The Rhetoric and Reality of Famine in Early Modern Europe

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THE RHETORIC AND REALITY OF FAMINE IN EARLY MODERN EUROPE

by

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ABSTRACT

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Famine in early modern Europe was a reoccurring phenomenon that caused stress on individuals and their societies. In most historical accounts of famine, authors have placed emphasis on either the physical aspects of starvation, including studies of famine victims, both live and post-mortem, or the disastrous effects of such crises on demographics. On occasion, a researcher has instead probed the accounts of famine left behind by its victims. This essay is an attempt to correlate famine narratives with the biological aspects of starvation.

In order to blend the physical and social aspects of famine, this researcher has investigated three subsistence crises that occurred in Rouen, France in 1591-2, in La Rochelle, France in 1628, and in northwestern England in the 1590s. Statistical data about birth and death rates from Rouen and northwestern England provide the necessary demographic information, and accounts of the suffering from inhabitants of La Rochelle highlight the cultural data. The demographic and cultural accounts of these
three famines, along with an intensive study of the physical and psychological affects of famine, provide evidence that famine in early modern Europe was devastating both to an individual’s mind and body and to his or her society as a whole. This famine study is based on the idea that any investigation of famine should include both demographic research and cultural exploration of the phenomenon. It is interdisciplinary, incorporating medical literature, scientific studies, demographic research, and literary accounts of famine to define famine both clinically and culturally.
I would like to take this opportunity to thank Dr. Finley-Croswhite for her advice and guidance. Additionally, the notes, suggestions, and consultations from and with my entire committee, Dr. Finley-Croswhite, Dr. Pearson, and Dr. Greene were very much appreciated. I could not have written this thesis without the support, patience, and love of my parents, Bruce and Carol Adams, and my fiancé, Robert Reagan. Thank you all.
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CHAPTER I
INTRODUCTION

It can be argued that populations in early modern Europe were consistently malnourished. Agricultural success in any given year was dependent upon both the weather and the yield of the previous years. Additionally, epidemic infections such as the plague, typhus, influenza, and smallpox were widespread across the continent and in England. In this environment it is probable that city records and other types of accounts would often indicate dearth and the presence of starvation.

The validity of these documents has recently come into question. On the one hand, the siege narratives produced by inhabitants of cities such as La Rochelle during the Wars of Religion in France could be accurate accounts of the problems incited by siege warfare. They could, on the other hand, be political ploys to encourage other countries, or political entities, to become involved in the civil disputes of France. Perhaps the narratives were written for popular enjoyment, and the gruesome descriptions of death in the streets were exaggerated for

public excitement. These narratives could also have been used as moral tales, examples of God's punishment for sinners.

Reading the harrowing details of the famine narratives, it is almost too easy to discount the tales as fiction. It is imperative, however, to recognize that famines were a very real occurrence during the early modern period. In a population that subsisted on a diet lacking most of the nutrients required for the body to survive, a poor harvest or isolation from food supply could rapidly induce starvation, especially in the marginal populations of widows, children, and the poor. Without the proper nutrients, populations were quick to succumb to the threats of endemic diseases in epidemic proportions.

Starvation in early modern Europe caused thousands of deaths, either directly or through related diseases. The mortality rates for areas suffering from famine attest to the intensified loss of life. Moreover, the physiological devastation led to the impairment of the individual psyche as well as the breakdown of social norms. Famine accounts relay the apocalyptic fear that overwhelmed societies without adequate nourishment. The idea that the world was coming to an end was prevalent, especially in France as war, famine, and disease struck the country simultaneously
in the late sixteenth century. As a religious society, the people of France must have related their suffering to the prediction of the Book of Revelation, "I looked, and there before me was a pale horse! Its rider was named Death, and Hades was following close behind him. They were given power over a fourth of the earth to kill by sword, famine and plague, and by the beasts of the earth."¹

The famine narratives speak not only of the apocalypse but also of the extreme measures people took in order to survive. Though these accounts are in many ways exaggerated, they present a picture of the truly horrific destruction brought about by famine. In order to understand the cultural affects of famine, it is necessary to investigate the physiology and psychology of famine.

Famine had certain typical affects on individuals and the societies in which they lived. These aspects of famine can be divided into three phases: general starvation, epidemic infection, and behavioral diseases. General starvation and epidemic infection attack individual victims, while behavioral diseases are the community-wide problems resulting from the stresses caused by famine. By discussing the affects of famine on the body and mind, and relating those affects to three historical famines, those

¹Rev. 6:8 NIV (New International Version).
induced by siege at Rouen in 1591-92 and La Rochelle in 1628 as well as the famine caused by harvest failure in the late 1590s in northwestern England, a paradigm will be developed that synthesizes the rhetoric and reality of famine in early modern Europe. From this synthesis of rhetoric and reality, it will be possible to define famine not only as a physiological stress but also as a cultural phenomenon.

HISTORIOGRAPHY

Since its inception in post-war France, the Annales School has guided the agenda and methods of writing history. The founders, Lucien Febvre and Marc Bloch, discarded the widely accepted method of studying history of politics and world powers to investigate what they considered to be a more human history. In order to do this, they approached history in an interdisciplinary fashion, using literary sources as well as archival materials. The Annales School pioneered the use of demographic studies in history. The annaliste historians developed the research methods used today to study population and history.²

One of the most notable contributors to the Annales School was Fernand Braudel. Braudel was a socio-cultural historian whose influence over the discipline was unmatched by any other historian in his time.\(^3\) Braudel recognized that the study of the demographic changes in early modern Europe was important, but that those changes meant more when understood in a cultural context. Fernand Braudel created a cultural context for the early modern historian in *Civilization and Capitalism, 15\textsuperscript{th}-18\textsuperscript{th} Century*, vol. 1: *The Structures of Everyday Life, The Limit of the Possible*, published in 1981. Braudel's work was an exceptional starting point for the researcher of everyday life in early modern society. In his explanation of diets, Braudel showed what foodstuffs, and by relation nutrients, were available throughout Europe. According to Braudel, living standards were high prior to 1550 and meat was readily available. Food prior to 1550, as described by Braudel, seemed plentiful, and the extant cookbooks from the fourteenth century describe lavish six course meals. Braudel indicated that the peasants' complaints of a lack of meat and other foodstuffs should not be accepted as reality; that, prior to the mid-sixteenth century, the peasants did not starve. The standard of living declined,

\(^3\text{Ibid.}, 113.\)
however, after 1550, and consumption of most meat products became a luxury for the rich. Those portions of the population considered marginal or poor were unable to afford fresh meats due to an increase in the price of grains. Therefore, accounts show an increase in the consumption of salted or smoked meats.  

Aside from the fluctuations in the availability of meat and fish, Braudel detailed which foods could be relied upon as an indicator of the economic situation in general. For example, Braudel stated that eggs were widely eaten and relatively inexpensive. The fluctuations in the price of eggs could be used as an indicator of a region's economic status.

Braudel discussed many aspects of daily life outside of food in this work including fashion, currency, technology, and the differences between rural and urban lives. Important to this study in particular was Braudel's discussion of famine. Braudel noted that famine was so prevalent that dearth was part of daily life. He was quick to point out, however, that though the majority of the accounts of suffering survive from the towns and cities, the misery was most likely far worse in the rural areas.

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The unbalanced suffering of the countryside and towns is an interesting aspect of Braudel’s research. Referring to the towns as “habitual grumblers,” Braudel stated that without the warehouses for storage and modicums of exchange found in the cities, the rural residents “had no solution in case of famine except to turn to the town where they crowded together, begging in the streets and often dying in public squares...” Braudel’s discussion of famine forced other historians to look at the social impact of famine both in the towns and in the countryside. Braudel also made the important correlation between famine and disease. “Famine was never an isolated event. Sooner or later it opened the door to epidemics....” Though Braudel was surely not the first historian to recognize the relationship between malnutrition and infection, its inclusion in his work led to more discussion of its importance.

The contributions to the study of demographics and history made by the Annales School have been added to by a second group of scholars interested in the study of population. The Cambridge Group for the History of Population and Social Structure was founded in 1964 by demographers such as Roger Schofield and Peter Laslett. In

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5Ibid., 74-5.  
6Ibid., 78.
1966, the Cambridge Group published *An Introduction to English Historical Demography*, a collection of articles about the methods used in demographic history. This work established the group’s reputation as an authority on English demography.  

A member of the Cambridge Group, Peter Laslett used demography to determine the reliability of early modern European accounts of famine, disease, and warfare. Historians of the 19th and early 20th century read these accounts, and, taking them literally, portrayed a society that was marginally civilized, waiting helplessly for impending tragedy. These depictions of early modern society came into question when Peter Laslett asked, "Did the peasants really starve?" in *The World We Have Lost*.  

Laslett’s question was the impetus for more historians to research demographic fluctuations as early modern population levels rose and fell in relation to harvest yields, epidemics, and war. One of the responses to Laslett’s inquiry was Andrew Appleby’s *Famine in Tudor and Stuart England*. Appleby’s work, based largely upon parish registers and other demographic data, used a statistical approach to examine three separate subsistence crises in

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northwestern England. Appleby discussed the mortality crises of famine as "positive Malthusian checks," responses to a population that had outgrown its resources. Appleby's work demonstrates that the population of northwest England in the sixteenth and seventeenth century was regulated through starvation, disease, and emigration.

Appleby effectively showed that the famines of northwest England were demographically important, keeping the population from exceeding the limits of the available resources. Additionally, Appleby answered Laslett's question in the affirmative that the peasants really did starve. Appleby looked at other plausible causes for the mortality rates and ruled out epidemic infections including plague and typhus. The famine related mortality was studied specifically in northwest England, but Appleby was able to successfully relate these famines to subsistence crises in the rest of England and on the continent as well. Appleby's investigation of famine in England answered questions such as Laslett's, but also propelled historians into further, localized study of famine.¹⁰

Following the methodology of demographic research developed by the Annales School and the Cambridge Group, ⁹

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¹⁰Ibid.
Susan Cotts Watkins and Jane Menken questioned whether Malthus's theory of famines as a way to maintain population levels was plausible. In "Famines in Historical Perspective," Watkins and Menken investigated the demographic consequences of historical and modern famines, their duration, frequency, and the magnitude of mortality during the crisis. Their study included a simulation of the demographic effects of subsistence crises as they tried to determine if famine could account for population stagnation or decline. Watkins and Menken concluded that famines could not have been the cause of population decline unless the crises occurred far more often and were more devastating than records account for. Perhaps as important as the idea that famine was not a Malthusian check on population was the author's reference to the social impact of famine. Watkins and Menken explained that while the social consequences, including the development of "landscapes of fear," may be harder to measure, they are just as important as these crises tended to have "long-lasting effects on economic arrangements and social structures."¹¹ "Famines in Historical Perspective" provided a solid demographic approach to the study of famine, and

yet it also recognized the idea that the social consequences of famine, the altered attitudes towards life, death, and community, are just as important as the demographic results of such catastrophes.

In "Infection, Hidden Hunger, and History," Ann Carmichael discussed the significance of the relationship between infection and malnutrition. Carmichael contended that the synergism in the Third World countries between famine and disease could shed light on the link between nutrition and infection in the pre-modern world. Within this essay, however, Carmichael demonstrated that, though there is a relationship between famine and disease, there is also an important synergism between various diseases. Though Carmichael thoroughly supports the idea of a correlation between diseases, she acknowledges that overlooking the relationship between famine and disease is detrimental to the understanding of the overall health of populations of early modern society. Carmichael concluded her essay with one important thought. "The historical importance of the "synergistic package" will emerge... from the careful study of the social changes in human morbidity and mortality."¹² Indeed, it is the cultural effect of

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tragedy that tells more about a society than the catastrophe itself.

A later contribution to the study of famine and infection was John Walter and Roger Schofield's *Famine, disease and the social order in early modern society*. This work discussed both the relationship between famine and disease and the social impact of famine on society. Walter and Schofield compiled essays in honor of Andrew Appleby discussing a variety of aspects related to famine and disease. These essays looked into the relationship between malnutrition and mortality, the response of governments to epidemic infection and famine, and the correlation between market prices and dearth.¹³

More recently, William Chester Jordan has made similar headway into the investigation of famine in early modern society by focusing on a specific tragedy. Jordan's work, *The Great Famine: Northern Europe in the Early Fourteenth Century* is one of the most comprehensive investigations into a single, albeit long-term, subsistence crisis. The *Great Famine* illustrates how the dearth created by harvest failures was intensified by both warfare and murrains, diseases affecting domestic animals. Jordan explores many

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aspects of the crisis: the effect of the harvest failure on grain prices, correlating rising prices with poor crop yields; the unbalanced suffering of the lay and ecclesiastical nobility and the peasantry; and the political and sociological affects of famine on the community. An exhaustive investigation of the famine of 1315, Jordan’s study promotes the research of the social and cultural results of famine and disease in early modern Europe.\footnote{William Chester Jordan, \textit{The Great Famine: Northern Europe in the Early Fourteenth Century} (Princeton, New Jersey: Princeton University Press, 1996).}

Though both the Annales School and the Cambridge Group have shaped historical demography, Jordan’s contribution to the field is noteworthy because he is able to incorporate the use of demographics when writing a cultural history. Historical demography has been molded by the annaliste demographers and the Cambridge Group members who have provided methodologies such as family reconstitution that allow historians to follow families through baptismal, marriage, and burial records. Additionally, recent technology has allowed historians to link these families through computers rather than the tedious reconstitutions done by hand. Reconstitutions for an area can provide information about life expectancy, unusual mortality rates,
and migration. The methods of both of these schools, however, leave out an important aspect of history. With all of the population fluctuations and data concerning births and deaths, these historians have not taken into consideration that these numbers, charts, and tables have cultural significance. The Great Famine presents a clearer picture of life in early modern Europe. By including demographic information, Jordan is able to show that the crisis of 1315 was tragic, but more importantly, Jordan focuses on what impact the crisis had on society. Jordan details the lives of both lords and rustics, explaining how the subsistence crisis would most likely have affected people of different standings in the communities. Jordan describes the typical pre-crisis society, how that society prepared for a crisis, how its people attempted to prevent the suffering, and, finally, how the original society was lost in the tragedy. The focus on the breakdown of society, bolstered by the demographics, is perhaps Jordan’s finest contribution as population figures are important but lack meaning without an understanding of how they affected the people.

