassion the appropriate form of the physician’s love for his fellow man in the state of daily misery. Thus, the compassion of God must be mirrored in the life of the physician who freely gives his medical skill to the poor- i.e., a benevolent reflection of the benevolence of God.”⁷⁴

Virtues preserve the nature of a thing while vices destroy that nature. The vice of pride is the most apparent, with two versions mentioned, the first pride dwells in the mind when he denies conversation and does not value the opinions of those he believes to be inferior to him.⁷⁵ The other pride dwells in carriage, when a physician

⁷¹ Baril, “Philosophical Analysis,” 99.

⁷² Baril, “Philosophical Analysis,” 100.

⁷³ Baril, “Philosophical Analysis,” 100.

⁷⁴ Baril, “Philosophical Analysis,” 102.

cares too much about their appearance and how well off they are, having too much self-interest.⁷⁶

Hoffmann is presenting his ethics based on the principles he deemed as Natural Law. Hoffmann's Natural Law Theory opened students and readers of *Medicus Politicus* to his wider goal of harmonizing faith and reason.⁷⁷ Moving physician's behavior from focusing on religion or decorum to a theory that was inclusive of those but also made a connection between demeanor and morality.⁷⁸ Hoffmann's Natural Law stated it was man's social obligation to ensure society was preserved by mutual or reciprocal love between all men.⁷⁹ Hoffmann states, "The natural order is to be preserved" that man has the moral principle to ensure nature (inclusive of man) continues to be beneficent.

Hoffmann argues physicians must be compassionate, modest, and humane, the equality that Hoffman speaks of in Natural Law must be present in a physician and patient relationship. That the first emotion felt by the patient is trust, if they believe they can trust their physician, but it must be a reciprocal relationship.⁸⁰ The moral idea that physician and patient have the share the goal of restoring the patient's health, that the physician must give his all to this principle. Hoffmann

⁷⁵ Baril, "Philosophical Analysis", 103.

⁷⁶ Baril, "Philosophical Analysis", 103.

⁷⁷ Baril, "Philosophical Analysis", 105.

⁷⁸ Baril, "Philosophical Analysis", 105.

⁷⁹ Baril, "Philosophical Analysis", 104.

⁸⁰ Baril, "Philosophical Analysis", 164.

states “he surrenders himself completely to sick persons, it is as if all illness is thrust onto the physician and in serving the life and the health of others much is removed from his convenience.”⁸¹ Physicians have the moral obligation to look out for everyone, he states, “The physician ... ought to watch over everyone... He should understand that it is shameful for the physician to leave the door closed to those who are knocking.”⁸² The primary purpose of a physician should be the health and wellbeing of his patients, not the money received.

Hoffmann’s ethics are the first to include rules inclusive of the patient; he treats patients and physicians equally. Both the physician and patient have the responsibility to be moral towards each other. While the physician has the responsibility to treat everyone, Hoffmann argues if the patient is not moral by using deception, with deception the physician has the right to refuse treatment and/or end the contract between the two.⁸³

John Gregory was a product of the Scottish Enlightenment; the Enlightenment is categorized by the many intellectual and scientific accomplishments founded during the period. The Enlightenment produced Scottish philosophy; philosophy represented the core values of Gregory’s medical ethics. David Hume’s moral philosophy and its core concept of sympathy had a deep impact

⁸¹ Baril, “Philosophical Analysis”, 131.

⁸² Baril, “Philosophical Analysis”, 132.

⁸³ Baril, “Philosophical Analysis”, 190.

on Gregory as the virtues of sympathy appear throughout his 1772 publication *Lectures on the Duties and Qualifications of a Physician*.⁸⁴ Gregory remarks:

“Medicine presents a no less extensive field for the exercise of humanity. A physician has numberless opportunities of giving that relief to distress, not to be purchased by the wealth of India. This to be a benevolent mind, must be one of the greatest pleasures. But besides the good, which a physician has it often in his power to do, in consequence of skill in his profession, there are many occasions that call for his assistance as a man, as a man who feels for the misfortunes of his fellow-creatures. In this respect he has many opportunities of displaying patience, good nature, generosity, compassion, and all the gentler virtues that do honor to human nature.”⁸⁵

David Hume believed the entire moral life is founded on a natural and intuitive sympathy with moral sentiments of others.⁸⁶ Besides sympathy the chief moral quality that a physician must possess is humanity, being able to feel what distresses your patient and the desire to help them. Being able to feel sympathy for them offers you ways to relieve them more than something that could be purchased.⁸⁷

Gregory argues how critical it is for a physician to have a relationship with his patients. That experienced physicians have to maintain the attitude they had when they began to practice medicine, an attitude that was polite, humane, and attentive to his patients. Do not fail in your ways and end up being haughty, careless

⁸⁴ Laurence B. McCullough, "Bioethics in the Twenty-First Century: Why We Should Pay Attention to Eighteenth-Century Medical Ethics," *Kennedy Institute of Ethics Journal* 6, no. 4 (1996): 329-333.

⁸⁵ John Gregory, *Lectures on the Duties and Qualifications of a Physician* (London: W. Strahan, 1772), 8.

⁸⁶ Jonsen, *A Short History*, 60.

⁸⁷ Gregory, *Lectures on the Duties*, 19.

and brutal in your manners.⁸⁸ Physicians gain a relationship that often goes beyond basic care with their patients, such as private concerns of families and seeing people when they are at their greatest disadvantage.

The Enlightenment was responsible for the creation of the medical faculty at the University of Edinburgh, at which Gregory taught as professor of medicine and recorded his lectures to be used as his publication.⁸⁹ Gregory describes his occupation, he states: “The design of the profession which I have honor to hold in this university is to explain the practice of medicine, by which I understand the art of preserving health, of prolonging life, and of curing diseases.”⁹⁰ In the first published lecture Gregory states:

“Physicians considered as a body of men, who live by medicine as a profession, have an interest separate and distinct from the honor of the science. In pursuit of this interest, some have acted with candor, with honor, with ingenuous and liberal manners of gentleman. Conscious of their own worth, they disdained every artifice and depend for success on their real merit. But such men are not the most numerous in any profession. Some impelled by necessity, some stimulated by vanity, and others anxious to conceal ignorance, have had recourse to various mean and unworthy arts to raise their importance among the ignorant, who are always the most numerous part of mankind.”⁹¹

⁸⁸ Gregory, *Lectures on the Duties*, 25.

