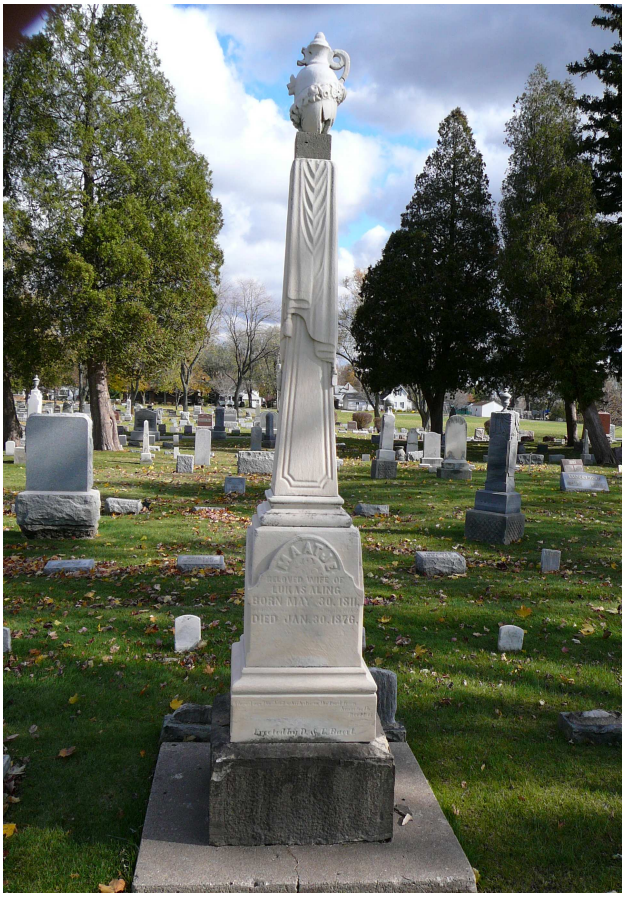
DISEASE AND DEATH
AMONG THE EARLY SETTLERS
IN HOLLAND, MICHIGAN

Jan Peter Verhave



LECTURE SERIES, NO. 4
VISITING RESEARCH FELLOWS PROGRAM
VAN RAALTE INSTITUTE
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First Netherland-America Foundation Visiting Research Fellow
at the
Van Raalte Institute

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About the author

Jan Peter Verhave (b. 1942) retired recently from Radboud University Medical Center, Nijmegen, the Netherlands, where he was an associate professor in parasitology, with malaria as his major topic of research. He had earned his Ph.D. in Medical Sciences from the University of Nijmegen in 1975, after which he spent a postdoctoral year at the Naval Medical Research Institute in Bethesda, Maryland, before returning to Nijmegen to teach and conduct research. During his career, he had over one hundred research publications in international professional journals on malaria alone.

As the Van Raalte Institute's first Netherland-America Foundation Visiting Research Fellow, Dr. Verhave was supported in his work by a grant from the NAF to the Institute in March 2006. He was chosen by the staff of the Institute because his proposed area of study—disease and death in the early Holland Colony—was of significant historical interest. His extensive knowledge of infectious diseases was, of course, extremely useful, but it was also an advantage that he had studied the church history of the Dutch Secession in the nineteenth century. He had earlier published on Dutch Seceders' attitudes towards vaccination and on the settling of an Amsterdam Seceder family in Iowa, whose lifelong correspondence with friends in Amsterdam he had retrieved. He wrote a biography about the family in *Afgescheiden en Wedergekeerd, Johan Adam Wormser sr. en zijn gezin* (Groen: Heerenveen, 2000). The letters from that book were translated and reprinted in Johann Stellingwerff, *Iowa Letters: Dutch Immigrants on the American Frontier*, ed. Robert P. Swierenga (Grand Rapids: Eerdmans, 2004). Because these letters contain regular updates on the writers' mutual states of health, Verhave conceived the idea of studying the medical history of the early Dutch settlers. His well-received public lecture has been greatly expanded for publication.

Contents

COVER PHOTO: GRAVE MARKER FOR MAATJE ALING, MIDWIFE OF ZEELAND, ZEELAND CEMETERY. PHOTO BY AUTHOR.

Summary

In the already vast knowledge on the immigrants from the Netherlands to West Michigan, there existed a gap about their physical wellbeing. The early settlers, headed by the Reverend Albertus C. Van Raalte, created a colony in 1847, which grew to about two thousand people within three years. Many contemporary accounts and reminiscences after fifty years exist about the hardships of this Holland colony, and they testify that sickness and death prevailed. The several historical descriptions, including those about sicknesses in general terms, have contributed to a rather romanticized picture of those early years. There were guesses of several hundred deaths, but also serious considerations that the mortality had been exaggerated through oral history. This study was intended to fill the gap in a more professional way.

The story starts before the arrival of the Dutch. At that time a small tribe of Indians lived in the area, together with an American missionary and a government agricultural agent and their families. Prof. Dr. R. Swierenga was, during my tenure at the Van Raalte Institute, engaged in writing their history, based on the diaries and memoirs of the Rev. G. N. Smith. These contain an abundance of information on sicknesses and treatments, from which I profited. For two years, from winter 1847, Revs. Smith and Van Raalte collaborated in the area. Doubtless, they exchanged not only theological views but also medical information.

I have analyzed the first twenty-five years, with regard to prevailing diseases, as far as can be deduced from letters and diaries. The ague was the primary introduction for the pioneers to Michigan life, closely followed by what I presume to be enteric fevers and dysentery. A short outbreak of smallpox may have taken a few lives, but the pandemic of cholera had more impact. No records were maintained of birth and death, arrivals and departures, during the first harsh years. The census of 1850 sheds some light on the population size and the causes and numbers of deaths in the preceding year. I estimate the numbers of deaths during the first three years to be some four hundred, but because the population was transient, its size in 1850 does not allow for a reliable estimate of the mortality rate.

Thereafter, the Colony and its population got into smoother waters. Housing and food improved and the pattern of diseases changed. The next twenty years were rather quiet, only to be disturbed by a number of outbreaks: influenza in 1857, dysentery in 1858, diphtheria in 1868, and smallpox in 1872. The accounts of parents are often quite moving and reflect the way in which they tried to reconcile the losses suffered in their families with their religious beliefs. When Holland was incorporated in 1867, the Council had to take responsibility for keeping the city clean and for dealing with contagious diseases, despite the fact that doctors still had no idea about the ways of infection and the role of germs. The city had known doctors of various calibers during the early years. This study contains a first inventory.

By way of comparison, an overview of the health situation in the other main Dutch colony, Pella, Iowa, has been included.

Diseases often were given vernacular names of the time, and sometimes were lumped together under one name. I have attempted to describe them separately, taking the modern microbiological insights into account. Similarly, the arsenal of drugs and methods to relieve the sufferings is listed alphabetically. These lists will assist future researchers to further expand the understanding of the health conditions in Holland, Michigan, during its early years.

Introduction

The first wave of immigration from the Netherlands to America in the nineteenth century took place in 1846-50. The drive of the emigrants was for economic betterment and to assure freedom of religion and education. Farm laborers, shopkeepers, and small industry workers earned wages barely sufficient to maintain their large families. Moreover, a potato disease (blight caused by a fungus) swept over Europe, leaving people without their staple food. In 1834, secession occurred in the national *Hervormde Kerk*, because of widespread liberal preaching and attitudes. The government considered their religious meetings, held in barns, private houses, on ships, or in the open air, to be disorderly conduct. The government, i.e. the Minister of Worship, took a Napoleonic law from the shelf and ordered that meetings of twenty and more people were not allowed without permission, under penalty of high fines or being billeted with soldiers.

Some of the few educated people among the new church members wrote a pamphlet that called for emigration. It appealed to many of the seceders, who mostly were of modest means and from lower classes of society, and they were ready to follow their leaders. Rev. Albertus C. Van Raalte headed for Michigan; his colleague Hendrik Scholte chose Iowa in which to settle. In addition to being pastors for their followers, they had to assemble all their managerial and inventive qualities in order to start a colony, to have it grow into a village, and to get it properly governed. These stories have been told repeatedly. One aspect these pastors may not have anticipated in full was the unstable state of health of the hundreds and thousands who followed in their wakes.

Materials and Methods

Two authors have made deliberate attempts to describe the diseases that afflicted the Dutch immigrants in West Michigan. One is Dingman Versteeg in his book *Pelgrim-Vaders van het Westen* (1886);[1] the other is Adrian Van Koevering in his *Legends of the Dutch: The Story of a Mass Movement of Nineteenth-Century Pilgrims* (1960).[2] Both authors relied on first-person accounts of what happened during the years of establishing Holland city and its satellite villages. The latter in particular has collected many details of the living conditions in the Colony and about the diseases that broke out, but as he was not an expert in the medical field, it may have left the impression that the early settlers were overwhelmed with a dozen lethal diseases within the first couple of years. There was a need for a more professional review of the (mainly Dutch) sources. These sources are kept in the Joint Archives of Holland, the Archives of the Holland Museum, the Genealogical Department of the Herrick Public Library in Holland, Michigan, the Archives of the Zeeland Historical Society (Decker House Museum, Zeeland), and the Archives of Calvin College, Grand Rapids. The professionals and volunteers in each of these institutions were very helpful. Whenever a Dutch text was available, I have checked the translation and made my own, if necessary. A major source was the large collection of selected letters and diary fragments, in Dutch and in English translations, found in Henry S. Lucas, *Dutch Immigrant Memoirs and Related Writings*.[3] My references are to the 1997 edition in which the two volumes were published in one volume.

Based on personal testimonies concerning health and disease, I have distinguished three types of sources: contemporary information of inhabitants, visitors, and non-Dutch Michiganders (letters, diaries); memoirs of aged colonists or their children around the turn of the century; and

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[1] D. Versteeg, *Pelgrim-Vaders van het Westen* [*Pilgrim-Fathers of the West*] (Grand Rapids: Loomis, 1886), 73-78. Versteeg was a Dutch journalist from Zierikzee (Dutch Province of Zeeland). The account is moving but has its limitations.

[2] Adrian Van Koevering, *Legends of the Dutch* (Zeeland, Mich.: Zeeland Record Co., 1960), 334-51. Van Koevering was also a journalist and an amateur historian of Zeeland, Michigan.