Though most historical writing has focused on the demographic aspects of famine to the exclusion of social

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15Boyd, 299-300.
consequences, one scholar has focused specifically on the meaning of food to society in early modern Europe. Piero Camporesi published the controversial *Bread of Dreams: Food and Fantasy in Early Modern Europe* in 1980. In his work, Camporesi used the oral traditions, sermons, medical and political literature dealing with food, both in times of famine and excess, to provide a unique history of the affects of food on the mind, body, and society. Often disturbing, Camporesi’s source material is interesting and thought provoking. Camporesi’s narrative is vividly descriptive.

During times of famine, even those less devastating, the starving were transformed into grotesque likenesses of human beings: into dried up mummies exhausted by the toil of staying alive and the unbearable effort of keeping on their feet. ‘One sees almost everyone reduced to the formless thinness of a mummy, so much that... the skin hides nothing, supported by the skeleton with very little flesh. And go where you like, in the streets one meets up with nothing but sadness, melancholy, weakness, sorrow, misery and death.’ In the villages and in the afflicted and calamitous cities, lurid rags wearily stirred, inhabited by fleeting emaciated shadows, wasted by hardship; the metaphysical forms of Sorrow, Misery and Consumption. The urban scene then came to resemble a terrifying concourse - to use an image dear to a classical writer on hunger, St. Basil - traversed by spidermen, skin dried out and ashen, eyes sunken in hollowed-out bony sockets, like the kernels of dried nuts.\(^\text{16}\)

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Camporesi delved into the ways that certain edible herbs and grains induced dementia. He also maintained that the regular inclusion of herbs in flour would most likely have created a sense of unending delirium. The overall effect of Camporesi's compilation is the idea that the societies forced to consume that which was not regularly eaten, or what was clearly recognized as inedible, were likely to have experienced ill effects on their ability to think. Where so much emphasis has been placed on the physiological effects of malnutrition, Camporesi's work forces the historian's attention onto the possible psychotic affects of the starvation diet.17

Recent historians have begun to combine the demographic and social affects of famine to more fully understand society in early modern Europe. As this brief inspection of some of the more popular works has shown, the study of famine in early modern Europe has fluctuated from an acceptance of the accounts of suffering to their complete dismissal. This essay is an attempt to discover a compromise between these two positions. Historians have pointed out there was some social significance to subsistence crises. They have recognized that famines

17Ibid.
occurred during the early modern period, the peasants did starve, and the undernutrition was detrimental to both mortality rates and the ways communities functioned. This study will develop both clinical and cultural definitions of famine through the examination of the rhetoric and reality of famine in early modern Europe. In doing so, this research focuses on the ways that famine marked society and altered the collective conscious of its victims. In order to be successful in defining famine clinically and culturally, this essay relies heavily on an interdisciplinary approach. Much of the information used to develop a clinical definition of famine has been drawn from medical literature and scientific studies of famine, and the cultural definition has been formed through the use of demographic research as well as literary sources. The following chapter details the etiology of famine, without which the social impact of famine could not be understood.
CHAPTER II

THE PHYSIOLOGY AND PSYCHOLOGY OF FAMINE

GENERAL STARVATION

General starvation is clinically defined as "a condition in which the body draws on its own internal reserves for energy."¹ Starvation occurs when prolonged undernutrition begins to undermine the body's ability to function. Glucose, provided by food, is the main source of fuel for the body. On average, the brain uses 60% of the available glucose, and the remainder is used primarily by the skeletal muscles. In order to function properly, the brain requires approximately 100 to 115 grams of glucose daily. Up to 100 grams of glucose is stored in the liver, but not all of that is readily available for use because the liver retains some glucose in case of emergency.² Starvation begins when the body lacks nourishment and the liver releases glucose, the majority of which is used by the brain. Muscle and adipose tissue normally depend on glucose for fuel, and when the brain requires the majority of the glucose, muscle and adipose tissue are forced to

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rely on the oxidation of fatty acids. Under total starvation, the liver can continue to supply glucose for approximately sixteen hours. After that time, the liver shifts to a method of glucose production known as gluconeogenesis, a process in which muscle protein is converted into glucose. Within twenty-four hours of the onset of starvation, glucose is produced solely by the conversion of proteins imported from muscle tissue, and the liver is burning fatty acids derived from adipose tissue. Due to the arrival of fatty acids in unmanageable amounts, the liver releases incompletely burned fatty acids leading to increased levels of ketones in the body. Over a period of time, the increase in ketones, if not offset by the intake of small amounts of carbohydrates, can lead to dehydration and coma. If starvation is not acute, the ketone production will cease to rise as the brain begins to accept ketone bodies rather than glucose, allowing the body to avoid the process of gluconeogenesis. As the ketone production levels off, the body will draw on stored fat for its energy requirements.3

As the starving body converts fat into necessary energy, wasting occurs. Wasting is the deterioration of body mass and is the most obvious symptom of starvation.

3Dirks, 157-58.
Wasting occurs rapidly for the first few days of malnutrition, but the rate of wasting declines for the remainder of the starvation process. Those suffering from advanced wasting effects of starvation appear to observers as walking skeletons. After the stored fat supply is diminished, the body relies on proteins taken from internal organs to survive.

This continuing attrition of protein, even as fat remains available, is not borne equally by all organs of the body. Heart and kidney tissue sustain slightly less loss than would be expected given their proportion of total body mass. The liver, intestines, and skin incur more than their share of the loss. Postmortem examinations of starvation victims reveal no part of the body immune to atrophy except the brain.

The deprivation of nutrition wreaks havoc on the body in a variety of ways. The length of survival as the body relies on its own stored fat for energy depends on the percent of body mass lost to wasting. An individual of normal height and weight who remains nearly inactive can sustain life under conditions of almost total starvation for approximately two months. Victims in an environment of semi-starvation, those who have access to small amounts of carbohydrates over the course of the crisis, can survive for six months or more. If 30% of a victim’s body mass is lost, it can be recovered only with modern day medical
intervention, and if 40% or more is wasted the victim is most certain to perish.\(^5\)

Several other symptoms accompany the wasting phenomenon. Before wasting peaks, a loss of endurance is displayed. Individuals require frequent rests from any type of work, and though sleep patterns are interrupted, the overall amount of time an individual spends sleeping increases. Victims complain of muscle pain and weakness and their movements become halting. Starvation causes individuals to require frequent rest and avoid standing for any length of time. Sensitivity to noise increases, and victims often feel abnormally cold as blood pressure and heart rates decline.\(^6\) The process of starvation erodes the victims' interest in both their own appearance and sex. Secondary sexual characteristics, such as the growth and development of breasts and body hair, are altered during the course of starvation. As hormone levels change, both sexes lose hair from their heads and genitals, but men's beards stop growing while women begin to grow light facial hair. Malnourished children who are delayed in general development are naturally slow in developing their

\(^5\)Ibid.
\(^\text{Dirks, 158-9.}\)
secondary sexual characteristics. The onset of puberty is also later than normal. Malnourished adults display atrophy in their sexual organs. Women may show decreased mammary glands, and ovaries and testes decrease in size as well. Some malnourished men display characteristics of gynecomastia, growth in one or more breasts due to the changes in hormones.  

The noticeable symptoms of starvation are often signs of more serious physiological changes.

Undernutrition quickly results in numerous physiological changes, and these become progressively far-reaching as the condition continues. These functional changes result from structural and metabolic alterations, which, in turn, must reflect basic biochemical events. But the functional changes are among the first to be discernable, and they tend to dominate the problems of the behavior and the survival of the individual.

In the absence of infectious disease, there are still a variety of physiological disorders that affect a malnourished body. The most commonly reported problems are those related to the gastrointestinal tract. These include a variety of digestive ailments such as diarrhea and dysentery. Additionally, when famine occurs in conjunction with wars, peptic ulcers, intestinal ulcers, and ulcerative colitis become common. In a subsistence crisis, diets

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7Ancel Keys and others, The Biology of Human Starvation
change in an attempt to fill the needs of the population. The staple food, wheat or other grain, is often the most difficult to obtain, so residents ingest foods that were primarily substitutes or otherwise believed inedible to meet nutritional requirements or assuage hunger. This alteration often includes the "souping" of food, boiling food into a broth that feels more filling. As diet changes, the gastric system has to change to fulfill the requirements of digestion. Unfortunately, these functional changes in the gastrointestinal system "may render the gastrointestinal tract susceptible to organisms which under normal conditions would be nonpathogenic." Victims of semi-starvation often have polyuria; they urinate more frequently than those with a well-balanced diet. As this is commonly attributed to the increased water intake derived from the habit of "souping," adding water to small quantities of food to make it more filling, or the consumption of mass quantities of water in an attempt to feel full, it may be the result of more intense thirst stemming from changes in body fluids and hormone levels. Along with the gastrointestinal problems, underfed

(Minneapolis: University of Minnesota Press, 1950), 1:752-7.
8Ibid., 575.
9Ibid., 587, 590.
10Ibid.
populations are also more susceptible to respiratory problems such as tuberculosis and bronchitis.\footnote{Ibid., 665, 601.}  

Circulatory and cardiac functioning also react to the starving conditions and lack of nutrition. Victims of starvation consistently suffer from bradycardia, the slowing of the heart rate. Another symptom is the common complaint of coldness. Victims of starvation often feel cold, and their skin is cold to the touch. There are two possible explanations for this chill, a reduction in body temperature or bradycardia. In experimental studies, victims of starvation show a typical body temperature of 96.3 degrees Fahrenheit rather than the normal 98.7 degrees.\footnote{Ibid., 612.} Bradycardia perhaps is the predominant contributing factor to the reduction in body temperature. As the heart rate slows, the circulation is weakened especially to the periphery. Bradycardia could be the heart's response to danger. By slowing its output, the heart is preserving itself regardless of the negative impact this has on the periphery.\footnote{Ibid., 633.}  

Famine also hinders mental and physical development, especially in children. Prenatal malnutrition is associated with developmental problems in infants and
children. Much research has been done to determine how prenatal malnutrition may affect the development of the brain. In "Prenatal Malnutrition and Development of the Brain," Morgane, Austin-LaFrance, Bronzino, Tonkiss, Diaz-Cintra, Cintra, Kemper, and Galler state that there are certain accepted affects of malnutrition on development:

1. Nutrition plays a necessary role in the maturation and functional development of the central nervous system, being concerned directly with providing energy and nutrients needed for development of cellular structures and various essential metabolic systems.

2. Malnutrition adversely affects many aspects of brain development and function.

3. Malnutrition is but one of a critical group of environmental factors affecting the development of the nervous system.

4. Some amelioration of the effects of malnutrition can occur, depending on a host of factors, including restoration of an adequate diet and environmental stimulation.

5. If the malnutrition insult occurs during various critical periods of central nervous system development, either in the pre- or postnatal period, permanent effects on brain morphology, physiology, and neurochemistry are produced that impact higher nervous system functions, particularly in the sphere of cognitive development.¹⁴

Prenatal malnutrition, especially if the mother is malnourished prior to conception and the nutritional deficiencies continue throughout the pregnancy, can lead to lesions on the brain and subsequent mental retardation or

to learning disabilities. The ability to perform tasks and adapt to change is also significantly impaired. Postnatal malnutrition tends to lead to retarded social development, as a starving individual withdraws from society.\textsuperscript{15} Malnutrition "may influence mental development indirectly, by altering the child's curiosity, responsiveness to the environment, and motivation for learning."\textsuperscript{16} The reduction of energy as a result of starvation also reduces the activities and opportunities for cognitive growth.\textsuperscript{17}

**FAMINE AND INFECTIOUS DISEASE**

There is a distinct relationship between famine and infectious disease. Not only does undernutrition alter the ability of the body to function properly, it allows for the easier transmission and infection of disease. The victim of starvation has a weakened immune system that leaves him or her more susceptible to disease. Additionally, any infection can increase the adverse affects of general starvation.\textsuperscript{18} Individuals who are fighting infection require more calories and protein. A malnourished victim of infection will not be able to maintain the levels of

\textsuperscript{15}Ibid., 93, 97.
\textsuperscript{17}Ibid.
\textsuperscript{18}Dirks, 160.
protein and calories needed to survive. In addition, an individual that is ill is less likely to eat enough even though he needs the additional energy.\textsuperscript{19} Except in the cases of infections that are dependent on the host for survival, nutritional deficiency increases the occurrence of infection. This relationship between disease and malnutrition is referred to as synergism. In their study of the relationship between infection and disease, Scrimshaw, Taylor, and Gordon describe the aspects of nutrition and infection that create the synergism.