⁸⁹ Robert M. Veatch, *Disrupted Dialogue: Medical Ethics and the Collapse of Physician Humanist Communication (1770-1980)* (New York: Oxford University Press, 2005), 6.

⁹⁰ Gregory, *Lectures on the Duties*, 2.

⁹¹ Gregory, *Lectures on the Duties*, 4.

Unfortunately in the field of medical practitioners many did not practice with the dignity necessary to be considered ethical, they are physicians when they should not be. A majority of physicians are undereducated and in the field because they wish to appear relevant and important. Physicians have to understand the educational principals within the field, which include knowledge of physiology, anatomy, and medicine.⁹²

Gregory discusses experimentation; he believes experimentation cannot be pursued without a reason to perform research.⁹³ If performing an experiment there must be some point of view, some anticipation for the principal to be established or rejected, and that the reason will be used to discover the truth.⁹⁴ When Gregory refers to experimentation he likely is referring to trials for new medicines or methods to treat certain illnesses or situations. While it is admirable taking on a new task to try to better medicine, one has to have reason and an idea of what they wish to achieve from the experiment.

Gregory states “Without reasoning, or without trusting to certain principles, either established or rendered probable, we could never be benefited by experience, because we could never transfer it from the case we have seen, to the case immediately before us.”⁹⁵ Often experiments involve having no conclusive

⁹² Gregory, *Lectures on the Duties*, 73-81.

⁹³ Gregory, *Lectures on the Duties*, 125.

⁹⁴ Gregory, *Lectures on the Duties*, 126.

⁹⁵ Gregory, *Lectures on the Duties*, 126.

knowledge of what will happen but with reasoning, physicians must proceed in their experiments until future observations shall assert results. Gregory remarks:

“If should seem, upon the whole, that all physicians must reason; and that the only difference among the consists in this, that some reason better than others. Some, for example, search into the causes of diseases, and the effects of remedies. Deeply sensible of the difficulty of the enquiry, and the various ways in which they may be deceived, they collect and arrange all the facts relating to the subject; when they have got a remote view of a leading principle, they attempt, by experiment, to bring a direct and conclusive proof of its existence. If the proof turns out against it, they see, and candidly acknowledge their mistake, if the case does not admit of a direct proof, they consider their principle as more or less probable, but never relinquish the pursuit. These, I think have a just claim to the title of *rational physicians*.”

Rational physicians employ their ingenuity to strain facts into a correspondence; they will not bend their results to stop an experiment from resulting in failure or discovering the incredible.⁹⁶

Gregory created a well-versed code of ethics that new and established physicians could study, learn, and abide by. Being part of the Scottish Enlightenment Gregory became educated in the philosophy of the Enlightenment, his understanding of humanity and the moral quality of sympathy were critical as they each helped develop his ethics. His inclusion of the rational physician is very critical within this thesis; Jenner will be examined to determine if he had reason and the moral responsibility to accurately perform his experiment.

⁹⁶ Gregory, *Lectures on the Duties*, 129.

The term “medical ethics” was debuted by Dr. Thomas Percival in his 1803 publication *Medical Ethics; or, a Code of Institutes and Precepts, Adapted to the Professional Conduct of Physicians and Surgeons*.⁹⁷ Percival created his ethics guide in 1792 at the request of the governors of the Manchester Infirmary (they were having issues with the staff), the governors desired Percival to create a “scheme of professional conduct relative to hospitals.”⁹⁸ He set out “to frame a general system of medical ethics; that the official conduct, and mutual intercourse of the faculty, might be regulated by precise and acknowledge principles of urbanity and rectitude.”⁹⁹ While the work was written in 1792 it was not published until 1803, however he circulated copies to friends in the decade prior to publication for comments and review. It is possible though unlikely Jenner read Percival’s work prior to publication, Jenner sent Percival a copy of *An Inquiry* (his opinion will be discussed later) but calling Jenner a close friend of Percival would be incorrect. While Percival had not published his code of ethics until after Jenner completed his case study, he had written it already thus observing Jenner’s case study from the perspective of those ethics holds merit. This thesis goes beyond the case study and into Jenner’s campaign, which extended well after 1803; Percival will be used to in the observation of the campaign. Thomas Percival while asked to create a guide to ease tensions between figures within the Manchester Infirmary in actuality created

⁹⁷ Thomas Percival, *Medical Ethics; or a Code of Institutes and Precepts, adapted to the Professional Conduct of Physicians and Surgeons* (Oxford: John Henry Parker, 1803).

⁹⁸ Jonsen, *A Short History*, 58.

⁹⁹ Baker and McCullough, *The Cambridge World History of Medical Ethics*, 7.

a code still recognized in the modern era as the foundation of the observation of proper medical ethics.

Percival's determination of medical ethics is somewhat different from the prior examples that deal mainly with a physician and his patient due to the development seen in eighteenth century hospitals. Instead of a one on one relationship, patients are often cared for by multiple physicians who need to work together to rid the patient of illnesses. Scholars Baker and McCullough state Percival took three adherently different ethical notions and compounded them into a new conception of ethics within medicine. They state "The three conceptions that Percival compounded were a conception of the professional as someone playing a role governed by its own internal morality of service to others, the idea of the professional as bound by a social compact in which social privileges are conferred on a learned occupation in exchange for social obligations to serve society, and the notion of the professional as a member of a fraternal society, bound by its own self-imposed rules."¹⁰⁰ Medical Ethics is split into four chapters: 1) the personal conduct relative to the hospital, 2) the personal conduct of private practice, 3) the conduct between physicians and apothecaries, 4) a physicians necessary understanding of the law in certain cases. Once again the idea of healing everyone is present, hospitals were not just for the well off, physicians have to be prepared to treat all individuals. Percival believed the underlying theme of his work was the moral notion of a physician being a "gentleman" in all dealings with colleagues and patients.¹⁰¹

¹⁰⁰ Baker and McCullough, *The Cambridge World History of Medical Ethics*, 247.