[3] Henry S. Lucas, ed. *Dutch Immigrant Memoirs and Related Writings*, rev. ed., 2 vols. (Assen, the Netherlands: Van Gorcum, 1955; reprint, Grand Rapids: Eerdmans, 1997).

writings by professional or amateur historians in the twentieth century. The first category is the most trustworthy. Reminiscences, as they were actively collected on the occasion of civil and religious commemorations, may have drifted away from reality because of fading recollection and the exaggeration or suppression of events; moreover, the rapidly increasing understanding of how diseases could spread and wane influenced the interpretations. The above mentioned writers transplanted the insights of (mostly infectious) diseases of their times back into the mid-nineteenth century. Though statements like, "They became sick and died from dysentery because they drank contaminated water," may be right in hindsight, I chose to consider the experiences and descriptions of the people who went through it, and who had nothing but a common knowledge of diseases from the old country to rely on. After an extensive compilation of scattered information on early disease data, an interpretative section follows. As I have not found any disease descriptions from medical men serving the people of the Holland Colony, I fully relied on the impressions of lay people about medical issues, which makes this study a "medical history from below."

The first aim of this study was to trace the health-affecting events of 1840 to about 1875, and to sort and describe them in chronological order, with contemporary knowledge of diseases. A list of medicaments was composed, and where possible, commented on as to (proper) use. Also, some biographical details are given about medical men who served the Holland Colony. In order to facilitate the appreciation of the health conditions of the past, the various diseases encountered are also described using modern knowledge, and details of some epidemics are given, including the development of city regulations on quarantine and other public health measures. The many internet websites with information on early medical terms and diseases were freely consulted and the information was used after crosschecking. Recent standard works on the history of medicine supplied the necessary background for this study:

Gerald N. Grob, *The Deadly Truth: A History of Disease in America* (Cambridge: Harvard University Press, 2002);

J. N. Hays, *Epidemics and Pandemic: Their Impacts on Human History* (Santa Barbara, Calif.: ABC Clio, 2005); and

Margaret Humphreys, *Malaria, Poverty, Race, and Public Health in the United States* (Baltimore: Johns Hopkins University Press, 2001).

1. Diseases in the Old Country: A Family Case

The immigrants came to the New World with a common knowledge and experience of their lives in the Netherlands, including that of diseases. The health situation in the Netherlands was deplorable, as can be judged from an account by Jan Jeltes of Groningen Province, who would arrive in Michigan only in 1872:

> It is difficult to describe our experiences during 1846: poverty, sickness and catching fevers. My wife's brother died during this period of sickness. Then I came down with the sickness, and shortly afterward my wife and oldest girl. I was unconscious, and the doctor had given me up, but the Lord restored me, and gradually I regained strength. No one came to visit us except my wife's mother, the Minister, and the Doctor. The people were afraid of contagion. Sometimes I thought that I was stricken with consumption. In 1856, I became very ill with pleurisy in the chest and side, and for some time I was unconscious. During those years [the sixties], our country was stricken with cholera, and my father came down with this fearful plague. His chest was being moistened with cold water, which seemed very strange to me, so I asked the doctor, who was present, about the purpose of that treatment. He told me that my father's blood was obstructed, and that this might improve the flow. My dear father's health restored, and the sickness did not spread.
>
> In 1871, with one daughter in America and two on the brink of going as well, Jeltes arrived home one night and my wife said to me: "I fear that our Anna will come down with

smallpox." One of our neighbours had lost a child through this sickness, and this woman had carelessly taken a small scarf, which the dead child had been wearing, and wrapped it around the throat of our daughter while my wife was away. As soon as she came home and heard about it, she burned the scarf, but it was too late. We immediately went to the doctor but our Anna became ill, and I have never seen such a severe case of smallpox. My wife used many disinfectants to fight the illness, such as hot stones on the floor with vinegar, numerous bottles of cologne, and a tub of water under the bed. We also had a good doctor, and we were separated. Another girl, seven years old, was vaccinated, and she escaped the sickness. It was our duty to use the means that we were given in faith. After 21 days, she improved. At that time our two sons, Simon and Jacob, were stricken with sore throat disease [probably diphtheria] and according to law we were forced to leave them in the care of others. But the Lord granted recovery to all. During this time, the letters from America came in great number, and all contained the invitation to come to that country. This caused a lot of struggle: "Why to America?" because the Lord had blessed us with all that we needed for our material well-being. The word of John 13 came to my mind: "Thou shalt know hereafter." This convinced me that we must go. In April 1872, we left the Netherlands in an English steamship carrying 1400 passengers. [4]

The family settled in Grand Rapids and lived happily into their old age. Jeltes's story may have been influenced by local circumstances and not representative of the health situation in the old country, but it indicates the various diseases that could strike one family over the years, as well as the general scope of knowledge lay people had about diseases and their eventual contagiousness, as well as the measures taken in response to disease. Modern analysis by medical historians indicates that survival rates in nineteenth-century Netherlands were less favorable than in America,[5] but that argument evidently did not count for the decision to emigrate.

An early emigrant recalled the situation during a temporary stay in Albany in 1847: "It was not long before we learned that we could become sick also in America. During that very winter, we first had measles, then the scarlet fever, and after that also the pox. . . ."[6] Apparently, these diseases were also known in the old country and some of them may have been brought along by earlier immigrants from Europe. Even during the ocean crossing, infectious diseases broke out. Traveling over sea and over land in America were both exhausting, and virtually each of the immigrating groups had to count its losses. However, travel histories were not part of this study, and only those events that were relevant to the health of the Colony are mentioned.

2. Western Michigan before the Dutch

Van Raalte and his followers did not arrive in a virgin land. The Indians, mainly of the Ottawa tribe, had bought land in the area of Black Lake in West Michigan. They lived partially nomadic lives, following game and moving into the forest to collect maple sap to make sugar. They had diseases and medicaments, on which we are informed in detail through a missionary, Rev. George Nelson Smith, who maintained a Memorandum as well as a Diary.[7] Smith was a Congregational

[4] Levensgeschiedenis van Jan S. Jeltes, Jeltes Collection, shelf 29 17a, Archives Calvin College (ACC). The story is abbreviated here.

[5] Gerald N. Grob, *The Deadly Truth: A History of Disease in America* (Cambridge, Mass.: Harvard University Press, 2002).

[6] "Anne de Vree's My Experiences," in Lucas, 1:295, 298. De Vree's reminisces were written in 1910 and published in *De Grondwet* in 1912.

[7] I was given access to the transcribed texts by Robert P. Swierenga and William Van Appledorn, who were preparing a biography on Smith: *Old Wing Mission: The Chronicles of Rev. George N. and Arvilla Powers Smith, Missionary Teachers of Chief Wakazoo's Ottawa Indian Band in Western Michigan, 1832-49* (Grand Rapids: Eerdmans, forthcoming).

minister who in 1839 settled in Allegan County, where he worked as a missionary among the Indians. Apart from his concern for their souls (most Indians were Roman Catholic, but without a priest), he also attended to their physical needs. He and his family lived in Allegan County and later in Ottawa County 1839-49. The Indians had bought some 1,360 acres of land at the Old Wing Mission. From day to day one gets an idea about Smith's interactions with the Indians and his way of diagnosing and treating diseases. Since there was no nearby physician, he equipped himself with some medical books and bought medicaments for his family and the Indians. Every now and then he called upon doctors—in Allegan, Dr. Osman D. Goodrich; in Kalamazoo and later Grand Haven, Dr. H. Monroe; in Newark/Saugatuck, Dr. Chauncey B. Goodrich; or in Holland, Dr. C. D. Shenick (or Chenuck, as Smith spelled his name)—who would see the patients and often stay overnight (for details on these doctors see page 38ff.). They left medicines in Smith's custody, which he could use during their absences. Smith learned from them which symptoms described by patients belonged to which disease, and how he should recognize the signs he observed that were relevant to certain diseases. He consistently used the word symptoms for his own (objective) observations and did not use the word signs.

Figure 1. G. N. Smith and his wife at an advanced age
Holland Museum Archives

With regard to medical instruments, Smith did not mention the use of a stethoscope (one made of wood was in general use by 1826) or a clinical thermometer (in use since the 1830s). A syringe figured on his shopping list (12 February 1846). Smith used it on his wife (15 April 1845) and another patient (20 September 1846) to give enemas. It is unlikely that Smith or the doctors performed injections to get drugs or salts under the skin (subcutaneous), or into the musculature, let alone intravenously; hypodermic syringes were introduced in the U.S. in 1856.

In 1840 Smith wrote a letter to a fellow missionary, worrying about the smallpox and requesting that the people in the affected area not come to his settlement, the Old Wing Mission:

> Our people are much alarmed by reports of the small pox being among the Indians of your place and vicinity & we fear that some of them who are infected with the disease may come among us. If they should, you are aware of the ruin it would be likely to bring upon our

little settlement. The disease you know, is extremely destructive especially among the Indians. They fear it as they do death.[8]

In February 1845, Dr. C. B. Goodrich came to vaccinate the Indians because smallpox prevailed again at other places. He vaccinated forty-nine people and more were to be vaccinated when these vaccinations proved to be protective. On 16 October 1846 smallpox was reported in Allegan. Next day Smith sent one of the Indians to Grand Haven with a letter to Dr. Monroe to bring "vaccine matter" for the Indians. Early July 1847, the smallpox was brought into the Dutch Colony. The Indians left on the 21st. Smith wrote to Dr. Monroe to vaccinate those who needed it and considered that they may already have been infected with the disease.

It appears from the diary that Smith learned a lot from these doctors and often had his early diagnosis and treatment checked by one of them, who only would enlarge a blister or increase a dose of quinine or opium. Particularly when it came to his own family, Smith wrote: "Doctor said . . . I was treating the case as well as he could, but I prefer his counsel than to have my family's life on my hands alone" (25 November 1848). In case a doctor had to come all the way for a single patient, Smith paid $1-2, or $4 (i.e. for his wife's delivery). As far as I can judge, Smith dosed pills and powder to the best of his and the physicians' knowledge. However, it is not always clear what the disease was, as in the following case: "Indian girl violently ill last night. Insensible, no pulse. Had limbs bathed in warm water and rubbed thoroughly with brush. Then applied red pepper and vinegar. She revived and I gave her pills. [The Indian] Pendunwan bled her" (12 March 1845). In addition, Smith regularly applied rubbing with brandy, footbaths, and wrapping with cloths, to revive a drowsy patient. Very often, he contented himself by writing that he gave pills, and there is no way to further clarify his choice. In some situations, he did not even have a choice, as he was out of stock. To one patient with severe bowel complaints he "gave salts at once, not having such other physic as I would prefer, also injections" (20 September 1846).

In 1845, there is not a single entry of the ague, and in the previous years he mentioned, at the most, five persons with the fever and ague. On 28 July 1846 he wrote: "Our colony has been very healthy this season till now, some are sick. Sent 8 pills to C."

The summer and fall of 1846 were very special, as everybody was stricken with the fever and ague. At least twenty cases occurred, including Smith and his family. The size of the Indian group varied, but in 1847, about three hundred people were counted. Therefore, the number affected by the ague would approach 10 percent.