Nutritionally induced determinants of synergism may include: (a) reduced capacity of the host to form specific antibodies; (b) decrease in phagocytic activity of microphages and macrophages; (c) interference with production of non-specific protective substances; (d) reduced non-specific resistance to bacterial toxins; (e) alterations in tissue integrity; (f) diminished inflammatory response and alterations in wound healing and collagen formation; (g) effects originating in alterations of intestinal flora; and (h) variations in endocrine activity.\textsuperscript{20}

This cycle progresses more rapidly as social order declines due to increased mortality, and the lack of social order often accelerates the problems of acquiring food, thus furthering undernutrition and allowing for easier spread of disease. Either famine or disease generates the cycle,

\textsuperscript{19}Carmichael, 249.
though famine usually precedes disease. Often diseases that are endemic to a population become epidemic after famine begins. Some of the diseases that historically followed famine in Europe were dysentery, smallpox, bubonic plague, and typhus.

Infections tend to create nutritional deficiencies and protein-caloric malnutrition as appetites and tolerance for food is decreased. In areas where undernourishment is the norm, individuals with infection are given a reduced protein diet, or their infection is treated with purgatives that reduce nitrogen retention and absorption. In addition, infections such as diarrhea and helminthic disease are detrimental to nitrogen retention.

It is generally accepted that kwashiorkor is precipitated by acute diarrheal disease, measles, or some other infection superimposed on a diet already dangerously low in usable protein or calories. Evidence also exists that keratomalacia, scurvy, and beriberi are frequent aftermaths of an infectious process in persons subsisting, respectively, on diets deficient in vitamin A, ascorbic acid, and thiamine.\textsuperscript{21}

Also, in populations that are malnourished, there is a diminished resistance to infection. By reviewing past studies of victims suffering both from malnutrition and infection, Scrimshaw, et al. chart the synergism found in victims of multiple nutritional deficiencies. Of bacterial
diseases, evidence shows that *Mycobacterium tuberculosis*, *Salmonella enteritidis*, diarrhea, respiratory disease, and *Pasteurella pseudotuberculosis* were more severe among the malnourished. Similar results were found for *Rickettsia prowazekii*, viral hepatitis, and yellow fever. Additionally, acute dysentery and diseases caused by helminths (those that produce intestinal worms) were also more common in individuals with multiple nutritional deficiencies.22

Starvation destroys immunity in two ways, community-wide and on the individual level. Communities lose their immunity as populations are dislocated or forced into crowded facilities. Behavioral changes also further the loss of immunity through exhaustion-induced disregard of proper hygiene and sanitation at both the individual and community level.

Starvation is detrimental to the victim's immune system because skin and mucous membranes lose their ability to protect the body from bacteria and virus causing germs when protein levels are decreased. "Flaky skin lesions, intestinal atrophy, and a reduction in tissue-healing capacity, frequently observed in children suffering from

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21Ibid., 59.
22Ibid., 60-3.
chronic protein-energy malnutrition, facilitate infection." Additionally, as bodies are easily infected due to reduced proteins, the infection encounters, within the body, an immune system that has been crippled by undernutrition.

On the cellular side of this system, starvation has ill effects on both phagocytes and T-lymphocytes as the former lose efficiency as bacteria killers and the formation of the latter is depressed. On the humoral side, the complement system, a group of proteins that interact to form substances for the destruction of bacteria and viruses, functions poorly in undernourished children. Immunoglobulins, protein molecules secreted by B-lymphocyte-derived plasma cells and a principal element of the humoral immune system, are often found in serum at high levels among malnourished populations.

Undernourished populations typically endure respiratory and gastrointestinal infections that could be attributed to the low incidence of the protein molecule, immunoglobulin A, which thwart bacteria from attaching to the surfaces lining both the digestive and respiratory systems.

**BEHAVIORAL DISEASES**

Victims also suffer emotional distress as their moods alternate between apathy and extreme irritability. "The starving become discouraged and depressed but also display

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23Dirks, 161.
an exaggerated ill temper.... There is a lack of concentration and lapse of memory." Intellect typically remains unimpaired; however, the ability to think critically is hindered. The psychological condition of victims varies from selfishness, indifference, and disorientation. In *Bread of Dreams: Food and Fantasy in Early Modern Europe*, Piero Camporesi investigated the psychological effects of famine. He declared that the effects of famine on mental health have been overlooked. As grain for bread became scarce, Camporesi maintains that those affected by the food shortage would often rely on toxic herbs and grains whose consumption was normally avoided. Some of these had stupefying effects on entire populations.

It is as if a spell had been placed on entire communities, bewitching and benumbing them; as if the masses had become victims of a colossal somnolent vertigo induced by a drugging herb growing wild in the countryside, victims of a collective stupefaction that - even if temporary - resulted in their deserting work and habitual occupations. Unsuspected artificial paradises were opened up to the undernourished and the starving: the sleeping, dreaming, torpor, relaxing and incoherence of the bodily functions took hold of whole strata of the population, not only marginal, but the active and productive.\(^{27}\)

\(^{24}\)Ibid.  
\(^{25}\)Ibid.  
\(^{26}\)Ibid.  
\(^{27}\)Camporesi, 122.
Hunger, even without the necessary use of stupefying grains, can produce hallucinations and dementia, and populations suffering from famine become apathetic and demoralized.

The emotional and psychological costs of famine are difficult to measure because general starvation is not always absolute. Starvation can be divided into two subcategories, psychosocial and physiological.28

Psychosocial starvation, also referred to as partial or comparative starvation, is appetite. This relative starvation results when "the quantity and quality of food consumed are below the physiological minimum necessary to meet the needs of the organism."29 Psychosocial starvation is "due to our habits of eating certain kinds and amounts of food at certain times, to our preference for finer and more appetizing foods, to the contrast between the luxurious and inferior diets of the upper and lower classes, respectively, or to the other psychosocial conditions."30 Appetite is a pleasant sensation, the desire for a particular food. It is not a continuous dilemma, but

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29 Ibid., 15.
30 Ibid.
rather a sporadic "intermittent phenomenon."\textsuperscript{31} Additionally, appetite can be dispelled by a "disagreeable external stimulus,"\textsuperscript{32} focusing one's attention onto more unpleasant things such as rats, worms, or feces.

Physiological starvation is a more absolute starvation and is often referred to as hunger. Whereas appetite is a pleasant sensation, hunger is a more intense, painful feeling. The extreme cravings for food are accompanied by "a dull gnawing sensation, fatigue and weakness, a feeling of emptiness and apathy, difficulty in concentrating on anything except food, nausea, irritability and the like."\textsuperscript{33} A victim of starvation, E. Mikkelson, recorded that he felt "the painfully distinct sensation of growing more and more empty inside, until at last it seems as if the internal organs themselves had disappeared entirely."\textsuperscript{34} Absolute starvation results in a diversified range of emotions that are erratic in nature. Emotionally, victims of starvation are unstable though they struggle predominantly with feelings of depression and apathy. Victims of starvation are preoccupied with food until the point at which the starvation becomes so acute that they lose their appetites. Rather than being diminished by unpleasant thoughts, hunger

\textsuperscript{31}Ibid., 17.  
\textsuperscript{32}Ibid., 16.  
\textsuperscript{33}Ibid., 17.  
\textsuperscript{34}Ibid., 17.
is "not extinguished by such stimuli and often impels one to eat nauseating food – in exceptional cases even human corpses."  

Catastrophes such as famine cause not only physiological distress but also psychological trauma. Pitirim A. Sorokin describes the psychological impact of famine on individuals and societies. There are three noted effects of starvation on the cognitive processes of its victims. The first is that the majority of senses begin to notice only those things related to food. Secondly, there is an inability to concentrate on problems not related to food, and thirdly, all desires are focused on the solution to starvation.

The victim of starvation will begin to perceive the world quite differently than he had prior to the calamity. Everyday sensations are altered to the point that the victim registers only food related phenomena. "When we are hungry, our sense organs seize upon and register anything connected with food.... Conversely, in a state of starvation our sensations and perceptions relating to phenomena not connected with food become less intense, even dull."  

With this change in sensory perception comes an alteration in

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34 Ibid., 18.
35 Ibid., 17.
36 Ibid., 28.
activity. Dreams, memories, and speech are all focused upon food. "As a rule, prolonged and intense starvation serves to weaken our memory, apart from the images relating to food, which are retained and reproduced more clearly and vividly than under normal conditions." All of the victim's attention is focused on food, and even if he or she tries to think about or discuss other subjects, the topic will rapidly turn back to food. "Thus, in a starving society not only do its members talk principally of food, but its newspapers, magazines, books, sermons, lectures, fine arts, philosophy and religion, science, and public meetings (including those of government bodies) are dominated by food topics, which occupy ever-increasing space and time, to the detriment of other considerations." So the starving perceive that they are surrounded by that which they cannot have, food.

The victim of starvation loses the ability to think critically. Intellectual ability remains constant, but as all senses refocus onto those aspects of the world related to food, the ability of the individual to concentrate diminishes. The mental capacity of the victim suffers as he or she loses control of his or her thoughts. The

37 Ibid., 29.
38 Ibid., 30.
emotional emptiness felt by the starving hinders their desire to think. In order to solve problems, a person needs to be able to block out external stimuli, and the victim of starvation's entire existence revolves around thoughts of food. "As a rule, one suffering from acute starvation or illness, or exposed to the dangers of the battlefield or a revolutionary struggle, is incapable of thinking coherently, intensely, and creatively, except, perhaps with reference to the limited topic of his calamity." This disintegration of mental functioning, at its extreme, creates multiple personas, hallucinations, and a state of delirium.

The diminished mental functioning and altered sensory perceptions are accompanied by a shift in desires and volition. All wishes and desires shift focus to that which will result in the attainment of food. Those wishes that are not associated with satisfaction of hunger are forgotten or repressed. The victim's ability to distinguish right and wrong is often diminished, and actions that, prior to the famine would be unheard of, become prevalent. For example, during the 1590 siege of Paris by Henry IV, Pierre de l'Estoile recounted that

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Ibid., 36.
Ibid., 38.
towards the end of the five-month siege the city fathers ordered the collection of all the cats and dogs to be cooked as soup by the municipal officials. Though this soup was distributed to the poor, it was still necessary to consume it secretly as food was commonly fought over or stolen.\(^{41}\) The desire for food is overpowering in comparison with the volition not to steal.

As the individual's mind and behavior are affected by famine, so is the behavior of society. The physical and emotional costs of famine render people virtually incapable of continuing typical social behaviors. This change in social interactions is categorized as behavioral disease or disorder. Famine is a catalyst for three phases of behavioral disorder: alarm, resistance, and exhaustion.

The alarm stage sets in as people in the affected area realize that they have a limited food supply. As people realize that emergency situations, such as a siege, or natural disasters, such as a flood, have limited their food supply they react in a somewhat typical manner. Alarm is characterized by hyperactivity and concern for loved ones and neighbors. "Sharing of food and other resources among friends and neighbors actually increases, apparently

\(^{41}\)"Brief Traité des Misères de la Ville de Paris." in Archives Curieuses de L'Histoire de France depuis Louis XI jusqu'à Louis XVIII,
virtual autonomy in economic affairs at a time when most
towns were succumbing to the fiscal depredations of the
Crown. "47

In 1627, La Rochelle was the strongest of the Huguenot
forts remaining after Henry IV's 1598 Edict of Nantes. La
Rochelle was, for several reasons, a thorn in the sides of
King Louis XIII and Cardinal Richelieu. The Rochelais
enjoyed an independence from the Crown, both financially
and religiously that could not be found elsewhere in the
realm. Though their peculiar independence was legally
confirmed by Henry IV as he ended the civil wars, the
Rochelais were "still wary of the world outside and from
1596 to 1611 steadily extended and improved their
defenses."48 As maps of the town used by the besiegers
show, the town must have appeared impossible to enter. Yet
in the ten years preceding the siege, Louis began
threatening this seemingly impregnable town. The key to
defeating the Huguenot force within the walls of La
Rochelle was to effectively blockade the city, starving
them until they surrendered.

The Rochelais were aware of the moves made by Louis,
his attempt to isolate the town and the possible threat of

47 Ibid., 66.
48 Ibid., 8.
irrespective of whether there is any prospect of outside assistance."42 At this point, the hyperactivity of the society increases activity in the market and the price of food rises drastically. People search for relief from what they fear will occur in the forthcoming famine in several ways. When there is a threat of famine, "the amount of time and energy spent in food-seeking activities increases while the time and energy devoted to activities unrelated to hunger decrease."43 During this alarm stage, the behavior of the threatened society consists primarily of food-seeking activities. There are two types of food-seeking actions, pure and mixed. Pure food-seeking activities are those behaviors that are attempts only to satisfy hunger.44 Mixed food seeking, however, satisfies both the hunger and some other need. For example, if a starving writer composes a novel with the goal of acquiring money to purchase food, he can gratify his desire to write and his need for rations. In famine conditions studied in Russia between 1918 and 1922,

the time and energy allocated to the pure and mixed food-seeking activities (obtaining ration cards, standing in bread lines, seeking out legal and illegal 'food markets,' making trips (in the

42Dirks, 158-59.
43Sorokin, 51.
44Ibid.
interest of food) to distant villages, planting, cultivating, and guarding vegetable gardens; preparing and cooking food under the most difficult circumstances, etc.) increased to almost 100 percent of the total, whereas the proportion of the activities unrelated to food (visiting, dancing, attending shows and theaters, walking, doing work that did not promise any food either directly or indirectly, attending church services, etc.) declined enormously.