Percival writes “the study of professional ethics ... will soften your manners, expand your affections, and form you to that property and dignity of conduct, which are essential to the character of a gentleman.”¹⁰² The gentleman physician “must unite tenderness with steadiness, and condescension with authority, as to inspire the minds of their patients with gratitude, respect, and confidence.”¹⁰³ Percival created his code under the recommendation of the hospital governors but believed the patient is the one the physician should adhere to not he governors. The governors were inclined to overcrowding and the use of cheap medicine to ensure the monetary success of the hospital, Percival argues provide these patients (often the sick poor) the same care as private patients.¹⁰⁴

While many scholars argue Percival started a new chapter in the history of medical ethics, it is arguably the opposite as Percival was the conclusion in that era of medical ethics. While the term “medical ethics” was termed by Percival, his ethics code was built on the foundation set by those mentioned in this work and others who desired physicians to honor the practice and practice medicine in a proper moral fashion.¹⁰⁵ Scholar Edmund Pellegrino made a very encompassing statement about the morals and ethics found within the study and practice of medicine. He

¹⁰¹ Jonsen, *A Short History*, 58.

¹⁰² Percival, *Medical Ethics*, 63.

¹⁰³ Jonsen, *A Short History*, 58.

¹⁰⁴ Jonsen, *A Short History*, 58.

¹⁰⁵ Andrew Wear, Johanna Geyer-Kordesch, and Roger French, *Doctors and Ethics, The Earlier Historical Setting of Professional Ethics* (New York: Editions Rodopi, 1993), 10.

states “Medicine is a moral enterprise, and has been so regarded since the Hippocratic times: that is to say, it has been conducted in accordance with a definite set of beliefs about what is right and wrong medical behavior.”¹⁰⁶ He remarks that ethics did not become stricter until a later date, which holds truth, physicians can be moral by learning the ethics created by the likes of Hippocrates to Percival but it was not necessary. Until the nineteenth century the practice of medicine was uncontrolled, it was on the moral being of the physician if they wished to be a benevolent and follow the oaths and codes before them.

Observing the case study and campaign of Jenner with a generalized understanding of how a physician was ethical in the era of Jenner will justify him being seen as an ethical being. Jenner adhered to many of the themes stated by the scholars who determined what it meant to be ethical in a time when medicine was uncontrolled. The chances Jenner took in his experiment to his efforts to spread his vaccination after its release all impact the ethical outlook of a man who is praised for ridding the world of one of its greatest diseases yet questioned for how he obtained his results.

¹⁰⁶ Edmund D. Pellegrino, “Towards a Reconstruction of Moral Morality,” *American Journal of Bioethics*, 6, no. 2 (2006,): 65.

Chapter V

Jenner's Case Studies and Publication

Jenner began his cowpox experiments in 1796. In its infancy the experiments experienced difficulties. Jenner from personal observation and other medical scholars knew smallpox was not a certain preventive against smallpox. He realized that cows were subject to a variety of sores of their teats. All were capable of being transmitted to the hands of a milker but only some produced cowpox.¹⁰⁷ However with further investigation Jenner was able to determine cowpox had two forms: True cowpox and pseudo cowpox, true cowpox was capable of protecting against smallpox while the false was not.¹⁰⁸ Jenner also had to deal with shortages in cowpox matter during his experiment, without outbreaks among local cattle Jenner's research was on hold, he was unable to perform any vaccination cases for many months leading into the spring of 1798.¹⁰⁹ Luckily an outbreak occurred in May of 1796, Jenner was able to perform his first person to person vaccination with cowpox matter as a result. A dairymaid named Sarah Nelmes fell victim to cowpox by a cow named Blossom.¹¹⁰ The matter was taken from her hand and inserted by

¹⁰⁷ Baron, *Life of Edward Jenner*, 131.

¹⁰⁸ Baron, *Life of Edward Jenner*, 132.

¹⁰⁹ Bazin, *The Eradication of Smallpox*, 38.

¹¹⁰ Bazin, *The Eradication of Smallpox*, 37.

two superficial incisions into the arm of James Phipps on May 14, 1796.¹¹¹ Phipps was a healthy boy of about eight years old, the cowpox brought upon minor symptoms including uneasiness in the axilla on the seventh day and on the ninth he became cold with a loss of appetite and slight headache.¹¹² The following day he woke up and was feeling fine, after the disease seemed in a satisfactory manner on July 1st Jenner performed variolation upon Phipps to see if smallpox followed. No disease followed, Jenner had successfully performed his first person to person vaccination.



Figure 1: Sarah Nelmes Hand¹¹³

Jenner recorded the cases of Sarah Nelmes and James Phipps to later be published in *An Inquiry*, as cases XVI (Nelmes) and XVII (Phipps).¹¹⁴ Representing

¹¹¹ Baron, *Life of Edward Jenner*, 137.

¹¹² Jenner, *An Inquiry*, 34.

¹¹³ Jenner, *An Inquiry*, 33.

the two most important cases within his argument that vaccination was possible individuals and led towards protection against smallpox. Cases XVIII-XXIII continue the practice of vaccination and act to greater Jenner's argument as all subjects were then variolated yet protected from smallpox.¹¹⁵ Cases I-XV involved individuals who had already contracted cowpox (or what was believed to be cowpox as Jenner was not there to perform vaccination) without performing the vaccination himself Jenner had to perform variolation and see if smallpox appeared.¹¹⁶ Cases XIII-XV are particularly interesting as Jenner makes note of patients who never milked cows and had received pustules from dressing the hoofs of horses (*grease*). In Case XIII the individual was protected from smallpox, Case XIV he had minor smallpox related symptoms that made Jenner believe the disease partially took, and in Case XV the individual contracted smallpox.¹¹⁷ Jenner makes the argument that transmission has to be made to a cow from the horse via the human as the medium because otherwise the individual protection against smallpox is not certain.¹¹⁸ The matter of horse *grease* will follow Jenner and become an issue of contribution for those against Jenner and vaccination.