On 13 September 1846, with the ague wave well underway, Smith, busy attending the disease and doling out quinine, sarcastically stated: "All seem to be wonderfully afraid of Black Lake just now and are in haste to get to their fields, where if they had done it before the sickly season, it might have saved them most of their sickness." Apparently, there was this general knowledge about water, marshes, and the ague among Indians and whites. Retiring away from the Lake, in the forest might have been brought less risk of sickness.

Quinine was effective against the ague fevers, and as such mostly accepted by the Indians, the sick of whom stayed behind.[9] During the ague period, another disease with bowel complaint was rampant, killing several of them. The Indians called it the rotten disease. Smith stated: "Rotten inside and will take none of our medicine" (20 September 1846); "They are horror struck at the proposition of medicine" (27 September 1846); "I think I could recover nearly all the cases if not all, if some ignorant woman did not pretend that she could do something better, and prevent my giving medicine. They gave J.'s wife hemlock bark to drink and put a bag of ashes on the womb. She died" (5 October 1846).

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[8] G. N. Smith to W. M. Ferry and Mr. Duvernay, 23 March 1840, George N. Smith Papers, Holland Museum Archives.

[9] Curiously, he bought a mosquito net on 25 July 1846, i.e. the beginning of the ague season. (Mosquitoes were just a nuisance.)

3. The Exploration and the First Pioneers

Figure 2. Albertus Van Raalte, the pioneer
Western Seminary Collection, Joint Archives of Holland

In the fall of 1846 Rev. Albertus C. Van Raalte traveled to the United States, and in late December he made an exploratory trip to West Michigan to choose a location for his followers. After having suffered typhoid fever (*tyfus* in Dutch) that summer while still in the Netherlands, he had made a commitment on his sickbed to lead his people out, as a Moses and an Aaron.[10] In the Black Lake area he met his colleague, Smith, and the agricultural agent for the Indians, Isaac Fairbanks, and their families. He lived in the Smith house for three weeks and explored the snow-covered area. His hosts may not have told him too much about all the sufferings of the past summer and autumn, because on 30 January he wrote: "One hears the highest praise concerning the state of health. It is high land over here, and the people as a whole may enjoy the best of health." He only points at a disease that goes with the naturalization of the climate, the "every other day fever" (locally known as the ague) and made no other point on health in Michigan in this extensive letter (forty-three pages in press).

If Smith or Fairbanks had sung for him the popular rime:

Don't go to Michigan, that land of ills
The word means ague, fever, and chills

Van Raalte would probably have waved it away, convinced as he was of God's leading in his choice of West Michigan. After all, the Black River and Black Lake, and the proximity of the great waterway of Lake Michigan, would guarantee easy trade and fertile ground. But so far, it was forest everywhere.

In February 1847, Van Raalte arrived again at Black Lake with a vanguard of seven followers, and the Smith and Fairbanks families accommodated them. It became rather uncomfortable in March, when the rest of the group joined, making up to forty-seven guests for the two American couples. The settlers started to fell trees and constructed one big log house, where they lived in good humor and communion of possessions. Soon Van Raalte had his own log house built. During this period, Smith had ample chance to explain to Van Raalte what the living conditions were, and what real risks there were in regard to the health of the new settlers. He certainly must have mentioned that his flock at that time consisted of thirty-four Indian families and 140 individuals and that the past year had been particularly rough, with eleven deaths. He may have introduced Van Raalte to the physicians in the region, taught him the signs and symptoms of

[10] Henry E. Dosker, *Levensschets van Rev. A. C. van Raalte* (Nijmegen: C. C. Callenbach, 1893), 65.

various diseases, and may have warned him against wandering quacks who were after people's money.

Unfortunately, Smith's diary for the year 1847 is missing in the collection at the Library of Congress, depriving scholars of detailed information on the crucial year of the Dutch settlement. Van Raalte did not maintain a diary, thus we have no way of knowing what happened that year in terms of day-to-day events and the state of health of the pioneers.[11] However, the overwhelming evidence of witnesses and the reminiscences of surviving colonists make clear that reality struck harshly. Indeed, many are the stories about the miserable first years of the settlement. We may freely accept the increased disposition for diseases, because of the testimonies of poor, monotonous food, physical exhaustion, and living closely together under leaky roofs.

Several attempts have been made to describe the situation, but none of the (amateur) historians had a (bio-)medical background. This created the problem of having a rather blurred picture about the hardships of the early settlers. The eagerness of the later Holland and Zeeland people to revere their ancestors, their leaders, and their saint, Dominie Van Raalte, may have added to the problem. In other words, they needed some romantic heroes who had been spared by the Almighty and had withstood the plagues. That happened on various levels of society—the religious sphere, the economic level (purchase of land and starting farming), the organization and adaptation to life in America, but also at the level of diseases.

The settlers firmly believed that everything was directed by God's fatherly hand, but later generations knew more and more about the natural causes of diseases, and without any medical background they described the heroic history. Fever, bloody flux, bilious disease, and also smallpox and scarlet fever were rampant before the various groups separated and made it a colony of sick, as Versteeg had it in 1886. Dosker mentioned fearful epidemics of typhoid fevers, and bloody flux, noxious measles and scarlet fever, during the first two years. Jacob Van Hinte also mentioned malaria, typhus, smallpox, and scarlet fever, especially among those who were most susceptible, because they had come from higher and dryer regions in the Netherlands. Van Koevering followed them in writing that during the summer of 1847 dysentery, malaria, typhoid fever, scarlet fever, measles, and other diseases followed one after the other. [12]

One may wonder whether this picture is real and doubt that the wide variety of ordeals struck all at the same time and place. Though extremely difficult, I have set myself to dissect the various causes of sickness and death during the first years. The following is a reconstruction of the health conditions in the first three years of the settlement.

4. The First Four Years

1847. In the spring and summer of that first year more Dutch immigrants joined the group of forty-seven. They came pouring in by boat and overland. By August, there were 850 dwellers, 1,000 in July, 1,700 in October, and 2,000 in November, and there was too little proper shelter available. In fact, there was no infrastructure. People slept side by side in large numbers in three sheds that the Zeelanders built, or they made tents of hemlock branches and sheets. These shelters were not waterproof, and clothes got constantly wet. Food was short and not very diverse. It was an unhealthy situation. One senior person from Zeeland recalled that they first lived in a "leaf hut" where living wasn't a feast! By early summer people got sick and, much to their worry, they got fever in a way they had never experienced. It kept them shivering and sweating uncontrollably. The next day it was gone, only to return the following day. This was the "every other day fever" that Van Raalte had announced in his letter of that winter to those who were planning to join him. He likely went around reassuring the sick that it was just something to go through and was not

[11] He did, however, have a list of prescriptions about beekeeping, including an item on the cure of diseases.

[12] *Pelgrims-Vaders van het Westen*; *Levensschets van Rev. A. C. van Raalte*; Jacob van Hinte, *Netherlanders in America* (1928, in Dutch; Grand Rapids: Baker Book House, 1985); *Legends of the Dutch.*

dangerous and foretelling that everybody would get this Michigan ague. They surely did, as many testified. One of them was Pieter van Anrooy, who recalled the shortage of shelter and the rains leaving everybody wet, day and night, and simply stated: "Thus, many were afflicted with the fever." In the Zeeland Archives, I found a statement by the same Van Anrooy, describing the arrival on 26 June at Black Lake and saying rain caused fevers which resulted sometimes in death.

Many were "indisposed" because of the ague, but a number of those suffering from fevers also got bowel disorders, and people started to die. Would Smith have suggested to Van Raalte, that it was better to move away from the lakeside to escape the ague and other plagues of the season, as he had told the Indians the year before? There is no evidence that he did.

It is very likely that many people contracted the "rotten" bowel disease of which the Indians suffered; several were dying, despite the treatment with blue pills and quinine. Already in the late summer and the fall of their first year, it was a colony of sick people with casualties everywhere.[13] Whole groups of families, who stayed on, were decimated. There was hardly time, energy, timber for coffins, and place enough to bury the dead. Their leader and pastor Van Raalte recalled:

> Never was I nearer to the point of despair, than when I entered those crowded sheds and saw the constant mingling of household duties amid sickness and death, and dressing of corpses in those huts where each family was forced to accommodate itself to a limited space of a few square. No wonder that we could notice an increase of despairing indifference in that hour of sore affliction. The sick were restored to health. . . . The fall was a most beautiful one, and the winter was extraordinarily mild. [14]

Analyzing the contemporary diaries and letters, and the somewhat less trustworthy reminiscences written around the turn of the century, four different diseases occurred in 1847, of which the testimonies are rather convincing: the Michigan ague,[15] typhoid,[16] dysentery,[17] and smallpox. Lack of sufficient or reinforcing food certainly extended the duration of sickly periods. The latter three diseases were likely to be fatal, but smallpox at least was not widespread through the Colony then. The ague and typhoid were certainly afflicting the settlers and ague alone could lead to death under the poor living circumstances and underlying typhoid. I refer the reader to the list of diseases in Appendix A (p. 52ff.), each with additional description of contemporary views and modern insights.

The party of Jannes Vande Luijster brought smallpox into the Colony in June 1847. The affected person was Cornelis De Nijs. The pox spread so much that many persons succumbed and were carried to their graves, as Pieter Van Anrooy tells it.[18] Jacob Den Herder recalled the same event in more detail:

> Soon we made the very unpleasant discovery that one of the occupants [of the Zeeland sheds] who had arrived here two weeks previously with Vande Luijster's party, Cornelis de

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[13] "[Albertus C.] Van Raalte's Commemoration Address, 1872," in Lucas, 1:487. Hendrik Van Eijk, Diary (1848), Holland Museum Archives. He spelled his name Van Eijk, not Van Eyck, as it is spelled in most sources, including in Lucas, 1:458.

[14] From drafts of his speech at the Ebenhaezer celebration on 18 September 1872 (Van Raalte Collection 300, box 2, folder 22, ACC). See also Lucas, 1:487.

[15] "Reijer Van Zwaluwenburg's Life Sketch," in Lucas, 1:413, 422. Van Zwaluwenburg's *Levenschets* was first printed in *De Grondwet*, 30 May 1911.

[16] From an account by Jacob Van Zwaluwenburg (W. L. Clements Library, Ann Arbor; translation available in Moerdijk Collection, Holland Museum Archives, Holland, Michigan).

[17] "Among the varieties of illnesses during the first years were hot and cold fevers and dysentery" ("Adriaan Keizer's Drenthe's History to the Present," in Lucas, 1: 262). Keizer's account was written in 1897.