Many people attempt to relocate themselves or their families. Others turn to religion, and the number of parishioners in recorded instances multiplies. As people move away from the affected area or toward their choice of religion, others turn to violence, and rates of violence, especially food-related violence, rise accordingly.

Alarm turns to resistance as the victims of famine become too tired and weak to fight, flee, or worship. At this point, alternative sources of energy are searched for and foods not typically consumed or considered inedible are eaten to pacify the desire for food. Additionally, victims ingest items void of nutritional value to feel full. Some accounts of famine detail the search for alternative sources of nourishment. The journal of Jean de Léry from the siege of Sancerre in 1573 describes the progression from the normal pre-siege diet to the last resorts of a starving population. After the animals of the town,

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45Ibid., 53.
including horses, dogs, and mice had been consumed, the inhabitants succumbed to eating parchment soaked in water and fried. Along with parchment, some ate leather and the ground bones of animals. By the end of the siege, the majority of the children under twelve had died, and many of the surviving had turned to the ingestion of food bits found in feces. Though hoarding occurs occasionally during the alarm stage, it is taken to extremes during resistance. Social activities occur less often due to lack of energy, and as food becomes even more scarce "social atomization" occurs. At this stage each household isolates itself as a food-sharing unit. The food sharing that occurred during the alarm stage ends, and food storage, preparation, and consumption all occur in secret. Social visits from family or neighbors are viewed as suspicious and as threats to a household's food supply. During this stage, violence continues, but after the population as a whole has lost approximately 20% of its body mass, victims have less energy for protest, and signs of violence disappear. Throughout the resistance phase, religious observances are ignored, and people who were gathering at churches during

46 Dirks, 159.
47 Jean de Léry, Histoire Mémorable de la ville de Sancerre Augmentée de deux pieces rares sur le siege de Sancerre (Marseille: Laffitte Reprints, 1990), 100-108.
48 Ibid.
the alarm stage now gather only if there is promise of food.\textsuperscript{49}

The final phase of the behavioral disturbances caused by famine is that of exhaustion, characterized by the breakup of each individual household. The disintegration of household units begins as food becomes scarce and sharing within the household all but disappears. The elderly and children are targeted in this phase and are given disproportionately small amounts to eat. Children are neglected or abandoned. Exhaustion brings with it higher rates of infanticide and suicide as the emotional toll of starvation becomes too difficult to bear.

The final vestiges of cooperation in the worst famines are found only in the most instrumental relationships. Anyone promising to put a bite of food in one's mouth is a friend. The fact that people sometimes kill ruthlessly to acquire scraps of food suggests that anyone standing in the way of eating is an enemy. Cannibalism may occur during extreme famine, though its extent is impossible to gauge. Suicide, even in cultures where it is otherwise unheard of, becomes very common.\textsuperscript{50}

The progression from alarm to exhaustion is the change in society as patterns of sharing shift from community-wide food sharing to almost nonexistent food sharing, even within one's own household.

\textsuperscript{49}Ibid.
\textsuperscript{50}Ibid., 159-60.
CHAPTER III

HISTORICAL ACCOUNTS OF FAMINE

In early modern Europe, combinations of natural and social disasters, such as poor harvests and siege warfare, made conditions throughout Europe ripe for famine. The effects of these subsistence crises, as historians term famines, have been debated at length. In his discussion of population structures in early modern Europe, Henry Kamen remarked,

Some scholars have argued that subsistence crises could have a devastating effect, and that people could die in big numbers in famine conditions. Others have maintained that few ever died from starvation or malnutrition in early modern Europe; and that though undernourishment may have weakened health the real killer in most cases was disease.¹

Similarly, Philip Benedict, studying population changes in Rouen throughout the sixteenth century, found that many historians have downplayed the demographic crises during the Wars of Religion. Kamen and Benedict both point out, however, that the demographic crises were very different in various geographic areas. Kamen states that though two regions might have been side by side, one area could have been affected by famine or disease while the other remained

untouched due to customs that created barriers between regions. Benedict adds to this idea by showing that war in the sixteenth century was not total war. Battlefield mortality rates did not rival those of modern standards, and the tragedy and devastation created by these wars was regional not countrywide. Until the end of the seventeenth century, armies were small and weapons were inefficient. However, on a regional scale, warfare was devastating in that soldiers spread disease and induced famine.²

DEFINING HISTORICAL FAMINE

Historians investigating famine must define what constitutes a subsistence crisis. Since the effects of famine can be calculated in a number of ways, historian’s definitions of subsistence crises vary in relation to the purpose of their research. The Cambridge World History of Human Disease states that the identification of historical famine includes:

1. evidence of a dramatic increase in mortality;
2. evidence that such an increase occurred in several adjacent communities at once;
3. consideration of the possibility that lethal disease unrelated to the general starvation bears responsibility for increased mortality;
4. data showing a correlation between mortality curves and the price of food;

5. information indicating disproportional mortality among the economically marginal;
6. evidence of a depression in live births; and
7. statements contained in contemporary accounts referring to dearth, misery, or death owing to want.³

Peter Laslett, a historical demographer, offers an alternative method of identification requiring only three components. First, there should be a rise in mortality, and second, this rise should be accompanied by a fall in baptisms. Third, the cause of death of some of the victims must be attributed to famine or disease.⁴ Andrew Appleby, researching famine in early modern England, declared that there were flaws in Laslett’s approach, mainly that this final requirement is virtually “impossible to fill.”⁵ Therefore, Appleby presents his own method of determining if the mortality in any given area is a result of a subsistence crisis that closely correlates with the criteria set forth by the Cambridge World History of Human Disease. First, there must be some evidence of a dramatic increase in mortality as “there has to be some evidence of a demographic crisis before the causes of the crisis can be examined.”⁶ Second, the increase in mortality should be found in adjacent areas around the same time. Appleby

³Dirks, 163.
⁴Laslett, 119.
⁵Appleby, 116.
⁶Ibid., 117.
presents two reasons for this requirement: that "economic distress probably would have been more widespread than an epidemic"⁷ and that if several neighboring areas showed signs of increased mortality, the validity of parish records is tested. If only one parish register is examined, a possible explanation for the increase rate of mortality is that the parish clerk recorded incorrectly or more correctly than he had in the past. Appleby's third requirement is that "epidemic disease should be considered and eliminated as probable causes."⁸ Fourth, there should be an attempt to correlate the increase in mortality with a rise in food prices. Fifth, extant accounts should include references to a lack of sustenance. Sixth, when the status or age of those who died is known, evidence should show a higher proportion of children and the economically marginal as victims. Seventh, the rate of conceptions should decrease dramatically. For research involving early modern Europe, the rate of conceptions can be determined by the number of christenings in any given year. Although conceptions sometimes decrease during periods of epidemic infection, research indicates that conceptions always drop during famine. Finally, there should not be any evidence

⁷Ibid.
⁸Ibid.
reporting good harvests or times of plenty during the suspected famine.  

Historians occasionally detect famine by determining the quality of the health of peasants through an examination of their daily caloric intake. In European Society 1500-1700, Kamen shows that peasants in various areas of Europe subsisted on drastically different levels of daily calories. In sixteenth-century Antwerp, building workers averaged 2000 calories a day, while 1580 was the average for citizens in Valladolid. In Spain, seaman consumed up to 4000 a day, and inmates in Pavia were given 6000. However, as Kamen suggests, caloric intake is not a true indicator of health, as it does not take into account the vitamin content. In the diet of peasants in Beauvaisis "meat was almost unknown, fruit rare, vegetables poor and the staple was normally bread, soup, gruel, peas and beans." The peasants can be considered to be constantly malnourished.

The problem of discovering the health of people in early modern Europe is more complex than merely counting calories. Along with the caloric intake calculations, many historians investigate fluctuation in food prices.

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9 Ibid., 117-18.
10 Kamen, 40.
"Famine, disease and crisis mortality in early modern society" by John Walter and Roger Schofield discusses the ways in which historians use the historical data about food prices as an indicator of the availability of food. One of the problems that Walter and Schofield confront is that the diets of everyone other than the rich were not usually recorded. "We simply do not know in any detail the quantity and quality of the food of the people, how it varied over time, or what scope there was for substituting other foods in time of harvest deficiency." However, Walter and Schofield have found the information on food expenditures presented by Gregory King at the end of the seventeenth century to be a reliable indicator of food budgets for several different social classes in England. King showed that grain was the dominant source of food for all except the rich, with meat, fish, and dairy products present in significant amounts. Among the poorest 41% of the population, 57% of food expenditure was spent on grain (with 7% of that on malted drinks), 19% on dairy products, 11% on protein sources such as meat, fish, and eggs, 9% on fruit and vegetables, and 4% on other items. The wealthier portion of the population, who spent 10% more on food, averaged 42% on grain (with 17% of that on malted drinks),

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11Walter, 7.
23% on protein sources, 15% on spices, wines, and spirits, and 13% on dairy products. When prices were high, a larger percentage of the food expenditures per household was spent on grain, 50-70% as compared to 40-50% when food prices were lower. The question posed after market prices and food expenditures are known is how can fluctuations in prices and expenditures on food be used to calculate the availability of food? The answer is that fluctuations in prices and expenditures on food can be used in the detection of famine only to a limited extent. Knowledge of the changes in food prices helps to determine the presence of food shortage only when rising prices are coupled with a rise in mortality and a fall in the birth rate.\textsuperscript{12}

Another way to investigate the effects of famine in early modern Europe is to study the changes in birth and death rates. In "Catholics and Huguenots in Sixteenth-century Rouen," Philip Benedict studied the demographic results of two sieges and the Saint Bartholomew's Day Massacre on Rouen, a city in Northern France. Benedict's study relies heavily on an examination of the number of baptisms, an indicator of the fluctuations in population.\textsuperscript{13}

As the population of Europe in the sixteenth-century was

\textsuperscript{12}Ibid., 7-9.
\textsuperscript{13}Benedict, "Catholics and Huguenots," 212.
deeply religious, baptisms indicate the number of births in any given area. Women cannot conceive unless their bodies have a certain percentage of body fat, so in times of famine, the number of conceptions and therefore births drops dramatically.

Throughout the study of historic famines, it is clear that there are several methods available to determine the presence of a famine. Perhaps it is best to use those criteria found most commonly: 1) increased mortality rates; 2) decreased baptismal rates; and, 3) accounts referring to lack of sustenance and/or death caused by starvation. The method used in this study will be deprivation indicated by upward trends in mortality with the exclusion of disease and a corresponding reduction in birth rates. Famine narratives will be used in conjunction with the population data as support for the presence of a crisis.

Merely defining the presence of famine in a particular region at a particular time is historically irrelevant if its presence is not understood culturally as well as demographically. The definition of famine needs to include not only the rise in mortality related to the crisis, but also the ways that the community reacted to the subsistence failure.
Since famine was not uncommon, it is highly unlikely that the populations in early modern Europe were ignorant of the possibility that their harvest would fail or their crops would be destroyed by marauding troops. In his discussion of the Great Famine of the early fourteenth century, William Chester Jordan researched how the population of Northern Europe could have been prepared for and how they reacted to the subsistence crisis that began in 1315. Jordan lays out four strategies that were used in some degree to deal with food shortages. First, a variety of crops may have been cultivated to prevent a food shortage should one type of crop fail. Second, though less likely, mobility could have been encouraged by the socio-economic and political powers that allowed for movement toward more plentiful resources. Third, societies that depended on grain crops must have had adequate storage facilities that would be filled at harvest and depleted throughout the year until the next harvest. Finally, there was some modicum of exchange that could have been used during times of shortage to acquire food from areas that had plentiful resources. Jordan noticed, however, that though these strategies could have been beneficial, the population needed to practice them consistently. Prior to the Great Famine, the climate of the thirteenth century had
been mild. The mindset of the population with regards to weather and harvests was optimistic as there had been no recent crises.\(^\text{14}\)

The famine of 1315 is a good example of the problems when natural and social disasters coexist. Though this crisis began as dismal weather induced poor harvests, the effects of below average production were heightened by the presence of warfare. Culturally, however, the problem at the time would have been seen as a moral dilemma rather than the effect of natural causes. The population suffering from this famine would have said that God was "unquestionably bringing famine in order to mete out the legitimate recompense for sin... Sin, hatred of the Church, empty faith, and lack of loyalty offended God and explained why he permitted the foul weather to linger for such a length of time."\(^\text{15}\)

During this famine, harvests were poor, if not nonexistent, and fatal disease swept through the animal population. As most often the case, the depletion of natural resources was followed by a rise in prices, caused not only by the lower harvest yields but also by the requisitioning of food for armies. Logically, the rise in

\(^{14}\)Jordan, 14-15.
\(^{15}\)Ibid., 22.
prices encourages the decrease in food consumption that, in turn, allows for the available resources to last longer. Jordan, however, is quick to point out that the family that had to pay higher prices was probably not able to see that their sacrifices were beneficial in the long run. Additionally, a reduction in the amount of food one consumed could in fact bring a population below the "threshold of biological success." The rise in prices created a distress among the population as the price inflation was not met by an increase in wages, producing a gap between the daily wage and what was needed to pay for daily food. This distress had the ability to transform all levels of society, though lords were less affected than average people and individual families.