Prior to publishing his findings Jenner wrote his first manuscript and sent it to the President of the Royal Society, Sir Joseph Banks, for observation. Banks

¹¹⁴ Jenner, *An Inquiry*, 31-36.

¹¹⁵ Jenner, *An Inquiry*, 37-52.

¹¹⁶ Jenner, *An Inquiry*, 9-28.

¹¹⁷ Jenner, *An Inquiry*, 27-30.

¹¹⁸ Jenner, *An Inquiry*, 29.

remarked the number of cases studied was too small and that if Jenner wished to keep his colleagues esteem in respect to the Royal Society he should withdraw his manuscript and forget about it as soon as possible.¹¹⁹ Jenner was not influenced by Banks opinion, once again Jenner had to brush off critical opinions from an esteemed peer, Jenner knew his research held merit. In 1798 Edward Jenner published *An Inquiry into the Causes and Effects of the Variolae Vaccinae: a Disease Discovered in some of the Western Counties of England, Particularly Gloucestershire and known by the name of the Cow Pox*. The publication forever changed the history and progression of medicine and treatment.

Before observing the impact and reception of Jenner's release on the world and the corresponding ethics observed, this work will observe the ethics displayed by Jenner until the release of *An Inquiry*. The ethics of human test subjects is a critical issue within the campaign and experiments of Edward Jenner. Jenner's ethics are in question for performing vaccination on James Phipps and the seven cases afterwards in an effort to provide further evidence for his vaccination argument. First, the use of human test subjects was completely an acceptable practice during the time of Jenner and was expected, how was a researcher supposed to conduct his research without observation? Human subjects were the only figures that could be observed. Inserting matter into the arm of an individual was not unethical; vaccination involved the same method as variolation except cowpox matter was used instead of variola matter. The method Jenner used (small incision in the arm) was introduced by surgeon Robert Sutton in the late 1750s, thus had been common

¹¹⁹ Bazin, *The Eradication of Smallpox*, 38.

practice for around forty years.¹²⁰ Likewise both methods required variolation to be performed after the initially variolation/vaccination to see if the procedure protected the individual against smallpox.

While test subjects were ethical practice, Jenner's ethics are justifiably questioned when we performed vaccination on James Phipps by inserted cowpox matter from one subject into another. Jenner did not know how the matter was going to take and upon the completion of the vaccination he performed variolation to see if the subject was protected against smallpox. Jenner's uneasiness is noted by Baron who writes "He went through the disease apparently in a regular and satisfactory manner; but the most agitating part of the trial still remained to be performed. It was needful to ascertain whether he was secure from the contagion of smallpox. This point, so full of anxiety to Dr. Jenner, was fairly put to issue on the first of the following July. Variolous matter, immediately taken from a pustule, was carefully inserted by several incisions, but no disease followed."¹²¹ Jenner's anxiety was for not as Phipps did not contract smallpox after his vaccination. Gregory mentions the importance of experiments in his ethics, experiments often have no conclusiveness, but with reasoning and future observation results shall assert. Jenner had studied and pushed further research on the influences of cowpox on smallpox for two decades prior to his publication, he had the necessary reasoning and experience. That experience led to successful vaccination and with success the idea that using untested matter becomes less unethical.

¹²⁰ Fisher, *Edward Jenner 1749-1823*, 17.

¹²¹ Baron, *Life of Edward Jenner*, 137.

Ethics scholar Thomas A. Kerns author of, *Jenner on Trial: An Ethical Examination of Vaccine Research in the Age of Smallpox and the Age of AIDS*, discusses in detail the ethics of Jenner's experiment. He does so by comparing Jenner's experiment with the Nazi doctors who performed typhus vaccination experiments on human test subjects at the containment camps in Buchenwald and Natzweiler.¹²² The vaccinations completed by the Nazi doctors in some aspects were quite similar to Jenner's experiments, but unlike Jenner's were condemned. Kerns observes why and contributes to the overall ethical appeal of Jenner. First he discusses preliminary evidence, it mentioned Jenner did ample work leading to his experiment so he had a strong basis to believe his experiment would protect his patients. While the Nazi physicians had no evidence prior to their experiments, thus they were putting their subjects at great risk.¹²³ Secondly Kerns discusses the use of vulnerable subjects, Jenner used children while the Nazis used prisoners, both of which represented groups likely to have issues with free informed consent. But, Jenner's experiment had a high likelihood of benefiting the subject, as smallpox was a disease a person in the eighteenth century would be exposed to numerous times throughout their lives. Unlike the typhus subjects who did not know if they were going to actually be protected from the vaccination. It is also important to recognize the subjects of the typhus trials had no say in their participation.

¹²² Kerns, Thomas, *Jenner on Trial: An Ethical Examination of Vaccine Research in the Age of Smallpox and the Age of AIDS* (Lanham: University Press of America, 1997), 59.

¹²³ Kerns, *An Ethical Examination*, 60.

Kerns discusses how it is important to discuss the character of the individual performing the experiment. Jenner displayed compassion towards his subjects, being concerned for their wellbeing as he attempted to rid the world of smallpox. The Nazis on the other hand took some of their subjects to the gas chambers to be killed after their trial was completed. Kerns remarks had Jenner's failed he would not be viewed as ethical, but Jenner passed the test set before him by humanity.¹²⁴ Kerns states: "Moreover, I believe that the manner in which we as people deal with large scale epidemic diseases is indeed a test of our science, our politics and our economic structures. But even more significantly than these, the manner in which we face these challenges will be seen ultimately, and most importantly, as a test of our humanity. It will be seen as a test of our *worthiness* as a species. If this is true, then Dr. Jenner acquitted himself admirably well in the test."¹²⁵ Jenner succeeded in the first part of the test proving cowpox could protect against smallpox via vaccination from subject to subject. His efforts could not stop there, to complete the test Jenner had to push for vaccination to be observed and practiced if he wished to rid the world of smallpox.

¹²⁴ Kerns, *An Ethical Examination*. 61.

¹²⁵ Kerns, *An Ethical Examination*. 77.