[18] See "Pieter Van Anrooy's Land and Sea Journey of the Zeelanders," in Lucas, 1:192, 197, which was written in 1897. Several versions his account can be found in the Holland Museum Archives, T88-0117. De Nijs got over it and died in Zeeland in 1899 when he was seventy-six years old.

> Nijs, had a severe attack of the smallpox. It was not so dangerous for our family as for the others, for the reason that we all had that malady in the Netherlands, but others did suffer by it, happily however not any of our number died of it. . . . I cannot forget how sick I was with smallpox.[19]

Rev. Smith confirmed that smallpox had been brought into the Dutch Colony some three weeks before his entry of 24 July, but did not mention any deaths. Only Smith's account is contemporary; the other two, either remembering many deaths or no deaths at all, are reminiscences after more than fifty years. Den Herder's observation of insusceptibility after a previous episode of smallpox is very proper. Did he suggest that there were deaths, but not in his group?

Contagious smallpox was not new in the area. The Indians knew it already since the eighteenth century, and again in 1840, to their dread. When they heard the news, they left the area on 21 July, despite the fact that many had been vaccinated in 1845. Rev. Smith requested Dr. Monroe from Grand Haven to be ready to vaccinate those who needed it.[20]

The great majority of Dutch immigrants were not vaccinated. In general, they were members of the Seceder churches (*Afgescheidenen*). On the medical and religious authority of medical doctor Abraham Capadose, they abstained and refused to let their children to be vaccinated. It would be like opposing God's (punishing) father hand.[21]

In Chicago, a vaccination campaign was carried out in 1848, and though Drs. Monroe and Goodrich in Ottawa County were prepared to vaccinate, church members declined and accepted what God had planned for them: "The healthy don't need a doctor; just the sick." There is no indication that the Rev. Van Raalte or one of the other ministers used the subject in sermons or in classical meetings.

Bernardus Grootenhuis, one of the earliest pioneers, looked back on the first year:

> The sicknesses were different in nature. Some people were the victims of extremely high fevers, and were completely exhausted by two or three attacks and died, while others continued to suffer. Still others suffered from what was called the ague. This sickness entirely unnerved the patient while the attack lasted, but as soon as the fever passed, the person was again ready to resume his work. But this did not guarantee him to be immune to another attack later. There were also those who suffered from dysentery, which attacked the bowels much. These attacks were of a recurring nature, and caused the sufferer extreme weakness.[22]

Other contemporary witnesses wrote remarkably little about this misery. Three of them were Cornelis and Cornelia Van Malsen (brother and sister) and her fiancé Jannes Vande Luijster, who arrived from Zeeland province in July 1847. In the eight letters to the Van Malsen family in the Netherlands, they only talk about having had the fever a few times in September. Meanwhile, new immigrants kept pouring in; Cornelia estimated already a thousand arrivals in July. In November, she wrote: "Many have been ill this summer and some have died, but no more than might be expected; more illness and death are to be expected among immigrants because of the

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[19] Jacob den Herder, "Life Sketch of Myself," transcript, Den Herder folder, Zeeland Historical Society Archives (also, box T88-00471, Holland Museum Archives).

[20] G. N. Smith to W. A. Richmond, 24 July 1847, *Records of the Michigan Superintendency of Indian Affairs: Michigan Superintendency and Mackinac Agency Letters Received 1836-1851*, vol. 21, p. 211-12 (Washington, D.C.: National Archives, 1942), microfiche.

[21] Joh. and J. P. Verhave, "De Vaccinatiekwestie in het Réveil," in *Aspecten van het Réveil*, ed. J. van den Berg et al. (Kampen: J. H. Kok Uitgeversmaatschappij, 1980); J. P. Verhave, "De Profeet en het Beest," in *Is 't waar of niet?*, ed. F. Broeyer and D. Th. Kuiper (Zoetermeer: Meinema, 2005), 39-64.

[22] B. Grootenhuis, "Our History," trans. P. T. Moerdijk, T88-071, Holland Museum Archives.

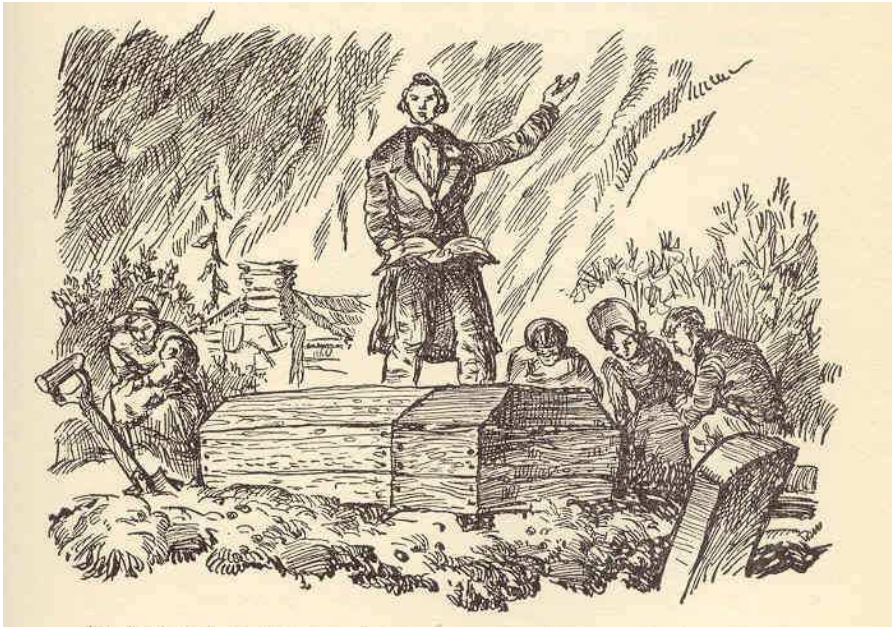
changes in soil, atmosphere and mode of living."[23] In December 1847, there were only a few people that had not recovered. Cornelia and her new husband Vande Luijster were in the midst of it; she assisted Mrs. Van Raalte and he preached from time to time. They lived in the Van Raalte residence until their own house was ready. Reality was much harsher than they wrote, and I surmise that the Reverend had advised them not to exaggerate the situation in letters to their folks in the old country, because these would certainly circulate among prospective emigrants. Van Raalte himself would not shy away from writing letters that flattered the health conditions, as will be shown below.

The Colony numbered two thousand already in November 1847. Because so many were afflicted, only a few attended Sunday worship. Van Raalte may have been carried away by his despair when he used the hyperbolic expression in his prayer: "Oh Lord, must we all die now?" Considering the size of the Colony, his exclamation seems to be somewhat pathetic. Yet, it survived the generations and contributed to the "romantic" exaggeration of the situation.

Meanwhile, the sick settlers had to bury their dead. With increasing numbers and lack of boards to make coffins, the procedures began to become sloppy. An American who lived in the Colony, Hoyt Guernsey Post, commented in his diary:

> The Dutch, seem to think, the sooner the departed are out of their sight, the better. It is sickening to witness their barbarous customs, which would disgrace the wild and uncivilized Indians. . . . I can never forget my feelings on hearing that some bodies of emigrants which were buried on the beach and had been washed out by the waves were left to be devoured by the wolves. Still, the Hollanders living there could not even take the pains to cover them, but left them to decay above ground. These are shocking statements to be made of a people pretending to be civilized and Christianized, but are true.[24]

Figure 3. Rev. Van Raalte at a burial
From Marian M. Schoolland, A Land I Will Show Thee*, ill. Reynold H. Weidenaar (Grand Rapids: Eerdmans, 1949), 159.*



[23] John Yzenbaard, "'America:' Letters from Holland," *Michigan History* 32 (March 1948): 37-65.
[24] Hoyt G. Post, Diary, T88-0160, Holland Museum Archives (transcription pp. 7, 26). Hoyt and his brother H. D. Post came from Rutland, Vermont, and settled in the city of Holland in 1848. Hoyt became county clerk in Grand Haven in 1851.

Indeed, several were buried somewhere in the forest, some just wrapped in a sheet. There were burials near the sheds at Vander Haar's farm (1847-48). Many were laid to rest where the sexton De Witt lived, at the head of Black Lake. A few were buried at Point Superior and several at the mouth of Black Lake in the hills, north of the harbor.[25]

Figure 4. Disposal

From P. J. Risseeuw, De Huilende Wildernis, *vol. 2 of* Landverhuizers, *ill. Willem Dupont (Baarn: Bosch & Keuning, [1959]), 58.*

1848. However bad the first year had been, settlers kept invading the area and for each of them the first year in the Colony was a trial. Versteeg's suggestion that the situation improved considerably in 1848 holds only for the first half of that year. Indeed, the winter had been mild and the spring was pleasant, but when Hendrik Van Eijk arrived in the Colony on 22 August 1848, he noted in his diary:

> Something depressed me very much: there were sick people in almost any house I entered, sometimes as many as five or six in one dwelling. Noxious (*kwaadaardige*) fevers were rampant to quite a degree. The people looked as if they had returned to the world from the realm of ghosts. It was just the unhealthiest season of the year when we arrived. . . . Many had died because of the struggles, privations, unusual climate etc., which brought on fever and other maladies customary in these parts and helped bring on their death. [The many hardships of the journey] and the harmful vapors rising from the newly cleared lands [were baneful] for the immigrant. . . .
>
> At our arrival the fevers were quite general, but the number of deaths was not especially large and in no way comparable to the mortality of the preceding year.[26]

In Zeeland, the settlers who had arrived that summer also started to suffer from the fever in the fall and all were in bed.[27] Indeed, the Michigan ague hit the Dutch settlers hard in 1848. During that year, Rev. Smith only reported ague, chills, and fever among his own family and none among the Indians or the Dutch. Judging from the long sufferings of his wife and his son, they had other underlying diseases.

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[25] L. C. Lillie, *Historic Grand Haven and Ottawa County* (Grand Haven, 1931).

[26] "Hendrik Van Eyck's Diary," in Lucas, 1:462-63, 474.

[27] "Mrs. J. H. Boone's Journey and Arrival of Tamme van den Bosch," in Lucas, 1:258-59. Mrs. Boone was Grietje van den Bosch, the daughter of Tamme van den Bosch, and wrote this account in 1910.

Figure 5. Drawing by J. H.—probably Anesus J. Hillebrands, a teacher in the Village of Groningen. It is a cartoon drawn at least five years after 1847 and may not be a factual representation of reality.[28]

Though Van Eijk stated that August was the most unhealthful season of the year, the fever and ague could have persisted well into October, as Smith knew from fall 1846. Van Eijk did not give details for the rest of the year, but it is likely that the situation worsened and matched the preceding years 1847 and 1846. The almost complete failure of the potato and turnip harvest added to the misery. Hoyt Post, however, did not write a word on the unfortunate situation in his diary.