A typical village in the thirteenth and early fourteenth century developed through a process called assarting. During this process, the land was cleared and after a portion had been given to the lord, the rest would be divided among families as shares. Each portion would consist of several strips that were spread around the fields. The scattering of arable land provided that no one family would have the worst or best land. This process of land division, and the resulting common lands, pasture,

\[16\text{Ibid.}, 49.\]
waste, woods, and water, created in the village a sense of community, strengthened by acts such as the burial of the dead not in family plots but in a common graveyard.\textsuperscript{17}

The community was indeed threatened and transformed by subsistence crises. The most common responses to famine were village desertion and selling, mortgaging, or leasing out a portion or all of one's land to get money for food. Though some took advantage of the availability of land at cheap prices, the community bond, the shared mentality of a villager was changed, if not lost, as people abandoned their homes. Though at the onset of the crisis, the community attempted to thwart the famine by working together, the deprivation tended to instigate the failure of social cohesion.\textsuperscript{18}

As the crisis was most likely to have been blamed on an unhappy God, much of the population turned to prayer, and, before the social community disintegrated, religious resources were exploited to petition God more fervently for relief. In order to please a God who was punishing them for their sins, the population would try to live morally, demonstrating that they were repentant and willing to live as God intended. As part of this demonstration of piety,

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\textsuperscript{17} Ibid., 91-92.
\textsuperscript{18} Ibid., 97-107.
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preachers encouraged acts of penance, the expulsion of revelry, and the practice of "expiatory processions," barefoot marches throughout the cities and towns to appease God. The population also attempted to win God's favor by acts of charity, though these were more frequent during the onset of the crisis. Monasteries provided alms for the poor, the number of poorhouses increased, and food was given out. But even this charity was insufficient to ease the suffering for very long.  

The final cultural phenomenon recognized by Jordan and other early modern historians is that of exaggeration. Accounts of famine are often noted for their discussions of the unlikely, including miracles and cannibalism. Jordan indicates that there may be plausible reasons for the tales of cannibalism, so often regarded as literary topos. These reports often originate in the areas facing the most devastation. Also, in some cases, the desperate begin to rob graves for valuables or anything that could be sold for money to buy food. The disrupted graves were often scavenged through by dogs or other hungry animals. "In the morning light the physical evidence of grave robbing would look suspiciously like the desecration of cemeteries for food, especially if dogs or pigs disturbed the remains, as

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19Ibid., 111, 156.
was their custom, after the thieves departed. These reports were likely to have been made and believed by a population psychologically impaired by severe crisis. The famine narratives include accounts of cannibalism perhaps to indicate the overwhelming anguish of the crisis, or as a method of provoking outsiders to provide relief. By displaying the population as so psychologically disturbed as to eat their dead, the writer probably hoped to cause observers to give up their food supplies. Additionally, the famished population had lost so much of its sense of community that an observer would be predisposed to believe the worst, "murder, even cannibalism - among parents and children when a family member suddenly died or left home unobserved (disappeared) to go begging or find work."

By using the model presented by Jordan of the Great Famine, it is obvious that the definition of famine must include more than the physiological and demographic affects of the crisis. Famine, in the early modern world, needs to be defined culturally as it affects the population's collective psychology and attitude towards community. Famine disrupts the social norm as social cohesion is, at first, strengthened during the alarm stage, and then lost

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20 Ibid., 114-15.
21 Ibid., 149.
22 Ibid., 150.
as the population becomes more secretive and selfish.
Communities suffering a severe subsistence crisis are intensely religious and also prone to exaggeration.
Collectively then, famine is a physiological and cultural process that increases mortality and dissolves community.

PAMINE DURING SIEGE WARFARE

In the event of a poor harvest, many were left with little or no food. In addition to the threat of harvest failure, the late sixteenth and early seventeenth centuries were rife with warfare resulting from the Reformation and ensuing Wars of Religion that caused populations to become malnourished. "Troop movements spread disease, disrupted food production and exacerbated food shortages and high prices."23 Siege warfare, by design, used a man-made shortage of food to coerce the besieged town to capitulate. Sieges were effective only if they successfully controlled the availability of food. On a regional level, war-induced famine is indicated by a severe drop in conceptions, drastic rise in burials, and a drop in marriages that rises abnormally once the crisis has passed. There were hundreds of sieges during the Wars of Religion in France, many of

which induced starvation as well as epidemic infection. Rouen and La Rochelle are two cities that were besieged on more than one occasion and have left records, through siege narratives and parish registers, of the problems the inhabitants faced during the wars.

ROUEN

Rouen was a prosperous city in the early 1500s. It had a successful textile industry and was a center for manufacturing and trade. Rouen's commerce was international, drawing immigration from foreign merchants, most commonly Italian and Spanish. Trade across Europe was thriving for the merchants of Rouen, and the city's most intense dealings were with Spain. The prosperity of Rouen was threatened in the late sixteenth century as religious tensions and power struggles coerced many cities to ally themselves either with the Catholic League or the supporters of Henry of Navarre. In 1584, the last son of Catherine de Medici, Francois, Duke of Anjou, died leaving no heir for the childless King Henry III. His death left the Protestant Henry of Navarre next in line for the

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throne. These events led to the rejuvenation of the Catholic League to keep Henry of Navarre from ascending the throne. Led by the charismatic Catholic Henry duke of Guise, the Catholic League was successful at forcing Henry III out of Paris. Henry III then formed an alliance with Henry of Bourbon and had Henry duke of Guise assassinated in 1588. Though their leader was killed, the Catholic League grew stronger as the country turned against Henry III. Upon his deathbed in 1589, Henry III publicly made Henry of Navarre his heir, granting ascension to the throne to a Protestant. Henry IV was a king without a kingdom, and he spent his first years as king defeating the League and conquering his Kingdom. During the 8th War of Religion, Rouen sided with the Catholic League and fought to prevent the Protestant Henry IV from ascending the throne.

Commerce suffered tremendously during this period as foreign merchants fled the city and markets collapsed.

Rouen suffered four major subsistence crises during the latter half of the sixteenth century. The first three, 1556-57, 1573-74, and 1586-87, were not during times of fighting in the region and are believed to have been general famines due to harvest failures. Each of these periods was followed by typical legislation within the city, such as expelling vagrants, outlawing begging, and
initiating works projects for the poor. The final crisis, 1591-92, resulted from a siege of the city launched by Henry IV as his attempt to win Rouen from the Catholic League.25

During the League years, Rouen was a Catholic stronghold and a continual threat to the authority and power of Henry of Navarre. Henry’s great weakness at this time was that the League maintained control of many of the most powerful cities of northern France, including Rouen. This control “deprived him of the vast bulk of the more accessible sources of revenue, the customs and the taxes upon goods, and made him unable to pay the large mercenary armies which the intervention of Spain made necessary.”26

Without control of the cities in the north, Henry nearly lost control of the channel coast after the invasion of the Spanish duke of Parma in August 1590 that forced him to lift his siege of Paris. In the month following Henry’s decision to raise the siege at Paris and follow Parma, a force of 2000 Spaniards invaded Brittany. The security of the channel coast appeared to be in jeopardy as the two Spanish forces, those of Parma’s near Paris and those in Brittany, threatened to unite. Fear of Spanish control of

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the channel coast led Elizabeth to unite her English forces with Henry's armies in a cooperative endeavor to force the capitulation of Rouen.\textsuperscript{27}

Capturing Rouen would have been mutually beneficial for Henry and Elizabeth. The fall of Rouen would, Henry believed, force the capitulation of Paris, Normandy, and Picardy, thus increasing his authority over France. For Elizabeth, the security of the channel coast was of the utmost importance, but there were monetary benefits as well. If Rouen was controlled by Henry rather than the League, it would allow for the introduction of English goods into the market on the continent.\textsuperscript{28}

In the summer of 1591, ambassadors from Henry to England made an offer that encouraged Elizabeth to form an alliance with Henry against Rouen. The offer stated that

\begin{quote}
if Elizabeth would at once send 4,000 men, paid for two months, with pioneers, artillery, and munitions for the siege, her agents should be allowed, when Rouen or Havre fell, to collect the royal revenues in those towns until all her expenses, past and present, on his behalf had been reimbursed.\textsuperscript{29}
\end{quote}

The agreement made, Elizabeth sent troops to France. The siege, however, did not begin as originally planned.

\textsuperscript{28} Wernham, 166-7.
\textsuperscript{29} Ibid., 167.
It was unfortunate for Henry that the arrival of Elizabeth’s troops in the summer of 1591 did not serve as a catalyst for the beginning of the siege. The delay of the onset of the attack created two problems for the would-be king. The city of Rouen was able to prepare for the siege, and Elizabeth questioned the validity of Henry’s requests for assistance. The governor of Rouen, Villars, was given fair notice of the impending attack, and preparations were made by the inhabitants of the city, thus giving them an advantage over the besiegers. The residents of the city and surrounding area were instructed to make ready for the siege.

All residents were set to work on the fortifications one day per week. Grain was commandeered from the surrounding countryside. New taxes were introduced to pay for the improvements on the city walls. Finally, when the joint English and royalist force appeared on the horizon, the order was given to set afire and raze the faubourgs so as to deprive the attackers of cover.

From October 1591 through July 1593, the areas outside of the city walls were uninhabited. After a slow period of repopulation, these outlying towns only reached half their pre-siege population level after the turn of the century. The destruction and abandonment of outlying areas was

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30 Ibid., 171.
31 Benedict, Rouen, 218.
32 Ibid.
remarked upon by Sir Thomas Coningsby, one of the English soldiers sent by Elizabeth to aide in the endeavor against Rouen. In his journal of the siege, Coningsby writes of the emptiness found in the area surrounding Rouen. The foreign troops witnessed,

the pyttyful and firie sicknes, and tokens of their lamentable wars, the countrie being spoiled about, the bridges broken, all the suburbs of the towne burned, their orchards and gardens utterlie destroyed, their churches beaten downe, the walls rente, the towne within most fylthie, and breifly the countenance and face of all things showing desolation.\(^\text{33}\)

With the start of the siege postponed, Elizabeth began to doubt Henry's intentions. She had sent troops over and paid them for two months, with the expectation that they would join with Henry's force to capture the city of Rouen. Miscommunication between Elizabeth and her military commander in France, the earl of Essex, and perhaps a bit of glory seeking on Essex’s end, caused Elizabeth to worry that her assistance, given in good faith, was being used by her general to help the offender.\(^\text{34}\) A displeased Elizabeth sent word through the French ambassador, De Reau, that "if Henry wanted her troops after that date he must pay them himself, and moreover prove beforehand that he could find

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\(^{34}\)Wernham, 169.
the money for this: in any case they might serve only against Rouen."35 The problems between Elizabeth, Essex, and Henry were felt more harshly among the troops, as they suffered without pay. Essex's troops in Dieppe were "given to all manner of evils, as blasphemy, drunkenness, spoil, burning of houses, whole villages, robbing of churches, disobedience to their officers."36 The English troops were becoming demoralized and disobedient, and their dispositions were likely to lead to an unsuccessful siege rather than a victory for Elizabeth.

The siege began on November 11, 1591 and lasted for five months. Though the city had prepared throughout the summer and early fall of 1591 for the inevitable, they could not fully prepare themselves for the hardships induced by the attack. A dominating dilemma was that of money. The city had raised taxes to repair the fortifications for the protection of the inhabitants, but following the onset of the siege, Villars found it difficult to pay his troops. By March, the soldiers could no longer be paid, and there was not enough currency to support the needs of the town. In an attempt to solve the monetary problems, Villars chose to inflate the value of

35 Ibid.
36 Ibid., 170.
the coinage during the siege. This solution, however, was not successful and by early April the "unpaid soldiers were raiding bakeries for food."  

Preparations for the siege also included the stocking of victuals, although these too became a problem in relation to money. In the month prior to the siege, October 1591, a directive was issued from the town government

> to all the *bourgeois* of this town to furnish themselves with victuals and munitions of war for six months, and to the labourers and countrymen to bring such wheat and other grain, wine, cider, and other drink as they can...into this town.  

Additionally, there were restrictions passed as to the grinding of grain. In each section of the city, grain was to be ground only in certain windmills under the direction of a supervisor who would catalog the amounts processed in an attempt to limit quantities. This, however, was unproductive, as bakers objected to the restricted quantities, soldiers objected to the bakers, and the grain supervisors were accused of corrupt practices. In December, following the failure of the directive controlling the production of grain, the city government passed an order setting maximum prices and prohibiting the

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37Lloyd, 143.
purchase of grain with the intent to resell. Though not the most effective, this order was sufficient for approximately a month.