Chapter VI

Jenner's Vaccination Campaign

Edward Jenner was ethical throughout his campaign he continued to put the public first without falling to the wave of criticism brought upon him. Hoffmann in *Medicus Politicus* remarked, "the art of Medicine is to be practiced out of pure benevolence. For it is in medicine that we have the greatest opportunity to imitate the model...the daily misery of man will remind him to give help to the needy."¹²⁶ The misery of smallpox and Jenner's continued efforts to win support for vaccination allowed Jenner and those who assisted in the campaign to be observed as benevolent.

Jenner had to dedicate himself to his vaccination campaign, as there was a strong movement among those against vaccination. Within one month of An Inquiry being released Jenner received his first letter refuting his vaccination. Dr. Ingenhousz, a support of variolation from Vienna, wrote a letter to Jenner. In the letter he told Jenner it was public knowledge that people who have had an attack of cowpox could contract smallpox.¹²⁷ The letter did not faze Jenner as he had already had countless conversations, upon which the exact same argument was made against vaccination. He said the answer was a simple matter of not confusing true

¹²⁶ Baril, "Philosophical Analysis," 102.

¹²⁷ Bazin, *The Eradication of Smallpox*, 70.

cowpox with spurious cowpox.¹²⁸ Jenner was right when he told his friend Edward Gardner “the subject of ridicule-for I am the mark they all shoot at” his vaccination caused an anti-vaccination movement to start within the medical world.¹²⁹

William Woodville played a critical role in the promotion of vaccination but in the stages of infancy he had a rocky relationship with Jenner. In January of 1799, William Woodville, the director of the smallpox hospital in London discovered cowpox was present within some cattle in London.¹³⁰ Cowpox had been transmitted to hands of farm workers as well. This allowed physicians within the city to see cowpox firsthand on the cattle as well the human subject. Significant figures within London came to observe including: Sir Joseph Banks, Lord Sommerville, and Sir William Watson.¹³¹ The physicians compared the engraving displayed in *An Inquiry* to the hand of the worker, it was the same pustules, from the worker cowpox matter was extracted and the men went back to the hospital where Woodville performed vaccination on six people, bringing the total inoculations performed by Woodville to fourteen.¹³² Unfortunately for Jenner, the trials took place in deplorable conditions, Woodville’s hospital was a smallpox hospital, exposing the subjects to that environment was unfavorable especially since the subject is not to be exposed to

¹²⁸ Bazin, *The Eradication of Smallpox*, 70.

¹²⁹ Baron, *Life of Edward Jenner*, 128-129.

¹³⁰ Baron, *Life of Edward Jenner*, 307.

¹³¹ Baron, *Life of Edward Jenner*, 308.

¹³² Baron, *Life of Edward Jenner*, 308.

smallpox until after the vaccination has settled.¹³³ Sixty percent of those initially vaccinated by Woodville displayed identical symptoms to smallpox, making it impossible to distinguish between variolation and vaccination.¹³⁴ The issues continued as cowpox matter being sent around Europe had been mixed with variola virus under the care of Woodville. Jenner learned that some patients showed identical eruptions to smallpox, Jenner suggested it was Woodville's fault as he was constantly covered head to foot in the smallpox virus.¹³⁵ Woodville released a publication on cowpox. He claimed cowpox caused serious symptoms in less than one percent of individuals who received vaccination. However, he reported one person died from cowpox. Jenner became furious as the nonlethal nature of cowpox was one of his main arguments.¹³⁶ He claimed you are more likely to die from cowpox than smallpox and declared Jennerian vaccination as an undesirable practice.¹³⁷

In an attempt to discredit Jenner some argue against him being the individual who discovered vaccination. Benjamin Jesty, a Dorsetshire dairy farmer, performed one if not the first rough forms of cowpox vaccination upon his family in the year 1774.¹³⁸ Jesty, in 1774 learned of smallpox being in the near vicinity, he had two

¹³³ Bazin, *The Eradication of Smallpox*, 72.

¹³⁴ Bazin, *The Eradication of Smallpox*, 72.

¹³⁵ Bazin, *The Eradication of Smallpox*, 73.

¹³⁶ Bazin, *The Eradication of Smallpox*, 73.

¹³⁷ Bazin, *The Eradication of Smallpox*, 73.

milkmaids who attended to family members with smallpox and neither acquired smallpox.¹³⁹ Both of the dairymaids had previously been affected with cowpox, Jesty knew of a neighboring farmer whose cattle had been infected with the pox, he took his wife and two children ages two and three to the neighboring farm and preformed the procedure.¹⁴⁰ Jesty took matter from one of the infected cattle and used one of his wife's knitting needles to inoculate them, both boys received the inoculation above the elbow on their arm while his wife had hers performed below her elbow.¹⁴¹ He did not perform the inoculation on himself as he had already been infected with cowpox priorly. His two sons had local reactions while the arm of Mrs. Jesty became very inflamed and she fell very ill, the local surgeon Mr. Trowbridge was called to attend to her, all three survived the inoculation.¹⁴² In 1789 Mr. Trowbridge during another smallpox epidemic performed variolation on many of the neighboring children, including both of Jesty's sons, all of the children acquired smallpox besides his sons.¹⁴³ His boys like the dairymaids were exposed to others with smallpox and never contracted the disease.

John Fewster is another person brought forward to discredit Jenner's cowpox research; the argument being made states Fewster was the first person to perform

¹³⁸ Creighton, 23.

¹³⁹ James Hammarsten, "Background and History," *Trans Am Clin Climatol Assoc.* 1979, 46.

¹⁴⁰ James Hammarsten, "Background and History," 46.

¹⁴¹ James Hammarsten, "Background and History," 46.

¹⁴² James Hammarsten, "Background and History," 46.