1849. The rumor had reached other Dutch settlements (Sheboygan, for example) and even the homeland that their countrymen in the Holland Colony faced nothing but adversity, wailing, and misery. Therefore, the leading ministers decided to write letters home. Rev. Van Raalte wrote to his brother-in-law in the Netherlands in February 1849 about the health in the Colony:

> At present there are no sicknesses worth mentioning; during the last weeks of the past summer several were ill especially the new arrivals, however very few deaths. The Hollanders suffer because of their own fault; people do not take care of themselves, they often wear themselves out, and there are those who cannot nor are willing to restrain themselves in the matter of eating; they would often eat pancakes and pills at the same time.[29]

Rev. Cornelius Vander Meulen from Zeeland, who had arrived in 1848, wrote: "Where we live, people are healthy; we have had four deaths among the eight hundred souls during the past year; two adults and two children."[30] And Rev. Seine Bolks in Overisel added: "Our tables are crowned every day with the so nutritious wheat bread and the fat meat, so that the poorest folks here are better off than the richest of us in the Netherlands."[31] In the old country, people called such

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[28] Van Schelven Collection, 1937.1.5, Holland Museum Archives. Hillebrands came from Drenthe Province to the Colony in June 1848 and served as schoolmaster in Old Groningen. When the school burned down in 1855, he left for Cedar Grove, Wisconsin, where he worked as town clerk. In 1857 he returned to New Groningen and was the teacher in a new school there until 1870 when a conflict caused the closure of that school.

[29] Van Raalte to C. G. de Moen, Den Ham, 11 February 1849, in *The Condition of the Dutch Colonists in the State of Michigan, North America . . .* (in Dutch) (Amsterdam: Hoogkamer, 1849). The illness of the newcomers was probably not (only) the ague.

[30] Vander Meulen to C. G. de Moen, Den Ham, 20 January 1849. This letter, plus the one from Bolks in Overisel cited in n. 31, was published in the pamphlet cited in n. 29—a pamphlet that was meant to correct the unfavorable impressions about the Colony in the old country.

[31] Bolks to De Moen, 12 February 1849.

descriptions "bacon letters," suggesting that the message was to be taken with a pinch of salt.

Hoyt Post wrote in his diary that after a cold spring "The health of the village continues excellent, scarcely a case of sickness of any kind occurs; and although money is scarce and business is dull in cash matters, yet good feeling generally prevails and they are generally doing well." Rev. Dr. Isaac N. Wycoff from Albany reported about his visit to the Colony in June 1949, confirming Post's observation:

> People concluded from the dark color of the water [of Black Lake] . . . that the place of living would be unhealthy. . . . This sad idea seemed to have materialized during the first year, because the sick were not few and some died. But just as soon as the people became properly housed, this fear for sickness and death entirely subsided, for soon the colonists enjoyed an unusual average of health. During my visit I did not see or hear of a sick person, and this fact is the more conclusive, as this spring had been uncommonly wet, and all the lower grounds have more or less surface water upon them. The early sickness was possibly caused not by badness of climate or air, but to being exposed to the bleakness of the weather, and the want of nourishing food.[32]

However, the sick season had yet to start. The first child of the Van Raaltes to be born in the Colony, Maria, was recalled to have died at age one on 2 October 1849 (the death record, however, states that Maria was six months and died in August from dysentery), and subsequently, a new child was born who was given the same name. Hoyt Post testified in October 1849 that he "felt like a sickly creature . . . through the latter part of the summer and autumn."[33] Geesje Visscher-Vander Haar mentioned in her diary that her husband Jan Visscher had contracted the bloody flux (*bloedloop*) in 1849, and it took two weeks before he improved. And a newcomer, Hans Joachim Coster, wrote home on 12 September 1849:

> Barely arrived in the Colony, at the end of June, all three of us, I, my wife and child, we were afflicted by noxious bilious fevers. I had rambling fever. . . . It was very warm and in two month not a drop of rain had fallen; well water had assumed an unpleasant smell and taste through the intense heat. . . . Since two and a half month we are ailing; I always so strong and healthy, am a ghost, a walking skeleton. Yesterday and the day before, I was again bedridden with the fever. Three days ago my wife [Apoline] was in bed, and so badly that I thought it became her end. My child [Leopold] is getting somewhat better, but some days ago I got tears in my eyes seeing my little boy with such a yellow and consumed face. There are people here, who have suffered from fever for eight months, and the first year the Dutch came here, the mortality must have been terrible. I believe five hundred have died from the fever and the run [flux], which also this year bring about their devastations. During the time we are here, certainly some fifteen to twenty people have died in the few houses that were erected in the city. A month ago, a man, wife, and child arrived from the Netherlands; within 24 hours the father and mother had died from the run. Most people here are more dead than alive. Now it is improving a little because the whether has become somewhat cooler, but a few weeks ago, I guess all families without exception had one or two members fever ridden. But enough said. . . . Excuse me; the hand starts to tremble, the head is turning and the cold fever is setting in. . . .
>
> 3 February 1850: There are perhaps some four thousand souls in the whole area. For the rest

[32] *Sheboygan Nieuwsbode*, 8 January 1850, with a discussion following about whether or not Wyckoff had exaggerated the situation in Holland. See also Lucas, 1:452. Van Koevering in *Legends of the Dutch* rightly added in a note: "The season was too early for the newcomers' infestation."

[33] Hoyt G. Post, Diary, 13 January 1850 (transcription p. 4).

> it is here, as in all newly reclaimed areas, very unhealthy and fevers prevail almost through the year.[34]

The spirit of this part of the letter is akin to that of Hendrik Van Eijk written a year earlier, in which he mentioned people looking like ghosts, and it proves that the immigrants who arrived later, still had to undergo the initiating diseases of West Michigan. The description of the Coster child (yellow and consumed face) may have been symptoms of hepatitis A, but, on the other hand, this disease rarely afflicts children.

However, another threat was approaching: the cholera. The colonists knew and feared this disease from the epidemic during the thirties in the Netherlands. It had swept through Europe and the Netherlands, as well as America, leaving a trail of death. It became later known as the second pandemic. Geesje Visscher-Vander Haar recalled:

> The third summer we were here [1849] we got a letter from the old country that there was a cholera epidemic there. . . . Two of my uncles had died of it. . . . The cholera epidemic spread over many lands, and also in America, particularly in the big cities. Everyone lived in dread.[35]

Hoyt Post spoke of it already on 10 February 1849 in his diary:

> I fear the cholera will appear. . . . We earnestly hope we may be spared that dire affliction, which leaves in its wake mourning and desolation. . . . It is now lurking in St. Louis, and only waits for warm weather to break out with violence and sweep with death and devastation over our beautiful country. . . . I tremble for the inhabitants of our settlement when the judgment comes, living as they do, paying little or no regard to cleanliness, regularity in diet and habits, [their] houses half warmed or illy ventilated, sure to be one or the other; families living, sleeping and cooking in one room all their life, eating voraciously while food lasts and starving when it is gone. These I fear will form fit subjects for the cholera.

Indeed, this scourge reached the New Land again in 1849: the third pandemic. That summer people were frightened about outbreaks all over the country. The pestilence had broken out in Detroit in May of that year among recently-arrived immigrants from the Netherlands and an epidemic costing a thousand lives followed. Hoyt Post wrote in his diary: ". . . the cholera panic raging through the country badly, and in Chicago especially. . . . Everything looks dark and dismal, business is almost at stand [still]. Each man looked at his friend as though he expected to see him drop down in a spasm."[36] Though there was no remedy, the Grand Haven *Grand River Eagle* published a list of precautions against this disease in its issue of 6 July 1849 (see pp. 44-45). Geesje mentioned that there were rumors that some had died in the city (*stad*), but their anxiety was relieved when no more deaths occurred, "And oh, how thankful God's people felt."

Other contemporary testimonies and reminiscences show contradictory and possibly overlapping information about this impressive disease. Harm Schepers, who arrived summer 1849 with wife and four children and settled in Drenthe, reviewed the situation of all emigrants from his hometown Beilen, in a letter of 10 November. Virtually everybody was well. "We have been in good health at all times." Only one woman in the community died, probably of cholera.[37] This was

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[34] H. J. Coster, "From Another Box," *De Grondwet*, 5 March 1912. The next letter (a copy made by Van Schelven and found in the Van Schelven Collection) was dated 3 February 1849, but as the Costers had arrived in New York on 30 May 1849, the correct year would be 1850.

[35] Geesje Visscher-Van der Haar, Diary, 1869, Visscher Family Collection, T93-1321, box 3, Holland Museum Archives, translation p. 9. The quote is on a loose piece of paper inserted in the diary.

[36] H. G. Post, Diary, 3 August 1849.

[37] Herbert J. Brinks, "Harm Scheper's Letter," *Origins* 1, no. 2 (1983): 16-19.

the wife of Albert Weurding in Drenthe village, who died in November 1849; she was ill for a very short time. Time and course make it likely that she died of cholera. Her child died as well. Adriaan Keizer recalled the death of half a dozen people in Drenthe due to cholera.[38] On 11 December 1849, A. De Weerd wrote laconically:

> Our welfare and health are fine and that of our friends as well. The Lord has saved the people here from that avenging Angel [the cholera], and as people guess one person has died in the city and in the State's land [Drenthe] where Klaas Boer lives, three children of Hilberts Mast, and his mother, and a child of Harm Everts from Rouveen. Yes brother and sister, the Lord provided everything and saved us. When it became known that the illness was increasing, the President of the United States declared a universal fasting and thanksgiving day on the fourth of August. That was held indeed; moreover, we had so much draught in our County that we decided to ask the Lord for a blessed rain for the crops as well. . . . Yes, the disease decreased from day to day, according to the newspaper, and the harvest was great.[39]

Adriaan Hage recalled that after arriving in Milwaukee in 1849 an uncle died of cholera:

> After we had been two days in Grandville, the horrible disease, the cholera broke out among us and within 36 hours fifteen people were brought to their graves. This was a dreadful situation. My uncle was affected and a corpse three hours afterwards. We were not permitted to stay in the village. The Board built shanties for us on the shore of the Grand River. Three more persons died so that in only a few days death claimed eighteen persons.[40]

The *Grand Rapids Enquirer*, and in its footsteps the *Sheboygan Nieuwsbode*, mentioned, respectively on 1 August and 6 November 1849, a procession of people from Holland with their ox-wagons, coming into Grand Rapids to do shopping for the winter. "They are a very sturdy, thrifty people and look healthy." This is, of course, a biased observation, since the weak and sick would have stayed home. Rev. Smith and his family, together with his Indians, moved north in May 1849 because the Indians could not live near those filthy Dutch, to which they had sold their acres of land. Remarkably, Van Raalte bought far more quinine and Kina powder that year than in the year before (July-November was the fever and ague season).[41] With the settlement of Dr. C. D. Shenick in Holland (Groningen village), the task of being a medical pastor at least was taken from Van Raalte's shoulders.