The New Year brought with it more food-related issues. Complaints focused on the existence of hoarders, and orders were initiated to search homes. There were also complaints that the grain merchants had raised their prices, and though the city authorized a new price increase, the dissatisfied merchants were requesting a further increase within a month. Seeing the request as unreasonable, the city council began to increase security and restrictions placed on food. For example, "the cargo of a boat that arrived at the quayside on 4 March, laden with grain, was requisitioned by the parlement for direct distribution in accordance with the needs of the people."\(^{39}\) The city then expelled beggars in an attempt to conserve rations, a method of conservation that had been used in the past. Unfortunately, the measures the city relied upon were not as effective as needed. The city government delegated two bakers in each section of the city to supply grain to the poor and to the soldiers and continued to attempt to restrict the price of grain. Prices, however, continued to skyrocket. The set price for wheat in December 1591 was 7

\(^{39}\text{Ibid.}, 144.\)
livres per mine. By the beginning of April the price of a mine of wheat had risen to 20 livres. Through the beginning of April, however, there was not complete distress as meat was still available. The need for food reached a peak on the sixteenth of April and the Hôtel de ville and the courtyard of the Palais de Justice became the centers for rioting. Clearly, the preparations for the siege made by the inhabitants of Rouen had helped to stall the onset of malnourishment, but by mid-April, the dearth began to disrupt the morale of the besieged. The cooperation between government and townspeople that had preserved Rouen until the beginning of April dissolved, and, as food became scarce, the threat of Henry's success loomed over the town.40

The Rouennais were finally succumbing to the pressures of the siege. However, Henry's troops were themselves becoming more disobedient and disorderly. In April, Henry lifted the siege and took his forces elsewhere. The siege was given up in late April, with the joint expedition of Elizabeth and Henry unsuccessful. There were several reasons for lifting the siege. The delay had allowed the Rouennais to prepare, the armies were unable to effectively

40Ibid., 144-6.
cooperate, and Parma had re-entered France, thus threatening Henry's troops.

The French and English troops were incapable of working together. The poor coordination led to sporadic attacks that Villars could easily prevent or defend against. The besiegers were poorly supplied, both in food and munitions, creating problems with morale and dying troops. Word that Parma was traveling towards Rouen, encouraged Henry to give up the siege. Parma had, 2 years before, forced Henry to end his siege of Paris, and with supplies running low, Henry's army was in no position to face Parma. When Parma was sighted within four leagues of Rouen, the besiegers ended their siege and left the area. In their attempt to leave the area as quickly as possible, the besiegers left behind what little supplies they had and those were used to feed the Rouennais.

The period leading up to the siege left the city more prepared and the besiegers somewhat disheartened. The siege was unsuccessful as far as the aims of Henry and Elizabeth; however, it was nonetheless destructive to the city of Rouen. By reviewing the parish records for baptisms and burials prior to 1590 and burial registers after 1590, Benedict found that the siege commenced by

\[41\] Wernham, 175.
Henry IV was detrimental to the city's population. This siege resulted in a drop in conceptions that affected every parish in the city, and the burial records still extant from this period show a burial rate that was three times the average from previous years.

During the period of the League, 1587-94, all but two of the parishes in Rouen show a distinct decrease in baptisms.

The decline varied from 7 per cent in Saint-Nicolas to a full 48 per cent in Saint-Gervais. In this last parish no baptisms at all were recorded from October 1591 to July 1593, for the second siege devastated the faubourgs far more severely than did the first and the parish was abandoned.

Following the dissolution of the League, the parish was repopulated, though "the number of baptisms in Saint-Gervais was still merely half the presiege level in 1595."42 Drops in the baptismal rate of 7, 13, or 48 percent are all indicative of demographic crisis that is notably more severe when the influx of rural inhabitants to the city is taken into account. Rouen's population was augmented by the rural refugees, who abandoned their homes, escaping to the city and its relative safety from the marauding soldiers.43 The number of refugees, at least 5000 from

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43 Ibid., 218.
Darnetal, "was so heavily outweighed by the drop in baptisms owing to mortality and, probably more importantly, emigration from the city" suggesting that Rouen was having a "truly severe economic and political crisis."  

Additionally, the burial rates increased dramatically. For example, 119 burials took place in 1592 in Saint-Martin-sur-Renelle while the mean for burials in that parish for the surrounding nine years is 38.

The demographic crisis of Rouen is a fine example of the devastation incited when war, famine, and disease occur simultaneously. Had the drop in population been a direct result of warfare, i.e. casualties from battle, the victims would have been predominantly male, and the mortality rate would have ceased to rise after the conflicts. In Rouen, however, the siege was a catalyst for skyrocketing mortality rates as famine and disease reached their highest levels after the five month siege had been lifted. During the siege of Rouen 1591-92, 

Women and children were the majority of victims. The rioters who invaded the Palais de Justice knew full well that a shortage of bread and not the skirmishing was causing the soaring death rate, but what they did not know was that by April even peace could not remedy the situation.... The lack of food and the presence of contagious disease was to continue to haunt the area even after the attackers withdrew in May... the royal

44Ibid.
troops had provoked a classic mortality crisis, combining famine and disease, which reached its peak not during the siege but in the months July through September.\textsuperscript{45}

It is obvious in this case study of Rouen that it was famine, disease, and emigration that caused the noticeable demographic changes rather than battlefield or street casualties.

LA ROCHELLE

On the Aunis coast of France, La Rochelle was a walled town whose existence and livelihood were dependent upon the water. A prosperous city, La Rochelle was known in both England and Flanders by the thirteenth century. With the expansion of trade into the Atlantic, the Rochelais became successful in "pillaging and piratical expeditions."\textsuperscript{46} Though not situated in the best location for trade, La Rochelle could compete with other ports because of its involvement in wine, salt, and certain privileges. By the beginning of the seventeenth century, wine and salt exportation had declined drastically. However, the Rochelais remained prosperous because "the comprehensive character of the privileges of La Rochelle assured it of a

\textsuperscript{45}Ibid., 233.
\textsuperscript{46}David Parker, La Rochelle and The French Monarchy: Conflict and Order in Seventeenth-Century France (London: Royal Historical Society, 1980) 63.
a siege. Sermons and pamphlets were sent to the inhabitants of the town warning them of Louis' intentions, and pleading with the town to align themselves with the King rather than against him. In 1621, a full six years before the siege, Monsieur le Marquis de Berguille wrote "The Last Summons, or an Oration sent to the Inhabitants of the Towne of Rochell, To move them to yield the Town unto his Majesty, and to obey his Commandments." Berguille began his oration by stating that those who rebel against their sovereign are rebelling against God.

You that make the profession to understand, and to know the Scriptures well; if it be true, I wonder how you persevere in your rebellion and disobedience, seeing that therein, it is expressly said, he that disobeyeth the commandments of Kings, holy contradicteth the commandment of God....

After expounding upon the religious injustices brought by rebellion, Berguille continued his oration by attempting to show the inhabitants of La Rochelle that a siege would be devastating to their community. Though on paper, or perhaps to a casual observer, La Rochelle appeared to be a fortress, unaffected by the outside world, Berguille stated that the technology of siege warfare had improved so that no city was impenetrable. "And to conclude, if you had

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49Monsieur le Marquis de Berguille, The Last Summons, or an Oration sent to the Inhabitants of the Towne of Rochelle, To mooue them to yield the Towne vnto his Maiestie, and to obey his Commandements (n.p., 1621), 1. Some spelling in text has been modernized.
seen how men enclose and press upon Towns that are besieged, you would never say nor report that yours are impregnable..."\(^5^0\)

The inhabitants were told by Berguille that Louis had great power within the realm. Louis could, according to Berguille, provide for a great force that would be continually supplied with food and victuals until the besieged surrendered. A siege imposed by Louis upon the city of La Rochelle would cause immense suffering within the city walls.

In the meantime you shall want victuals, you shall consume your powder and bullets, you shall try the insolence of soldiers, the bravados of Captains, the mutinies and murmurings of the poor people, less furnished with provision for the mouth, than with riches.\(^5^1\)

Berguille's warnings were to no avail. La Rochelle continued on its path of resisting the Crown, eventually ending in a siege that, ironically, caused the inhabitants to suffer much in the way envisaged by Berguille almost a decade earlier.

Having begun in July 1627, the siege of La Rochelle lasted until November 1, 1628. However, it was the military endeavors prior to the siege that allowed it to be successful. In 1622, royalist troops took control of the

\(^{50}\)Ibid., 3.  
\(^{51}\)Ibid., 4.
region of Poitou away from the Huguenots and began
collection of Fort Louis, beginning the land isolation of
La Rochelle. Louis used his military strength to capture
smaller areas of Huguenot resistance. The Huguenots
surrendered in October of 1622, and "the treaty meant the
destruction of the Protestant's political and military
organization, and whilst the King agreed to waive his right
of entry to the major towns they now stood alone virtually
dependent on their own resources." In addition to their
increasing isolation, the Rochelais lost several ships that
year due to the more powerful royal fleet.

In the following years, La Rochelle faced intermittent
attack from Fort Louis. In September 1625, the Rochelais
navy was defeated, and control of the offshore islands of
Re and Oléron was given up to the King's supporters. The
leader of the ships that had once protected the Rochelais
port, the duke of Soubise, escaped to England, hoping to
find support there for the Protestants of La Rochelle.
Ambassadors from England arrived, but Richelieu, a skillful
politician, persuaded the English to recommend that the
Rochelais accept the peace offered by Louis. The terms,
however, were too drastic for the Rochelais. "No warships
were to be allowed in the port of La Rochelle, and the King

\[52\] Parker, 13.
declared his intention of maintaining Fort Louis and of installing garrisons on the offshore islands.⁵³ Without the immediate prospect of help from England, La Rochelle was isolated, seemingly helpless against the King.

In July 1627, an English fleet arrived in the harbor, but its attempts to assist the Rochelais failed, in part due to the reluctance of the town to join in an alliance with a foreign power. Additionally, the English commander, Buckingham, was so angered by the Rochelais' resistance that he attacked Re rather than Oléron, the previously agreed-upon target.⁵⁴ Buckingham's troops were fighting in vain against a well-fortified royal contingent. By November 1627, Richelieu's army at St. Martin was able, through blockade running, to re-supply their garrison and expel the English from the harbor. With the English driven off, Richelieu had control of the sea and that, combined with the trench works already in place around the city, cut off La Rochelle from any help.

The dyke created by Richelieu sealed the harbor of La Rochelle. "Cut off from aid by land or sea, the Rochelais became prisoners behind their own stout battlements and

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⁵³Ibid., 15.
⁵⁴Ibid.
many slowly began to starve to death."\textsuperscript{55} The siege narrative of Peter Mervault, a resident of La Rochelle at the time, speaks loudly of the suffering of the Rochelais during the siege years. Mervault chronicles the effects of the siege itself, as well as much of the correspondence among La Rochelle, England, and the royal army, providing an interesting account of the townspeople's struggle and the political importance of the siege.

The blockade of La Rochelle was extraordinarily successful, and the Rochelais endured famine and disease. Mervault described vividly the affects of famine on the population. In the first week of June 1628, Mervault recorded that a few of the town's soldiers had slaughtered horses to sell the meat. Apprehended, they were imprisoned as the city still had beef, mutton, and poultry available in the market.\textsuperscript{56} At the end of the month, however, these meats became scarce and the inhabitants of the city had to turn to other sources for food.

About the end of this month, and beginning of July, they began to kill Horses, Asses, Mules, Dogs, Cats, and other such Creatures, the Flesh of which was sold for ten and eleven Sols the pound: that of Horse-flesh was above all favored,


\textsuperscript{56}Peter Mervault, \textit{The Last Famous Siege of the City of Rochel: Together with the Edict of Nantes} (London: John Wickens at the White Hart, 1680), 122. Some spelling in the text has been modernized.
there being little difference betwixt it and Beef. 57

Bread at this time was scarce and the people of La Rochelle were beginning to substitute items into their diets that would have otherwise thought of as inedible. Ironically, Mervault reported that prior to the onset of the famine, the city council had disposed of "more than two hundred Hogsheads of Pilchers" thought to be at risk for bringing disease into La Rochelle as they were believed to be a little spoiled. 58 Those residents that resorted to "souping" bitter herbs or chewing on leather hides would probably have been willing to risk the mildly spoiled food.

Unfortunately, even the disposal of tainted food could not prevent the spread of disease within the city walls.

Besides other Evils with which the City found itself pressed, ill Diet begot in many a Disease in the Mouth which caused the Gums to rot, a shortness of breath, the Jaws black, and by little and little killed those that were infected with it, being such, or very near it, as they call the Scurvy, which is but too well known to those that make long Voyages by Sea, when their Victuals corrupt. 59

The sickness had killed several people before a physician combined herbs and wine as a remedy that he gave out freely to those who were ill. As the month progressed, letters were sent to England explaining the dire situation and

57Ibid., 124.
58Ibid.
59Ibid., 125.
requesting assistance, though the English made only two attempts to cross Richelieu's dyke, both of which were fruitless. July ended with the slaughter of horses by the Duchess of Rohan in order to feed herself and her family. Mervault remarked that by killing her own coach horses, the Duchess was setting an example for the Rochelais to suffer through the siege rather than surrender.\textsuperscript{60}

In August, the Rochelais sent another letter to England, again requesting help and provisions, stating, "We earnestly intreat you not to lose any time, for Famine presseth us. You know we have been long without receiving any relief..."\textsuperscript{61} On the 24\textsuperscript{th} of the same month, they sent another request to England: "Our Soldiers can do no more, they die of Famine in the Streets, and all our Families are frightened with groans, fights, indigency, and uncertainties..."\textsuperscript{62} Letters from the English in response to the Rochelais' pleas for help were filled with good intentions but not followed by the necessary actions. By October 1628, the Rochelais were becoming aware that they had been virtually abandoned by the English, as the dyke was impenetrable.