¹⁴³ James Hammarsten, "Background and History," 46.

vaccination. Since Jenner did not discover vaccination then his research holds no merit. This argument can be observed by looking at Baron who remarks on numerous occasions that Jenner attempted to discuss cowpox with Fewster, Fewster continual told Jenner cowpox did not provide certain prevention against smallpox. No mention of Fewster performing vaccination is made. It is also discussed in an article published by Thurston and Williams. They address a letter written by John Player to John Coakley, which argues Fewster completed vaccination prior to Jenner.¹⁴⁴ This is followed with a letter written by Fewster to surgeon Mr. Rolph, the original copy no longer exist and it is now only an abstract in George Pearson's *An Inquiry Concerning the History of Cowpox*.¹⁴⁵ In the letter Fewster states he performed nearly two thousand inoculations but felt the symptoms associated with vaccination were worse than variolation so he decided to drop the method.¹⁴⁶ This argument is highly controversial because the only copy of this letter is presented in a work of George Pearson, Pearson was envious of Jenner and the fame he earned from his vaccination thus he attempted to discredit him numerous times.

George Dock discusses Jesty and the claims made about him performing the first vaccination, his remarks are also representative of Fewster. Dock argues Jesty and those who argue on Jesty's behalf would have remained "long in obscurity" had

¹⁴⁴ L. Thurston and G. Williams, "An Examination of John Fewster's Role in the Discovery of Smallpox Vaccination," *Journal of the Royal College of Physicians of Edinburgh* 45, no. 2 (2015): 174.

¹⁴⁵ Thurston and Williams, "John Fewster," 176.

¹⁴⁶ Thurston and Williams, "John Fewster," 176.

it not been for Jenner.¹⁴⁷ Then he states Jenner in contrast to Jesty was not overcome by fear when performing cowpox, he continued the practice and brought forth vaccination.¹⁴⁸ Similar sentiments can be argued against Fewster; Jenner was the individual whom brought forth the greatest information and support for vaccination, even if he did not discover his contributes to the practice could not be surpassed.

Anti Vaccination leagues were established as individuals continued to protest the practice of Jennerian vaccination. It is likely many who joined these leagues did so out of jealousy or because they experienced failure when they attempted to perform vaccination. Rarely did they present rational arguments, Moseley a London physician who led an anti-vaccination group claimed that individuals who had vaccination would go “bovinise” and turn into cattle.¹⁴⁹

John Birch wrote a letter that was a rational argument against vaccination. In it, he discusses such matters as consent and being a test subject. His first concern was the failed vaccination experiment at the St. Thomas Hospital.¹⁵⁰ He then remarks how he was taken back by the idea that depending on the strain of cowpox it could be genuine or spurious and that the success depended upon when the

¹⁴⁷ George Dock, *The Works of Edward Jenner and their Value in the Modern Study of Smallpox*, New York: New York Medical Journal, 1904, 7.

¹⁴⁸ Dock, *The Works of Edward Jenner*, 7.

¹⁴⁹ Herve Bazin, *The Eradication of Smallpox: Edward Jenner and the First and Only Eradication of a Human Infectious Disease* (San Diego: Academic Press, 2000), 74.

¹⁵⁰ John Birch, “A Letter Occasioned by the Many Failures of Cow-pox.”

matter was taken.¹⁵¹ Birch then makes mention that some individuals performing vaccination were never properly trained to administer vaccination. He referred to cowpox as animal poison, that it was not used unless tested on an initial victim.¹⁵² Birch makes a very critical argument towards consent of a child or infant he writes “Insulting humanity, how can the constitution of a child be ascertained, when only one month, or six months old? To vaccinate an infant who was not of a proper constitution might be fatal.”¹⁵³

Those who question Jenner and his discovery may bring into question his belief on how cowpox originated. Jenner believed cowpox was a product of a horse disease he called *grease*, which occurred from the inflammation and swelling of the horses’ heels, he argued *grease* strongly resembled human smallpox.¹⁵⁴ Jenner thought milkers who applied dressing to the heels of the horses had grease matter still on their fingers and carried the disease to the cows they milked.¹⁵⁵ This argument was the first Jenner made in *An Inquiry*, Jenner cited seven cases showing the relationship as well as immunity furnished against smallpox after accidental inoculation of *grease* cowpox.¹⁵⁶ Many investigators agreed with Jenner, strains of

¹⁵¹ Birch, “The Many Failures of Cow-pox.”

¹⁵² Birch, “The Many Failures of Cow-pox.”

¹⁵³ Birch, “The Many Failures of Cow-pox.”

¹⁵⁴ Jenner, *An Inquiry*, 2.

¹⁵⁵ Jenner, *An Inquiry*, 3.

¹⁵⁶ Dock, *The Works of Edward Jenner*, 7.

“vaccine” virus originated in the sore heels of horses, but the final conclusion was that *grease* was not a specific disease, or at least related at all to cowpox.

Jenner like the above mentioned investigators were likely somewhat confused as all pox diseases, including cowpox, swinepox and *grease*, are caused by a member of the orthopox virus family.¹⁵⁷ (Excluding chicken-pox which is caused by the herpes virus) All pox diseases could infect humans, were hard to distinguish, and had symptoms similar to the human strand smallpox.¹⁵⁸ In November 1789, Jenner inoculated his eldest son of about eighteen months with swinepox matter. He noticed the progression of the disease seemed similar to true smallpox. Then performed variolation upon his son five or six times without the slightest inflammation or symptom of smallpox. Jenner performed variolation again in 1791. This time the smallpox caused a rash around the wound and a brownish fluid sore about the size of a large split pea on his arm.¹⁵⁹ The child never became indisposed during the variolation, displaying the swinepox still protected the boy but the protective properties were weakening.¹⁶⁰ Jenner admitted he was never able to show the relation between cowpox and *grease* but held onto the belief and never abandoned his theory but its uncertainty relegated the claim to obscurity.¹⁶¹ Having

¹⁵⁷ Fisher, 57.

¹⁵⁸ Fisher, 56.

¹⁵⁹ Baron, *Life of Edward Jenner*, 131.

¹⁶⁰ Baron, *Life of Edward Jenner*, 131.

¹⁶¹ Dock, 5.

a controversial subject such as *grease* hurt Jenner's publication amongst some who did not want to observe his findings as legitimate.