New arrivals in July 1850 still caught the Michigan ague and typhoid within a few weeks. Jacob Van Zwaluwenburg witnessed:

> We were here but a few days [his brother Reyer was more accurate; see below] when the Michigan ague appeared in our midst, first attacking my youngest sister, who complained of having a strange chill. She wrapped herself in blankets, but to no purpose, and here in the heat of August, one after another, we were taken with that to us strange disease, ague. [42]

1850. The second schoolteacher in Holland, Miss Elvira Langdon, had to close her school during that summer, when the fever and ague season announced itself again: "It began to be shaky

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[38] "Adriaan Keizer's Drenthe's History to the Present," in Lucas, 1:262. Keizer's account was written in 1897. He did not specify the year, but says only "during the first years . . ." when talking about finding a name for the settlement.

[39] A. de Weerd to G. F. Schoenmaker, 11 December 1849, Collection 78, box 19, folder 15, ACC (with translation); *die slaande Engel* (that avenging Angel) was wrongly translated as "the black plague." The death records of 1849 show that one of the three Mast children died of dysentery.

[40] "Adriaan Hage's Experiences," in Lucas, 1:348, 350. It was published in *De Grondwet*, 20 February 1912.

[41] Van Raalte Collection 300, box 16, folder 9, ACC.

[42] Jacob Van Zwaluwenburg's account.

times and we shook. As cold weather came on we all got better."[43] There are few other entries on disease during this year.

Population Size and Death Records 1847-1850

The secondary and tertiary sources have created the impression that all the diseases the people in the Colony faced over some twenty-five years were condensed into the very early years. That is certainly not true, as will become clear in the next chapter on the later years, but I do not want to minimize the utter misery and despair about the many losses during the first years. To deepen the insight in what they went through, I have gathered information on the numbers of deaths and the ever-increasing numbers of immigrants in the Colony.

There is no record of the number of people that settled, or left the Colony, or of those who died or were born among the pioneers during the few early years. According to Van Koevering in his book *Legends of the Dutch*, the deceased ran into the hundreds. He gave no actual basis for this, but in his favor, it must be said that no other scholar has attempted to give a better-founded guess. This study is the proper occasion to put some figures together, including those of the size of the population in each of the early years. The lack of data makes a sound statistical analysis impossible. Only contemporary witnesses were considered and reminiscences were disregarded for this purpose. Bits of information were gathered from various sources and casual remarks in letters and diaries. For example, Cornelia Vande Luyster-Van Malsen wrote in December 1847 from Zeeland: "Our village already has 120 families." From that and the average household size a number of people can be estimated (see pp. 22-23).

There are several contemporary accounts that mention many, or very many, deaths. Two of those were more precise. The first is Andries Wormser of Burlington, Iowa, who quoted letters from immigrants, who apparently had visited the Colony:

> On board the steamboat we already heard about the unfortunate condition of Rev. Van Raalte's colony. Not only were there many sick people, but entire families had already died out, and that was confirmed here by several other reports. Someone also read to me from a letter that states that there were households in which four, five, six, and more persons had died. However, I wish to investigate this further, because I have even heard that last year between six hundred and seven hundred persons had died, and that there were not enough healthy carpenters to make coffins, so that corpses had been buried without coffins in the ground behind their houses.[44]

Andries did not pursue the investigation. Upon arriving in Burlington, he lost two daughters to scarlet fever. Utterly disappointed with America, he decided to return to the Netherlands with the remainder of his family. The information he got roughly described the deplorable situation in the Colony, as we know. But the hearsay figure of some 650 deaths in 1848 alone has almost inevitably increased in the passing from mouth to mouth. Persons like Wormser, who were critical by nature or by experience, would further enhance the drama, particularly because they were very indignant about Van Raalte, whose rosy letters had caused him to emigrate. Andries had never been a hard-line Seceder and was not inclined to cover bad things with the cloak of charity. Referring to Van Raalte's inviting letter (see p. 16), he sarcastically advised to take a coffin along to the Colony.

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[43] "Elvira H. Langdon's School Reminiscences," in Lucas, 1:395. The author (Mrs. Cooper) was Holland's first woman teacher, 1849-50. Her account was written for the Semi-Centennial celebrations in 1897. Hoyt Post recorded in his diary several strolls with Elvira during the summer of 1849; she boarded in the Post's home. Surprisingly, Van Raalte wrote in a letter of 26 September 1851: "They now intend to hire a woman teacher, because she is cheaper."

[44] Andries Wormser, St. Louis, to his brother J. A. Wormser, Amsterdam, 22 March 1849, in J. Stellingwerff, *Iowa Letters* (Grand Rapids: Eerdmans, 2004), 307-8.

The other critical person, Hans Joachim Coster, who had settled in Holland, had much more direct information. He estimated five hundred deaths from the start of the Colony to the date of his letter, 12 September 1849 (see pp. 17-18). He also estimated some four thousand souls to be present in the Colony (3 February 1850). As this is the only factual information available, the question is whether Coster's figures of 4,000 people and 500 deaths are trustworthy. He was not an average settler, and certainly did not belong to Rev. Van Raalte's flock, since he was Lutheran. His wife was from Poland and their son had been born in France. He seems to have been an active entrepreneur, who had seen more of the world than most of the other settlers. Initially, he wanted to start a brewery. However, it was made plain to him that beer was not to be brewed in the Colony, and lots were only sold under this condition: ". . . as Dominie Van Raalte opposes to it. He leads his people by the nose and exercises a papal despotism, telling them not to drink beer."[45] After ample consideration Coster started a cargo transportation business and a leather tannery on the eight acres he had bought. He came with $1,000 and requested a loan from the Dutch addressee of his letter, for another thousand, on security of his land and buildings, and 15 percent interest. A man with such shrewd abilities might well be trustworthy about the figures of population and mortality. However, other data suggest that the figures of Coster were exaggerated.

Hendrik van Eijk stated in his diary on 28 August 1848: "There are some 50 houses [in the city] and near 4,000 people in the Colony." The statement of Coster about four thousand people was written one and a half years after that of Van Eijk. As Holland had become a place of transit because of the hardships and the unhealthy situation, it is unlikely that its population had remained at a stable level of four thousand, but see below.

Why is it important to know the yearly size of the population? These figures form the indispensable denominator information to calculate the mortality rate in the Colony. Fortunately, there are also some concrete facts. In July 1847 Cornelia van Malsen wrote about one thousand people and more arriving daily; Rev. George Duffield stated in November 1847 that the Colony numbered two thousand souls.[46] But also many newly arrivals passed through, and most likely quite a number of them died while in the Colony in transition. That makes it virtually impossible to assess a reliable mortality rate for the first year. Only at the start of 1849 is a more reliable figure available: a population of about 2,500 souls was estimated, based on a census of 18 January, cited below.[47]

Census of the Colony 18 January 1849
Taken in connection with the circulation of the harbor petition.

States Land	*86 Houses*	*447 Souls*
Graafschap	*50*	*234*
Groningen & Zeeland village	*177*	*583*
Holland village	*69*	*378*
Holland neighborhood	*62*	*378*
Overisel	*20*	*165*
[Total]	*464*	*2185*

Persons at Grand and Kalamazoo rivers and other places at work, who belong here, would probably swell the population to 2500.

There are many reports and reminiscences about the phenomenon mentioned in this document, of young people leaving their families to make money elsewhere. Based on the above estimation, some 315 people were absent. It is remarkable that the number of people per

[45] The actual condition referred to production of hard liquor (Swierenga, personal communication).
[46] Letter to Michigan governor E. Ransom, 12 November 1847 (Jeanne M. Jacobson et al., *Albertus C. Van Raalte: Dutch Leader and American Patriot* [Holland, Mich.: Hope College, 1996], 46).
[47] Census of the Colony, 18 January 1849, Van Raalte Collection 300, box 2, folder 22, ACC.

household in Groningen plus Zeeland is much lower than that of Holland village plus neighborhood (3.3 versus 5.8). One may assume that more young folks of Zeeland were temporarily absent, though the logic of this difference between Holland and Zeeland is not obvious.

Rev. Isaac Wyckoff, who visited the Colony in May 1849, obtained the following statistics from a large company of assembled brethren:[48]

Villages	Houses	Families	Communicants
City plus environs	235	225	250
Groningen	30	30	63
Zeeland	175	175	225
Drenthe	45	45	79
Vriesland	69	69	125
Overyssel	35	35	80
Graafschap	50	50	100
Total	639 [not 630]	[629]	[922]

It is obvious that these two sets of data, collected four months apart, contain major differences per village. These may easily be explained by the ongoing building activity. Wyckoff calculated that there were on average five souls to a house, and from that he estimated a population size of over three thousand souls.[49] His addition of 630 is wrong (or perhaps wrongly transcribed from the original) and should be 639, which makes 3,195 people. The multiplication figure, derived from the above census is, however, not 5 but 4.7 persons per household. If that is used, the population would have been 3,003. The difference is inconsequential.

The official Federal Census one year later reveals, however, that 1,829 inhabitants were counted in the whole Holland Township, 1,006 males and 823 females, including the Coster family,[50] but that figure does not represent the whole Colony. The nearby township of Fillmore (including the villages Graafschap and Overisel, Allegan County) had 486 Dutch people. That brings the whole population to 2,315 individuals (not counting a few dozen Dutch in other Allegan towns). Assuming an underrating of 5 percent, a population of about 2,430 may be close to reality.

Soon after Wyckoff's visit, the summer sicknesses became rampant again, particularly among the newcomers, judging from Coster's letter. Lethal diseases kept contributing to the size of the population.

I am inclined not only to consider Coster's estimation of "perhaps some 4,000" (February 1850) an exaggeration, but also Van Eijk's "near 4,000" (August 1848). The year 1849 in particular showed a peak in Dutch immigrants to America, though the numbers arriving in the Colony are not known. This may explain why the information Rev. Wyckoff received from the "brethren," exceeded that of the harbor census. However, according to the Federal Census, the numbers soon dropped again, which indicates that many decided not to stay in the Colony but to settle in a safer place. The following overview may be composed:

[48] "Issac N. Wyckoff's Report," in Lucas, 1:451, 453. It was originally published as *Report of a Visit to the Holland Colonies* (New York, 1850).
[49] Lucas, 1:449-57.
[50] The Coster family does not appear in the census of 1860 and must have left the Colony after 1850.