\textsuperscript{60}\textit{Ibid.}, 128, 132; Parker, 16.
\textsuperscript{61}Mervault, 142.
\textsuperscript{62}\textit{Ibid.}, 146.
Once the city council had realized that help from the English was not going to arrive, they were forced to determine what needed to be done to secure the survival of the Rochelais. One of the steps taken by the city authorities was a search of all the houses for food. In each house that had provisions, enough food to last two to three weeks was left. However, if a family had more than three weeks provisions stored, than the excess was taken to be distributed among those residents that were without any food. The search yielded only 150 bushels of corn that were set aside to provide for the soldiers. The measures of the city to provide food for its inhabitants were of little help. By the end of October, the Rochelais were in dire straits.

Now the Famine increased dreadfully, nothing being left, the greatest number having in three Months time not known what Bread was, nor any thing of ordinary Provisions; Flesh of Horses, Asses, Mules, Dogs, Cats, Rats, and Mice, were all eaten up; there was no more Herbs or Snails left in the Fields, so that their recourse was to Leather, Hides of Oxen, skins of Sheep, Cinamon, Caffia, Liquorish out of Apothecaries Shops, Flemish Colewart frigased, Bread of Straw made with a little Sugar, Flower of Roots, Irish Powder, Jelly of the skins of Beasts and Sheep, Horns of Deer beaten to Powder, old Buff Coats, soles of Shoes, Boots, Aprons of Leather, Belts for Swords, old Pockets, Leather Points, Parchment, Wood beaten in a Mortar, Plaister, Earth, Dung (which I have seen with my eyes) Carrion, and Bones that the Dogs had gnawn, and
indeed all that came in their sight, though such food gave rather death than sustenance….

The dearth at this time was so extreme that two to three hundred people died per day, their bodies stacked in the street or left where they fell, for those who remained had too little energy to move them.

Also at this time, the inhabitants that had secretly stored provisions began to sell them discreetly, at extortionate prices. Corn was sold for two-hundred livre a peck, and a calf cost a thousand livre. During the famine, there were also accounts of charity, as those who had stores of food sometimes gave it away rather than sold it. Mervault also included the story of one woman, who as the famine threatened her family, lost some of her faith. Traveling to her sister’s, who refused to help her, she was told that God would provide. One sister’s refusal to help another is a clear indication of the breakdown of the community and family during the famine. During the first part of the siege, the sisters would have most likely shared with each other to preserve their family. However, as the siege continued, and rations became scarce, the attitude of inhabitants towards community and family changed as each person realized that they had to fight to

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63Ibid., 163.
sustain themselves. Personal survival was, late in the siege, of utmost importance, while the social cohesion, community-wide sharing, and acts of charity cease to exist. According to Mervault, the woman answered a knock at her door later that evening and an unknown man threw a bushel of wheat into the house and left.\textsuperscript{64} Stories such as this one were probably not true, but must have brought hope to those who had already witnessed hundreds perish. This tale displays the likelihood that many blamed their suffering at least in part on a vengeful God, punishing sin. The sister’s lost faith was reprimanded by her hunger, and when she regained her faith she is rewarded with grain. While the hopes of the population would have been lifted by this woman’s good fortune, they would also have recognized that their salvation might have depended on their ability to repent their sins and please God.

"With food supplies exhausted, desiccated cadavers littering the streets, and barely 200 soldiers left in any condition to fight, the town council of La Rochelle capitulated to Louis XIII..."\textsuperscript{65} The siege of La Rochelle officially ended on October 28, 1628 but it was not until November 1 that the King rode into the city. On October

\textsuperscript{64}Ibid., 163-6.  
\textsuperscript{65}Robbins, 355.
30, Cardinal Richelieu entered La Rochelle bearing "Victuals and Ammunition-bread" and distributing them to those in want for food. This gesture insured that "there was good order established, that there was no abuse committed, or offence given to any person." The following day, Richelieu had his troops search the city for the dead so that they could be interred. The King's arrival was welcomed by the Rochelais, as they had, in the past few months, turned against those in the city who wished to continue the siege. Mervault recorded that the King, upon seeing the pitiful state of the city's inhabitants "who with pain and trouble, for want of strength, had done him honour, he had compassion for them, even to the shedding of tears." 

The siege of La Rochelle by King Louis and Cardinal Richelieu was successful. By isolating the city through an astounding system of trenches and dykes, the city was starved into surrender. The famine within the city walls caused a political disruption that culminated in the burning of the mayor's house on more than one occasion, as the residents without food rallied against those that had the power to end the siege.

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\(^{66}\text{Mervault, 218.}\)
\(^{67}\text{Ibid.}\)
\(^{68}\text{Ibid., 219.}\)
The effect of the siege within the city walls was devastating. Estimates from the time reported 18,000 dead due to starvation, disease, or actual fighting. In a more conservative estimate, David Parker wrote that "in the catastrophe of 1627/28... perhaps 15,000 of the besieged population died and many more fled. The remaining inhabitants probably amounted to no more than 5,400." The demographic crisis incited by the siege was partly responsible for the ability of the Crown to restore Catholicism to La Rochelle. The siege-induced famine and disease that wiped out enough of the Protestant population insured that the city could be quickly repopulated by Catholics who supported the King. Cardinal Richelieu and King Louis were able to manipulate the famine brought on by the siege to fulfill a political agenda. By starving out the Protestant population of La Rochelle and promoting the repopulation by loyal Catholic subjects, Louis was reassured of his power.Politically, the famine was beneficial to the King and his Cardinal while it was demographically devastating to the population of La Rochelle.

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69Ibid., 167; Robbins, 355.
70Parker, 147.
As with Rouen, La Rochelle's population was diminished due to starvation and disease induced by malnourishment. The subsistence crisis in La Rochelle, caused by the siege, was cataloged in more than one siege narrative. Even if the residents of La Rochelle who kept siege journals exaggerated in an attempt to gain the support of Protestants elsewhere in Europe, their stories coincide with such drastic death tolls, that the extent of the famine was definitely severe.

Rouen and La Rochelle both demonstrate the physiological and cultural aspects of famine. Along with their heightened mortality rates, each of these cities was culturally altered by the subsistence crises. Rouen's inhabitants clearly prepared for the possible siege by razing the outlying villages and hoarding food. La Rochelle was the topic of many narratives that displayed both the increased religious expression and the use of exaggeration to either gain help or express clearly the horrors induced by the siege. These societies were not immune to the psychological impairment brought about by lack of nourishment. Reduced to consume inedible materials, facing starvation and the stacked bodies in the streets, these populations could not maintain their pre-siege levels of social cohesion. Not only did the victim's
physical bodies suffer, but their community showed signs of distress as well.
CHAPTER IV
FAMINE AS A RESULT OF HARVEST FAILURE

Although siege warfare techniques used in early modern Europe caused thousands to starve, malnourishment and the diseases related to it were common even without the presence of war. Fluctuations in harvest production could, over the course of several years, condemn an already undernourished population to starvation. In the late 1590s, as Catholics and Protestants were fighting on the continent, the people of northwest England were suffering, not from warfare, but from harvest failure. To show that the subsistence crisis of 1597 was indeed a widespread famine, it is important to understand harvest fluctuations, research parish registers, and rule out the possibility of epidemic infection.

HARVEST FLUCTUATIONS

Harvest fluctuations have been determined by recording grain prices. When harvests were poor, prices tended to rise accordingly. In a study of harvest fluctuations in England from 1480 to 1625, W.G. Hoskins charted the average annual price of wheat as well as the moving average price of wheat over a 31 year period. Over the course of the
16th century, the price of grain fluctuated greatly, showing the cycles of good and bad harvests. In the year 1596, the price of grain reached a higher price than any other year on Hoskins's chart that cataloged 140 harvests. Hoskins found that "out of the total 140 harvests, 35 may be regarded as failures to some degree or other, a failure ranging all the way from deficiency to famine." As Hoskins investigated the fluctuations, he found no overriding pattern. He did, however, show that for a population that "worked normally on a very fine margin between sufficiency and shortage," a single bad harvest would, in turn, cause others. This sequence was due to the farming process of growing bread-corn, to be eaten, and seed-corn, to be replanted. In a lean year, the seed corn may have been partially consumed, leaving less to be planted, a cycle broken only when extremely good weather increased the harvest.

This pattern is discernable in the 1590s, as the first three years 1591-3 were good harvests, and the following four years, 1594-7 were exceptionally poor harvests. Like the populations that could not foresee the Great Famine,

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2Ibid., 29.
3Ibid., 33.
4Ibid.
5Ibid., 32.
the population of northwestern England's short term memory probably left them with an optimistic outlook on weather after the first few years of the 1590s were productive. The four years of miserable harvests began with rain that seemed to be unending. By 1596, the price of wheat had risen 83% above the norm. The price of other foodstuffs rose correspondingly. The long-term dearth initiated by these harvests caused legislation for poor relief and enclosure, prohibiting the exportation of wheat.

The famine of the late 1590s was far-reaching, and much was written about the lack of food. Along with the legislation for the poor, religious tracts were published for those suffering from want. In 1597, Henry Arthington published his Provision for the Poore, an attempt to provide religious significance to the dearth. Malnourishment had been a problem in England for a few years, and Arthington saw no forthcoming relief. In an era when religion was of the utmost import, it is not surprising that Arthington proposed that the famine was a result of the sins of the populace.

Touching the poore that crie hard for foode, and finde small supply: the reason is, for that they doe not complaine unto God of their grievous sinnes (the verie maine cause of all their calamities:) which if they looke to have released, and no further increased, they must confesse in the manner fol'owing. First, that
they have misspent much good time in idle roging up and downe, and woulde not worke: therefore the Lord doth justly requite them, that now when they would, they shall not eate (or verie little). Second, that in the time of abundance, they have beeene great wasters in bibbing and bellycheare: therefore nowe justly they feele the want thereof. Thirdly, that when God by his messengers called upon them to leave their evill wayes, and serve him better, they would not heare to follow the same: Therefore doth God nowe shut up his eares, and others also, when they cry for foode.  

As with the Great Famine described by Jordan, the people suffering in northwestern England searched their Bibles for explanations of the famine and for ways to end the starvation.

A sharp increase in the price of food does not always denote famine. In the late 1590s in England, however, the year of the highest grain prices for the time period corresponds with the years of soaring mortality rates and dropping birth rates.

PARISH REGISTERS

In Famine in Tudor and Stuart England, Andrew Appleby examines three subsistence crises in Cumberland and Westmorland counties in northwest England. Towards the end

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6Henry Arthington, Provision for the poore, now impenurie out of the store-house of Gods plentie: Which they shall be sure to find in all places, that are indued with his graces to thinke seriously on this sentence following (London: Thomas Creede, 1597), 3. Some spelling has been modernized.
of the 16th century and the beginning of the 17th, these two counties, along with other areas of England, had devastating famines. As a means of introduction, Appleby refers to these crises as "positive Malthusian checks: the population of the region grew to the point where it outstripped the food supply." To make the situation worse, at least one of these "checks," that of 1597, coincided with a horrendous harvest failure. England, as a whole, was struggling through a "depression in the clothing industry" that made importing food for poor relief almost impossible. These three events, growing population, harvest failure, and industrial depression occurring simultaneously produced a famine whose destruction rivaled that of the siege induced crises of Rouen and La Rochelle.

That northwest England suffered from increased mortality in 1597 is relatively easy to demonstrate. By looking at the parish registers for the late 1590s, it becomes clear that in most parishes, the number of deaths rose dramatically in 1597. The parish of Gosforth in Cumberland county, for example, recorded mortality rates twice as high as the years before or after. Parishes in Westmorland County show similar increases. In Crosby

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7Appleby, 1.
8Ibid.
Ravensworth, Morland, and Crosthwaite parishes, all in Westmorland County, mortality rates rose dramatically towards the end of 1596, and remained high until 1598. The parish of Kendal, also in Westmorland County, had a mortality of approximately 75 in March 1597, while March of the previous year showed about 30 deaths and the following March had less than 40. Burials in St. Bees, Westmorland peaked at 25 during March 1597, while the most deaths in any month of the years before or after was 10.\(^9\)

High mortality is an indicator of a crisis, and if the crisis is to be categorized as famine, it is important that there is evidence of a drop in the rate of births at the same time. As Philip Benedict showed in his demographic study of Rouen, a graph of births and deaths during a famine displays a unique diamond shape, as the death rate peaks and the birth rate reaches a low point. A graph of the burials and conceptions for the parish of Crosthwaite in Cumberland County shows the characteristic diamond. Burials rose from under 100 in 1594 to over 250 in 1597, and conceptions dropped from over 100 in 1594 to approximately 50 in 1597. Similar evidence is found throughout England. A graph provided by Appleby of the baptisms, burials, grain prices, and marriages in England

\(^9\)Ibid., 110-12, 119.
demonstrates that as grain prices rose, baptisms and marriages became more infrequent and the mortality rate increased.

This famine diamond is shown clearly on a smaller scale in the English county of Lancaster. In some parishes of Lancaster, the burial rate more than doubled in 1597. Additionally, each parish register indicated a drop in conceptions as the rate of baptisms declined. The following tabulations for Standish, Eccles, Cockerham, and Poulton-le-Fylde parishes in Lancaster County were made by this researcher and compiled in the tables below. In the parish of Standish, shown in Table 1, the burial rate for 1597 was 29, while the average for the three preceding years was 14. The baptismal rate dropped to 30, the lowest of any year between 1587 and 1600.\(^\text{10}\) Table 2 depicts the baptism and burials for the parish of Eccles. In 1597, the baptismal rate was at its lowest point between 1587 and 1600 at 40. The average for the preceding 5 years was 62. At the same time, the burial rate jumped from an average of 60 for the previous five years to 88 in 1597.\(^\text{11}\) As Table 3 shows, the parish of Cockerham was also affected by the

\(^{10}\) Henry Brierley, ed. *The Registers of the Parish Church of Standish in the County of Lancaster, 1560-1653* (Cambridge: John Clay at the University Press, 1912).