The efforts made by Jenner and those within the pro-vaccination campaign continue the display of Jenner's ethical appeal. Hoffmann states "The Physician... ought to watch over everyone... He should understand that it is shameful for the physician to leave the door closed to those who are knocking" Jenner adhered to Hoffmann's words, his door was never closed he vaccinated as many people as he could. As many as 400 people would come visit Jenner daily at his house in Cheltenham, Jenner offered vaccination free of charge.¹⁶² Jenner recruited others to follow him in his movement, even ministers learned vaccination to protect people for smallpox. Minister of Surrey Chapel, the Reverend Roland Hill, advocated vaccination soon after its introduction and vaccinated those who came to him. From the pulpit on Sunday evenings, after the sermon, he used to say: "I am ready to vaccinate tomorrow morning as many children as you choose; and if you wish them to escape that horrible disease, the smallpox, you will bring them."¹⁶³

In the study of medical ethics, the physician and money is discussed in depth, it is unethical to overcharge and make fake diagnosis in the hope of continued service. A physician is prohibited from prescribing medication that is not needed and most importantly choosing whom to treat and whom to ignore. Jenner did not practice any of these unethical methods. In fact he did not request any compensation for his vaccination, the amount of money he could have made if he

¹⁶² Bazin, *The Eradication of Smallpox*, 77.

¹⁶³ Bazin, *The Eradication of Smallpox*, 77.

charged for vaccination is unimaginable. Jenner even went and abandoned his practice to fully commit himself to his vaccination, being ethical and not requesting money for vaccinations left Jenner with little financially. However he soon gained immense wealth, the British Parliament awarded him £10,000,¹⁶⁴ which equates to about thirty million dollars in today's standards. In 1806 King George III asked the Royal College of Surgeons the impact vaccination had on Great Britain, of the 164,381 reported vaccinations only 56 cases of smallpox occurred.¹⁶⁵ The Committee completed their investigation in 1807 and without reservation came out in support of Jennerian vaccination.¹⁶⁶

The ethical qualities discussed by the likes of Gregory and Hoffmann were readily present within the worldwide campaign that Edward Jenner led towards mass vaccination practice and education. Earlier Gregory was quoted he stated:

“Medicine presents a no less extensive field for the exercise of humanity. A physician has numberless opportunities of giving that relief to distress, not to be purchased by the wealth of India. This to be a benevolent mind, must be one of the greatest pleasures. But besides the good, which a physician has it often in his power to do, in consequence of skill in his profession, there are many occasions that call for his assistance as a man, as a man who feels for the misfortunes of his fellow-creatures. In this respect he has many opportunities of displaying patience, good nature, generosity, compassion, and all the gentler virtues that do honor to human nature.”¹⁶⁷

¹⁶⁴ Riedel, “Edward Jenner and the History of Smallpox and Vaccination.”

¹⁶⁵ Bazin, *The Eradication of Smallpox*, 89.

¹⁶⁶ Bazin, *The Eradication of Smallpox*, 79.

¹⁶⁷ John Gregory, *Lectures on the Duties and Qualifications of a Physician* (London: W. Strahan, 1772), 8.

This quote was repeated in its entirety because Jenner adheres to the ethical qualities mentioned in relation to his efforts to spread his campaign across the world. Jenner directly influenced the introduction of vaccination from neighboring France to as far and beyond North America. French scientist Louis Pasteur in the 1888 inaugural speech of the Pasteur Institute, a non-profit dedicated to the study of biology, diseases, and vaccines remarked, "Science has no country."¹⁶⁸ These remarks made ninety years after Jenner began his campaign exemplify why Edward Jenner was revolutionary in the field of public health. Jenner's view of the world was not that of a king or general, he did not see people from other nations as allies or foes, he recognized man independent of affiliation within the effort to rid the world of smallpox. He stated: "I hope that some day the practice of producing cowpox in human beings will spread over the world – when that day comes, there will be no more smallpox."¹⁶⁹

Edward Jenner never left England during his campaign but was still able to create a worldwide vaccination campaign. Jenner shared his work and sent cowpox lymph with instructions to numerous foreign scholars and leaders. Vaccination was not a class based practice, Jenner sent lymph and instructions to every person he could, which in turn continued the promotion of vaccination. Jenner did not view vaccination as a technique to be performed solely by a physician, if an area lacked a physician the local population could still perform vaccination to fend off smallpox as

¹⁶⁸ Bazin, *The Eradication of Smallpox*, 85.

¹⁶⁹ Micheal C. Burge, *Vaccines: Preventing Disease* (Farmington Hills: Lucent Books, 1992), 33.

long as they followed his instructions.¹⁷⁰ Jenner practiced numerous ways to send cowpox lymph to other locations including placing it on ivory points, the use of glass slides, and placing it on string.¹⁷¹ Once the cowpox matter reached its destination it had to be reanimated by the addition of water and then could be injected into a host.¹⁷² After a few weeks cowpox lymph would be present and could be transferred to others through vaccination, this in turn created more cowpox lymph allowing a large group of people to be vaccinated from one sample.¹⁷³ Jenner wisely often provided matter from more than one source as a precaution in case the sample trial failed.

England and France had a volatile relationship leading into the nineteenth century due to the French Revolution. The Revolution resulted in war, territorial conquest, and the subversive ideas of “liberty, equality, and fraternity.”¹⁷⁴ All of which were concerning to the British, who had suspended almost all conversation and interaction with the neighboring nation.¹⁷⁵ The suspension had an impact on France learning of Jennerian vaccination, *An Inquiry* was not translated to French until 1800.¹⁷⁶ France ran its own trials on vaccination but questions and concerns

¹⁷⁰ Boddice, *Pocket Giants*, 34.

¹⁷¹ Boddice, *Pocket Giants*, 36.

¹⁷² Boddice, *Pocket Giants*, 36.

¹⁷³ Boddice, *Pocket Giants*, 36.

¹⁷⁴ Bazin, *The Eradication of Smallpox*, 85.