Table 1. Population of the Colony and of Holland and Zeeland

	Colony	Holl. City	Zeel.+ Gron.	Source and Recalculation
July 1847	1000			Cornelia van Malsen 12 July 1847
Sept 1847			452	3 groups from Zeeland province
Nov 1847	2000		564	Z. based on 120 families; times 4.7
Fall 1848	"4000"			ref. Hendrik van Eijk)
End 1848	2500 (2185)	865 (756)	667 (583)	H & Z+G calculated on 1848 census
Mid 1849	3000	1104	963	calculated from W., houses times 4.7
June 1850	2315		885	including Fillmore
1851	2305	624	632	RCA souls (RCA Yearbook 1852)

The harbor census allows for calculating the numbers of people per house per village (4.7 as stated above). The Wyckoff statistics include the number of communicants (adults) per family per village. A relationship between the two figures per village could give some insight into the family constitution per village. Unfortunately, no clear picture arises, but it seems that Holland city and environments are aberrant. It had the least number of adults per family (1.1) and thus the number of children per Holland family was larger than anywhere else. This may have been related to a more excessive mortality of adults than in the other villages, which is confirmed by the building of an orphanage in the city. Rev. C. Vander Meulen remarked in 1849 that Zeeland suffered less than Holland did.

These population figures may now be compared with the mortality data and the cause of death. Assuming the number of inhabitants in the Ottawa and Allegan parts of the Colony on 1 June 1850 to be about 2,315 (the denominator), and using the figure of 89 deaths during the twelve preceding months (see below and Table 2), the mortality rate was 3.84 percent. If this same figure is applied to three seasons, 1847-48, 1848-49, and 1849-50 (summer to summer), with approximately 2000, 3000, and 2,500 people, we arrive at a prudently estimated three hundred deaths by summer 1850.[51]

However, judging from the several statements that the situation during the first year was much worse than during the years thereafter, the mortality rate of 1849-50 may have been more than 3.84 percent in the preceding years. Also, the above yearly population figures are rather imprecise: the population was all but stable, and after the first growth, the population shrank again because people moved on to other places. Moreover, the settlers surviving in 1847 must have developed some resistance against the prevailing diseases and did not contribute so much to mortality figures as the newcomers of 1848 and 1849 did. Thus, the supposed skewing of mortality rates was not gradual, but must have been rather errant.

Considering the statement of the local historian Van Koevering, that at least several hundred deaths must have occurred during the first few years, we will keep it to about four hundred until new information surfaces that allows for a more precise estimate. At least, the general conclusion is justified that the early settlers have not exaggerated in their reminiscences and oral histories in their later years about the terrible experiences of many families losing their loved ones.

The next item to dwell on is the cause of death of so many adults and children. The first official record about deadly diseases stretches over the period of 1 June 1849 to 1 June 1850. During those twelve months, the deceased of Holland and the other Dutch villages in Ottawa County, plus Fillmore, were recorded, with their causes of death. This was required along with the Federal Census of summer 1850. The total number of deceased during that year was eighty-nine, among which thirty-six were under five years of age (Table 2). This staggering mortality among

[51] If the mortality estimation of Coster (500) were as much exaggerated as his estimation of the population size (4,000 instead of 2,500), a more real mortality figure would be 312 deaths, which approaches my estimate.

children was a rather "normal" factor in the life of mid-nineteenth century America, particularly in settings where many people lived closely together.

Table 2. Data on mortality from the pre-census year 1 June 1849 - 1 June 1850
Source: U.S. Census of Mortality, Ottawa County, Michigan, 1850

Cause of death	Adolescents and adults	5-10 years	< 5 years	Total
Bilious fever	6	1	4	11
Burning fever	1			1
Chill fever			1	1
Congestive fever	1			1
Consumption	9	1	2	12
Summer consumption		1	2	3
Coughs			1	1
Cholera	6	1	1	8
Diarrhea			2	2
Dysentery	9	2	10	21
Inflammation	3	1	2	6
Jaundice			1	1
Measles			2	2
Accident	2			2
Suicide	1			1
Old age	5			5
Not recorded	3		8	11
Total	46	7	36	89/2315

Strangely, the Ottawa County census of 1850 lists only twenty-seven deaths in the preceding year, with about ten in Holland Township.[52]

The medics, Van Nus in Zeeland and Shenick in Holland, presumably had to certify the causes of death, but they may not have been present at many of the death beds. The diagnoses must thus have been deduced from what the families told them. Even if we suppose it to be rather reliable, it seems that some causes of death in other places of Ottawa County were not diagnosed in the Holland Colony, like lung fever, childbirth, scurvy, canker, fits, dropsy, cholera infantum, congestion, scarlet fever, and scroffela (scrofula is the term applied to tuberculosis of the lymph nodes in the neck). Doctors (and families) may have had their individual and more or less extended vocabulary of diagnoses, but more likely is a remarkable difference in professional knowledge among medical men.

Among the causes of death, it is difficult to link inflammation to a particular disease. The ague is not recorded at all in the census, though some particular fevers were mentioned. The bilious fever, consumption, and dysenteric fever were obviously the top killers in the Colony. Bilious fever, equaling the rotten bowel disease that coincided with the ague in summer, is in all probability the same as typhoid or enteric fever (see "Diseases," pp. 69-70). Standing out is the Nijsken family with a parent and two children having died of such fevers in this one season.

1849 was also the cholera year. It took the lives of six grown-ups and two small children. Among these, the Mast family in Zeeland suffered a lot. After having lost one of a set of twins to dysentery, the other twin died of cholera during the next months, as well as an older brother (or uncle) and a grandmother [Klaasje]. Also Francina Leenhouts and her three children died in July of this terrible disease. Whether these deaths were really due to cholera is only certain if the extremely

[52] <http://ftp.us-census.org/pub/usgenweb/census/mi/ottawa/1850/mortality.txt>.

short course of the disease is described. People may have easily considered other gastric diseases to be cholera as well. However, the occurrence of it during one season and the many resulting fatalities indicate that the diagnosis had been correctly made.

Apparently, the cholera could stay on, here and there. Some in the party of Paulus den Bleyker, on their way to Holland, got stuck in Kalamazoo with the disease in 1851. They were put under quarantine. His son and friend died, but Paulus survived and decided to stay in Kalamazoo.[53] One thing is clear: the disease did not spread to the rest of the Colony, possibly because of the isolated situation of several villages.

Records of the Holland and Zeeland populations and of births/baptisms and early burials in the old cemeteries are not available. The Pilgrim Cemetery in Holland had its first recorded burial in 1853. In Zeeland about a hundred people were buried in the village between 1847 and 1852, of whom only eighteen names remain known through tradition.[54] In his letter of early 1849 Rev. C. Vander Meulen stated that they had had four deaths among eight hundred souls during the past year. Though the population size he mentioned is correct (according to the 1850 census, Zeeland had a population of 885), four deaths in one year is difficult to reconcile with a hundred in five years.

The reconstruction of the medical history of the first years in the Colony and the attempts to quantify disease and death in the population allow for some general considerations. There are a number of factors that may have affected the early colonists' health in general:

1. The disillusionment of not arriving in a *stad* (city) after a dangerous crossing and a tiring travel of one to two months. They had passed endless forests only to arrive in a similarly inhospitable place. People started showing signs of indifference.
2. The exhausting hardship of felling giant trees, of clearing to sow, and of making log cabins and log roads.
3. The scarcity of money and the abundance of rodents, leading to insufficient or imbalanced nutrition.
4. The poor and crowded housing conditions and the ignorance about hygiene.
5. The incessant hordes of bloodsucking insects and itch-causing plants which they had to endure during the summer months.

Certain diseases came and went with the natural change of seasons, as the settlers soon learned,[55] while others struck also when living conditions had improved, or came in unpredictable waves. The adult settlers must have known some of these from the old country (cholera, scarlet fever, measles), or even brought them along (smallpox). Some diseases were known as contagious; others were just in the air and one was "at the mercy of God." Even the few medical practitioners did not know how to deal with these threats in a preventive way: a theory of germs only began to be known a half century later. Though some may have heard about scurvy as a deficiency disease, there was little they could do to escape the consequences of corn bread and corn coffee as the daily food for several years.

A disease like the ague was completely new to them,[56] and all the newcomers just had to go through it. This "fever & ague" is not much heard of after 1850. Had the population gotten used to

[53] Herbert Brinks, "Dutch in America: Speaking of Letters," in *For Food and Faith: Dutch Immigration to Western Michigan, 1846-1960*, ed. R. Swierenga (Holland, Mich.: Holland Museum and Van Raalte Institute, 2000), 31-54.
[54] Zeeland Historical Society Archives.
[55] Even in 1879, the *Holland City News* spoke about "the close of the sickly season last fall."
[56] Though this disease occurred frequently in the Dutch province of Noord-Holland, relatively few immigrants came from the area north of Amsterdam.

this yearly fever season, or did the people gradually become immune, with only minor fevers, not worth bothering about too much?

The commonly-held belief that air from swamps (miasmata) caused diseases prevailed among early and late nineteenth-century pioneers. Bernardus Grootenhuis, for example, described the general misery in 1849:

> In the first and second, and also in the third year, we did suffer our greatest trouble by sickness and death, caused by the washing out of rotted trees and leaves etc. from the swamps round about. This contaminated the fresh air, and was a great detriment to our health. The small clearings in the dense woods were engulfed by heavy fog. The Americans warned us that this air was highly harmful to health and advised us, not to remain out of doors after 5 or 6 o'clock. This was hard to do. Family after family was stricken by miasmatic fever, dysentery, nerve sinking fever, and a number of other sicknesses.[57]

Living so close to the swamps, the only thing they could do was to fill them up with soil from the uplands. There is no record that the Hollanders did it, however, to fight diseases or vapors; their goal was to claim land for culturing crops.

Later writers about the history of the Colony made judgments on what they knew about the origins of diseases. For example, Anna Kremer Keppel wrote in 1922: "Now as to the charge that the region was unhealthful and responsible for the sickness and death of the first year or two, it is far more just to charge the condition of that first year to malnutrition, the lack of proper sanitary precautions and the actual exhaustion of vitality due to the hardship of the long and difficult journey, than to any unhealthful climatic condition."[58]

Despite the heavy toll of lives, the sufferings, and the poor living conditions, the people felt blessed and their grief made way for hope. Lost loved ones kept their place in memories through oral history and remained present in the common history of the settlers, as Revs. Van Raalte and Vander Meulen testified during the twenty-fifth year celebrations of Holland and Zeeland.