\(^{11}\) A.E. Hodder, ed. *The Registers of the Parish Church of Eccles in the County of Lancaster, Baptisms, Burials, and Marriages, 1564-1632* (Rochdale: James Clegg at the Aldine Press, 1906).
demographic crisis of 1597. In Cockerham, the burial rate reached a peak of 65 in 1597, while the conception rate dropped to 55. After the crisis had passed, the average burial rate for 1599-1600 was 38.12 Perhaps the hardest hit parish in the county of Lancaster was Poulton-le-Fylde, as shown in Table 4. The average burial rate for Poulton-le-Fylde for 1592-96 was 53. During the crisis of 1597, the burial rate jumped to 149, returning to average 66 for the three years following the crisis. Conception rates were also affected during the crisis year. Averaging 76 for 1592-96, the number of baptisms fell to 49 in 1597. Similar to the death rate, the number of baptisms returned to average 68 in the three years following the crisis.13

EPIDEMIC INFECTION

It is more difficult to state positively that famine was the cause of this increased mortality in the absence of a siege. During the sieges of Rouen and La Rochelle, inhabitants of the cities were isolated from outside sources of food. Without evidence of isolation and the

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12 V. A. Clarke, ed. The Registers of the Parish Church of Cockerham in the County of Lancaster, Christenings, Marriages, and Burials, 1595-1657 (Cambridge: John Clay at the University Press, 1904).
13 William Edward Robinson, ed. The Registers of the Parish Church of Poulton-le-Fylde in the County of Lancaster, Christenings, Burials, and Weddings, 1591-1677 (Wigan: Strowger & Son at the Clarence Press, 1904).
Table 1. The Registers of the Parish Church of Standish

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Source: Henry Brierley, ed., The Registers of the Parish Church of Standish in the County of Lancaster, 1560-1653 (Cambridge: John Clay at the University Press, 1912).
Table 2. The Registers of the Parish Church of Eccles

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Source: A.E. Hodder, The Registers of the Parish Church of Eccles in the County of Lancaster, Baptisms, Burials, and Marriages, 1564-1632 (Rochdale: James Clegg at the Aldine Press, 1906).
Table 3. The Registers of the Parish Church of Cockerham

Year (Number of Christenings for 1599 may be incomplete)

Source: Clarke, ed., The Registers of the Parish Church of Cockerham in the County of Lancaster, Christenings, Marriages, and Burials, 1595-1657 (Cambridge: John Clay at the University Press, 1904).
Table 4. The Registers of the Parish Church of Poulton-le-Fylde

clear accounts of dearth found in the siege narratives, it is necessary to rule out other possible causes for the increased mortality. The most common cause of increased mortality during the early modern period was epidemic infection. In order to prove that starvation was the predominant cause of death in northwest England, diseases such as the plague should be considered and ruled out.

For the crisis of 1597, plague and typhus were investigated as possible sources of the increased mortality. Plague, however, is typically a summer disease found mainly within cities and towns. Caused by *Pastuerella pestis*, a microorganism carried by the black house rat, plague can manifest itself in three forms, bubonic, pneumonic, and septicemic. Bubonic plague is passed to humans from the bacteria-laden flea after its more suitable host, the rat, has died. Once the bacteria has been passed, the infected human will develop buboes, "hemorrhagic swelling of a lymph gland, most commonly in the groin but sometimes in the armpits or on the neck of the sufferer." If the victim of bubonic plague develops pneumonia, the bacteria can enter the lungs and be spread through the air. This is the pneumonic plague. Almost always fatal, this variety can be spread from person to
person. The septicemic version of the plague accompanies either the bubonic or pneumonic type of the plague, and its victims die before displaying any symptoms.\textsuperscript{15}

Plague in England was a warm-weather threat. The flea that transmits the disease can only thrive in a moderate climate.

The ideal climate for its development is between 68 and 78 degrees Fahrenheit, with some humidity. The flea’s eggs do not hatch below 55 degrees Fahrenheit, and temperatures below 45 degrees kill them. The adult fleas can withstand cold weather longer, but they become weak and sluggish.\textsuperscript{16}

Therefore, it is not surprising that plague mortality reaches its height in the summer and stops by the beginning of winter, sometimes appearing again in the spring.\textsuperscript{17}

Since plague is carried on house rats, it is more common in cities and towns. The rat is “a relatively timid, weak, and unmigratory creature that lived in the thatch roofs or clay walls of the poor man’s cottage and ate, by preference, his grain.”\textsuperscript{18} Plague carrying rats were not strong or bold enough to travel in the rural areas.

It was unlikely that an infected rat would reach a rural area that had little contact with the city. If an infected rat hidden in some goods were accidentally brought into a sparsely settled

\textsuperscript{14}Appleby, 98.
\textsuperscript{15}Ibid.
\textsuperscript{16}Ibid., 100.
\textsuperscript{17}Ibid.
\textsuperscript{18}Ibid., 98-9.
area, the chances are that the infection would be limited to the house receiving the merchandise. Only the rats living in that dwelling would become infected and in turn infect their fleas. On the death of the rats, the fleas would then attack the human occupants. One of these people might carry a flea to a neighbor's house, where it would become dislodged and attack a person or a rat there. The cycle could then begin again. Such a method of transmission by humans, though, was uncommon.\footnote{Ibid., 99.}

In the cities, however, the houses were adjoining, and rats could travel between the walls, allowing for the spread of the plague.

It is also unlikely that the plague would have caused this increased mortality without some record in the parish registers or other materials. The plague did in fact strike Carlisle in the county of Cumberland in 1597-98, and it did not pass without notice. A list of the city householders of 1597-98 has been found, and on it indications are made as to which houses had been affected by the plague. The number of deaths resulting from the plague was also recorded for each household. There was also mention in the city council's minutes of ways in which to prevent the spread of the disease. Some of the measures taken included visits daily to houses of the city to determine the presence of plague, the sealing off of houses where the plague had been identified, and collections made

\footnote{Ibid., 99.}
for the poor. Several isolation hospitals were constructed outside of the city walls as well, and resting places for the dead were often away from the regular graves in the churchyard. With all of this information available for the parish town of Carlisle, there is little doubt that the plague could not have spread throughout the county of Cumberland and into the counties of Westmorland and Lancaster unnoticed.

The other common epidemic was that of typhus. Spread by human body lice, typhus outbreaks occur during cold weather. As temperatures drop, people are less likely to bathe or change clothes, creating conditions suitable for the spread of lice. As the weather turns warmer, and people are more inclined to bathe, the outbreaks cease. Typhus is an epidemic of adults, and though children often contract the disease, they are less likely to be killed from it. While the spread of typhus can be promoted by malnourishment, starvation can be ruled out as cause of death if children's mortality rates remain stable.

Plague and typhus are seasonal disorders, and their presence can be determined by increased deaths in either

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21 Appleby, 103.
the summer or winter months. The crisis of 1597, however, was not seasonal. "Burials were not so high in winter as to suggest typhus nor so high in summer as to suggest plague." Since the increased mortality was not seasonal, both plague and typhus can be ruled out as the cause of the demographic crisis.

Other diseases, such as influenza, dysentery, and smallpox were considered and eliminated as cause for the high death rates. Influenza is a disease with relatively low mortality, and it passes through communities in approximately seven weeks. Even if the population was weakened by malnourishment and the influenza worsened to pneumonia, the impact would not have been so long lasting as the span of deaths in 1597. Dysentery would have caused higher mortality rates for children but would not affect the conception rates. Smallpox was not a common affliction until after 1600, and though the chance of an earlier outbreak exists, it is unlikely that a disfiguring disease such as smallpox would pass through a community without record made in the burial records.\(^{23}\)

In 1597, England as a whole, but more specifically, the northwestern counties of Cumberland and Westmorland as well as the county of Lancaster suffered a demographic

\(^{22}\)Ibid., 109.
crisis. As previously discussed, this crisis came after three years of poor harvests. The failing harvests, in combination with an industrial depression, left many without proper nutrition. The absence of epidemic infection and the dramatic drop in birth rates indicate that the demographic crisis of 1597 was indeed the result of famine. This famine in England, though not induced by warfare or other social cause, was nonetheless as devastating as towns buried twice as many inhabitants in 1597 as they had in the years prior to the demographic downturn.

\[23\textit{Ibid.}, 120.\]
CHAPTER V
CONCLUSIONS

The populations of early modern Europe were faced with numerous dilemmas including war, epidemic infection, and famine. The entire concept of religion had been altered, and those who supported the new ideas generated by the Reformation were fighting against the supporters of traditional Catholicism. Farming was unstable from year to year, and one poor harvest could induce a long lasting subsistence crisis. The borderline malnutrition of most people left them susceptible to more diseases or unable to reproduce.

The results of the intermittent fighting on the continent were region wide harvest failures and increased disease spread by troops. In England, poor weather condemned harvest after harvest to failure spiraling the peasantry into dearth and starvation. The accounts of famines in France and the writings about want for food in England are accounts of a suffering that was devastating even when it was not widespread.

Scientific evidence has shown that during the process of starvation the body wastes away and becomes more susceptible to illness and dementia. Mervault’s account of
the populace eating horses, cats, and feces is supported by experiments that have shown that people will eat anything in order to make them feel full. Mervault’s account could have been used politically to attempt to secure help from England, but help did not arrive, and his account was published over 50 years after the siege. Most likely, Mervault’s exaggerations were his way of expressing how truly grave the situation appeared. In Mervault’s own words

from whence there passed not a day that there died not two or three hundred, or more persons, in such sort, that not only the Church-yards, but even the Houses, Streets, and out-parts of the City, were in a little time filled with dead bodies, without having other Sepulchres than the places where they fell, the living not having so much strength as to throw them into the Ditch, even many went to die in the Church-yards.¹

It is difficult to imagine that the bodies were stacked in the streets because no one had the energy to move them, but the human body restricts its own energy output in order to sustain life. Within the exaggerations of the famine accounts, there is a reality of painful suffering, apocalyptic fear, dementia, and death. The writings of Arthington as he stated that people were starving and it would only get worse are not unreasonable or unrealistic. In the fourth year of harvest failure, it would be

¹Mervault, 163.
difficult to imagine that prosperity would be forthcoming, and from Arthington’s point of view, the populace could not expect relief until God was satisfied that they had repented their sins and understood the error of their ways.

Human suffering is difficult, if not impossible, to measure. There is not a recognized method of quantifying desperation. However, in “The Influence of Bubonic Plague in England 1500–1667,” Alan Dyer examined the social and economic impact of the plague. This study showed that, in times of crisis, sociability is lost. The concept of assisting others simply because they, too, are human loses its importance in a society faced with catastrophe. Dyer showed that the loss of sociability was widespread where plague occurred in England. The breakdown of people’s willingness to help one another was “a profoundly disturbing development when mutual assistance and comfort from relatives, friends, and neighbours was the chief source of security in a hazardous world.”

Though Dyer researched the disintegration of society as a result of plague, similar collapse has been noted in cases of famine. Starvation caused people to become secluded and selfish. Individuals who would normally aid their neighbors, or even

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a beggar on the street, changed their hospitable attitudes during times of crisis and all food sharing ceased, even between family members. This loss of sociability left its mark on the victims of prolonged starvation. Their collective conscious was marred with the memory of pain, suffering, and the collapse of normal society that can with the lack of food.

Examining the religious wars of early modern Europe, historians have debated the reliability of source material depicting the death and destruction caused by the wars. Recently, scholars have fallen into an either/or scenario in which the accounts are either considered to be realistic and rational or discredited as exaggeration. The problem with this view is that historians are trapped, forced to use literary accounts of human misery as proof of devastation only when supported by demographic data showing the destruction statistically. Without such correlation between a description of death and numerical evidence of high mortality, the accounts are used to show that the suffering was not as horrific as people depicted it to be.

Historians such as John Theibault searched for a middle ground in this either/or debate, turning to an examination of the rhetoric used by the supplicants as an integral part of the social impact of the wars. It is this
middle ground that provides for a more complete understanding of famine in early modern society. The descriptions of dearth and human suffering become important when they are investigated as part of the impact of the crises. The rhetoric, as Theibault suggests, had persuasive power because the authors "believed that they were suffering and could link that suffering to identifiable circumstances." The words of the supplicants gave meaning to the death and destruction brought about by famine, disease, and war. This research has depended on the existence of that middle ground. The examination of famine narratives has been correlated with the demographic data, but the narratives have also been appreciated for their own worth, as valuable depictions, perhaps not always to be interpreted literally, of the want and suffering found in areas plagued with famine.

The parish records, medical descriptions, and siege narratives all indicate that famine was indeed a major threat in early modern Europe. Overlooked by many historians, perhaps in favor of disease, famine was clearly the cause of the demographic crises of Rouen, La Rochelle, and northwestern England. Famine is more than the physical

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starvation of a human body. Wasting away is merely a symptom of a problem that affects mind, body, and community. Each of the three communities discussed, Rouen, La Rochelle, and northwestern England demonstrate that the rhetoric and reality of famine combined create a definition of famine in early modern society that includes physical suffering, increased mortality, reduced conceptions, weakened social cohesion, enthusiastic religious participation, and apocalyptic fear.
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