¹⁷⁵ Baron, *Life of Edward Jenner*, 390.

arose, scientifically the French held British scientific discovery in high regard, thus they knew Jenner's vaccination was likely promising but again the lack of a conversation between the two nations hindered France. France was having issues gaining access to lymph that could be used for vaccination and the trial experiments only produced bad reactions.¹⁷⁷

Fortunately for France, the two nations were in the beginning discussions for the Treaty of Amiens, the treaty discussion open conversation and visitation between the two nations and allowed France to be better educated on vaccination.¹⁷⁸ A young French physician Dr. Aubert travelled to England to learn how to properly perform vaccination with a list of questions from the joint committee formed from the Faculty of Medicine and the French Academy of Sciences.¹⁷⁹ While in England Dr. Aubert learned of Jennerian vaccinations successful nature, but more importantly he was able to convince Dr. William Woodville to travel with him to France to teach the French the correct method of vaccination.¹⁸⁰ Woodville travelled to France with Aubert and Nowel, Nowel was an English physician who practiced in Boulogne prior to the Revolution then sought refuge in London. On their way to Paris the three stopped in Boulogne where Nowel stayed and continued his practice, he performed vaccination on three young girls

¹⁷⁶ Boddice, *Pocket Giants*, 36.

¹⁷⁷ Bazin, *The Eradication of Smallpox*, 85.

¹⁷⁸ Bazin, *The Eradication of Smallpox*, 83.

¹⁷⁹ Baron, *Life of Edward Jenner*, 391.

¹⁸⁰ Bazin, *The Eradication of Smallpox*, 86.

then Woodville and Aubert were on their way. It was quite fortunate that Nowel returned with them because by the time Woodville reached Paris the cowpox matter was inactive likely due to the heat. Woodville wrote Nowel who was able to gather active cowpox from the girls he vaccinated then send fresh lymph to Paris.¹⁸¹

Woodville was able to show the committee successful vaccination and the proper dosage that was deemed necessary by him to do so. The committee began to perform vaccination on orphan children; ethically they believed they were assisting children who had been abandoned by ridding them of the possibility of smallpox. At the same time it could be argued they were being used as subjects to further research on Jennerian vaccination. Results from the vaccinations were successful and Paris established a vaccination centre, in order to help children of poor local families they were vaccinated for free.¹⁸²

Vaccination establishments offering free vaccinations began to appear throughout France with news of the establishments being spread by civilians and the military. In 1804 The General Council of the Department of Indre and Loire thanked Jenner and those who helped establish vaccination in France. They wrote “Glory and recognition to the inventor and propagators of the process with whose assistance we are saving the human race from the scourge that was decimating it. The General Council gives a solemn vote of thanks to those benefactors of humanity.”¹⁸³ In Paris a committee was created in 1804 to focus solely on

¹⁸¹ Bazin, *The Eradication of Smallpox*, 87.

¹⁸² Bazin, *The Eradication of Smallpox*, 89.

vaccination, it was titled the Committee on Vaccination.¹⁸⁴ From April 4, 1804 until the end of 1811, the committee vaccinated 2,300,937 people. This figure did not include vaccinations performed by private practices or the General Council beforehand.¹⁸⁵ The French Minister of Interior in his address on vaccination made striking declarations that displayed the impact of Jennerian vaccination upon the people of France. He remarked within the French Empire prior to the introduction of vaccination, one million people contracted smallpox annually, of which 150,000 perished.¹⁸⁶ In the year 1811 only 75,000 cases of smallpox were reported with 8,500 cases resulting in death, likely in the period of one decade the amount of lives lost annually to smallpox was lowered by over 140,000.¹⁸⁷

While Jenner was not in France, he was still recognized as the monumental figure that saved so many lives within the nation. The Treaty of Amiens ended one year after its enactment in 1803, as a result hostilities began once again between the two nations. Lord Yarmouth, the son of Jenner's friend Marquess of Hertford, was in France when the treaty ended. He was being held as a noncombatant prisoner whom was unable to return to Britain.¹⁸⁸ Jenner personally wrote to the National Institute of France requesting his release, he wrote "The sciences are never at war"

¹⁸³ Bazin, *The Eradication of Smallpox*, 90.

¹⁸⁴ Boddice, *Pocket Giants*, 37.

¹⁸⁵ Boddice, *Pocket Giants*, 37.

¹⁸⁶ Baron, *Life of Edward Jenner*, 275.

¹⁸⁷ Baron, *Life of Edward Jenner*, 275.

¹⁸⁸ Boddice, *Pocket Giants*, 37.

and then spoke of Marquess of Hertford, he wrote “He stands high in my estimation for being among the foremost who encouraged my scheme of Vaccination when in its infancy, and contending with the prejudices of the world.”¹⁸⁹ Jenner makes two very valid arguments to the French; in his campaign Jenner did not tell his followers to avoid assisting or educating the French because they were citizens of a country Britain was currently at odds with. Jenner viewed smallpox as a worldly disease that needed to be treated and eradicated in a worldly fashion by providing vaccination to as many nations as possible. Secondly, Jenner points out the impact supporters had on the success of Jennerian vaccination, without men like Marquess Jennerian vaccination would have been likely been passed over and the steady decrease in cases of smallpox would not be present. Jenner shared a letter of similar sentiment to Napoleon, Napoleon replied “that nothing could be refused to that man” and Lord Yarmouth was released. Jenner was a savior of enemy France, and a hero in the eyes of the enemy leader. The Central Committee was so thankful they sent a delegation to the British Parliament to praise Jenner and tell of the pride parliament must feel as their countrymen was saving nations from smallpox.¹⁹⁰

Edward Jenner was a revolutionary physician in the eighteenth and nineteenth century as Jennerian vaccination protected millions of people from smallpox. In the observation of medical ethics, the centralized themes of healing and relationship are apparent. Jenner exemplified those qualities, sticking to his beliefs and did not falter from the numerous individuals who questioned the effectiveness

¹⁸⁹ Baron, *Life of Edward Jenner*, 603.

¹⁹⁰ Bazin, *The Eradication of Smallpox*, 90.

of cowpox. His ambition led to a campaign where he saved millions of lives throughout the world, sending lymph and guides to distant lands in an effort to rid the entire world of smallpox. While Jenner did not get to see the eradication of smallpox, he stands as the single most important individual in that effort.

Chapter VII

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