5. The Later Years

After 1850, the Holland Colony settled down, housing improved, and agriculture and small industry was started and thrived, as well as trade. Most importantly, food became varied. On 26 September 1851 Van Raalte wrote to a Dutch cleric who had received a call from the Graafschap church:

> The people are generally well, and we have been spared with illness here. During or after the hottest part of the summer–a little over six weeks—, there is always somewhat of a tendency among the people to feel choleric. This is not dangerous, however, if one follows the hints of nature on time. Moreover, it can be warded off with a few remedies. This summer there has been very little of it, hardly worth mentioning. The vigorous multiplication [in the community] is proof of the people's good health. The moving, which gives a great shock, because of the change of climate and water etc., often has a bad effect on one's health if one is not careful, if one travels too cheaply, or if one has to do without the comforts of life, especially if one travels in the heat. At first, when this area was still completely wild, the people suffered much because of the innumerable inconveniences and ignorance, etc. However, some families did not suffer at all from the change in climate, while others suffered much. I have certainly learned, more than ever before, that illness and health are in God's hand. My family was not only spared, but it even increased, and, yet, we

[57] B. Grootenhuis, *Our History*, T88-071, Holland Museum Archives.
[58] Anna Kremer Keppel, *The Immigration and Early History of the People of Zeeland* (Zeeland, Mich.: Zeeland Record Press, 1922).

> had much to endure, and we were not used to a hard life. Usually, however, the change in air and water and the hot temperature give one a shock at first, but this is not at all dangerous if one does not intentionally neglect oneself. Medical help is available here, and will in all probability be increased.[59]

Again, this rather rosy story is in fact a profound misrepresentation of reality. Moreover, the term choleric certainly did not indicate any disease (nor cholera in particular), but refers to an imbalanced state of body and mind. The Dutch word zwartgallig (black bile) indicates that the old idea of imbalance of the humors (body fluids among which is black bile) was still the generally received opinion on the cause of diseases.

In the years that followed, the problems were not over, but presented themselves in different threats. In between many quiet years, incidental epidemics occurred, all of them recognizable to an extent, but nothing like the first years. The first one, in or around 1858, was an epidemic of dysentery, an intestinal disease known by its fever and bloody discharge. The second epidemic was of diphtheria in 1868, and the third one was the smallpox in 1872. Of each epidemic some cases are presented to illustrate the fact that the inhabitants were more or less defenseless facing such threats. The reader is referred to Appendix A for more details of the diseases (p. 52ff.).

Outbreaks

Geesje Visscher mentioned in her diary that her eleven-month-old baby Maria was stricken with bloody flux in July 1856. It lingered for twelve days. Despite the medicine given by the doctor, the fever became so bad that all hope was cut [lost]. The child lost consciousness, and died in agony. Three years later, two other children of hers got the bloody flux in 1859 and, though many people, young and old, died at that time with the disease, her children recovered.[60] However, Van Raalte wrote on 11 July 1859: "Here there has been no other sickness of any consequence or importance."[61] This is remarkable, since the Van Raalte and Visscher families were close friends.

The dysentery struck hard in Zeeland village. Jacob Den Herder recalled in 1897: "The most serious general calamity was in the fall of 1856 when a dangerous disease of bloody flux (Dutch: *bloedloop*) bore many children and a few aged people to the grave."[62] And Dominie Vander Meulen recalled in 1872: "In 1858 we were visited with severe sicknesses, especially *bloedloop*, because of which many sank into the grave, especially of the young generation. In some houses two and three children were torn away. Out of 123 children in one school district 45 died."[63] Also Jacob Dunnink from Beaverdam wrote about this event: "The past summer [1858] we also had an epidemic of contagious disease. Mostly it affected the children—blood run and gall fever. Many people died from it. In some families as many as five. So far we and our neighbors have been spared."[64] Kornelis Jacob Swartwolt who arrived in 1848 in the Colony and married in 1852 in Zeeland, maintained a diary. This gives some dramatic details of this disease.[65]

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[59] Van Raalte to Helenius de Cock, 's Hertogenbosch, 26 September 1851, Van Raalte Collection 300, box 9, folder 9, ACC. The statement that his family was spared and had increased is not quite true: his first-borne child in the Colony, Maria, died at age one on 2 October 1849 (the death record states that Maria was six months when she died in August from dysentery); subsequently, a new child was born and was given the same name.

[60] Geesje Visscher, Diary, translation pp. 9, 11, and 14.

[61] Van Raalte Collection 300, box 9, folder 13, ACC.

[62] Jacob Den Herder, "Sketch of Zeeland's History," in Lucas, 1:211 and 224 (my translation).

[63] Cornelius Van der Meulen, "Address at Zeeland, September 18, 1872," in Lucas, 1:180, 185.

[64] H. Brinks, *Dutch American Voices: Letters from the United States, 1850-1930* (Ithaca, N.Y., and London: Cornell University Press, 1995), Letter, 18 January 1859, p. 42.

[65] *Life Journal of Kornelis Jacob Swartwolt*, trans. H. Van der Werf (self-published: F. Haan, 1998), 24, 26-28. The details are slightly condensed.

> The child Jacob [a twin] got sick with what they call in Dutch *Grijze Loop* [Gray Run]: the blood runs out of the rectum (*endeldarm*), it is very painful; this is an infection in the bowels. After being very sick for three days, he died November 1854, seventeen months old.
>
> His twin brother Menno got the same sickness in September 1858. It got progressively worse. He died October 1858, after intense suffering. [His sister] Kornelia got it and she died after 3 days of intense suffering, 2 years old, September 1858. Mother Trijntje went to pieces; she could not handle it. She blamed the doctor and said that he had given her poisonous medicine. Those thoughts had also gone through my mind, but I did not dare to let others know. I contracted the same sickness, but got over it.
>
> The last child, new Jacob, got it too [nine months old], and was very weak. His little body had deteriorated so badly that we had a hard time changing his diaper without causing him much pain. He did not have enough strength to eat anything; all he could do was suck a little milk from his mother's breast along with some medicine. Mother did not have much milk to give because she was very weak also. Every three days I would walk to Doctor Van den Berg in Drenthe. Wrapped in a towel I would take along part of little Jacob's bowel movement, until the doctor said that he was healed. On the way back I would always take the medicine with me. After a while we could give him food with a little more substance. Slowly he was completely healed from that sickness.

The next epidemic occurred in Zeeland village. After the children had had the measles during summer 1868, their father Jacob Den Herder recalled:

> In the second week of October a far more serious malady attacked our children, namely diphtheria. Very soon four of our little girls came down with it. We had no idea that it was so epidemic and dangerous as it soon proved to be, not only for the children, but very soon our old Aunty was severely attacked by it to such a degree that she died of it in four days time. . . . Only three days later our dear oldest daughter Cornelia who also had gradually grown worse: she was very calm and patient to the last and conscious to the last, which came on October 19th. . . . . Three more were still affected with that disease. Happily with one of them the poisen [!] passed down into her legs and worked out in sores so that she soon got over it; and the other two we supposed were also nicely improving but Alas! Our little girl Johanna of 8 years old . . . woke up in a disturbed mental condition and told her mother . . . that she too would die today. A couple hours later while an unusual griping pain made her to cry. . . . Gradually the fits of pain became more and more intolerable and oftener. . . . Her hands and feet became cold, and rubbing with brandy was of no avail . . . and without uttering any sound she fell asleep in Jesus.
>
> But the angel of death had still another death warrant for us . . . for on the following November 5, 1868 our dear little girl Josine 6½ years old had to leave us: the same terrible disease had also taken hold of her. . . . First her bowels were affected, after a few days it moved to her spine . . . now hopeless as to her lower limbs. . . . I went [home] and found my dear wife drowned in tears sitting on a chair with the lifeless child on her lap.[66]

Such accounts reflect the dramatic events occurring in families. The many prayers and precious farewells were left out, to avoid more maudlin sentiments. The description of the diphtheria poison of one of the daughters causing sores in her legs can be explained as cutaneous diphtheria, which was particularly important for the dissemination of pharyngeal diphtheria.

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[66] J. Den Herder, *Life Sketch of Myself,* Den Herder folder, Zeeland Historical Society Archives. Fragments were published by John H. Yserbaard as "Jacob den Herder: From Dutch Immigrant to Town Banker," *Michigan History* 49 (1965): 249-59.

Finally, in 1872 the smallpox pandemic hit. The diary of Kornelis J. Swartwolt demonstrates the devastation it caused in his family, but also the measures that were officially taken to restrain the spreading.

> In our family it started with our twelve year old Menno. He was sick for only six days when he died, what a lot of sufferings in those six days, even though the pox did not come to the outside [16 September 1872]. Shortly thereafter Jantje got the fever in her nervous system. The doctor said, that is how it starts. Within four days she died [30 September]. You cannot imagine what we felt as parents, seeing and hearing the pain that racked their bodies day and night. Then towards the end they became unconscious. . . . My wife Trijntje, Jacob, Kornelia, Gezina and baby Derk got the pox, everyone but me. My wife, Alberdina and little Derk had it the worst. If you have never seen small pox, you can not imagine the severity of this disease and the suffering associated with [it]. Oh! What a situation, all these sick people in one room: three beds and one crib. The doctor once said it is like a hospital; he gave them all medicine and kept a very close watch on each one, and they were treated according to their ages. The doctor came faithfully to our house every other day. . . . My wife was taken from my side on 11 October. The sick children not fully grasped the situation we were in. They had enough problems with their own suffering, because the small pox is a sickness that gnaws on the inside and the outside of the body and is very painful.
>
> Baby Derk died on 20 October. All four bodies were put in a large wooden box and sealed with the health department warning seal as was required by the health department and set them outside the house. The next day some neighbors and a person from the health department took the box to be buried. They were not allowed to come in the house; we could not even open the door to speak with them.[67]

Reading such accounts, one wonders why there are not more references to these epidemics.

Putting the events in West Michigan (and Iowa) into more of a nation-wide perspective, the following overview (Table 3) is instructive. The several influenza epidemics, of 1847-48, 1850-51, and 1857-59, have passed unnoticed, which did not mean that the Colony was left untouched (see below and figure 6). The cholera epidemic of 1849 and the smallpox outbreak of 1872 in Zeeland coincided with the national epidemics. Otherwise, it seems that epidemics could die out and appear locally some years later. The several epidemics of yellow fever did not reach the northern States, except once in Philadelphia in 1790.[68]

[67] "Life Journal of Swartwolt."

[68] J. N. Hays, *Epidemics and Pandemic: Their Impacts on Human History* (Santa Barbara, Calif.: ABC Clio, 2005).

Table 3. Major epidemics sweeping through the Nation, compared with local outbreaks in the Dutch colonies in Michigan and Iowa

1841	Nationwide (South!)	Yellow Fever
1847	**Holland, Michigan**	**Ague and Typhoid**
1847	**Holland, Michigan**	**Smallpox, number deaths unknown**
1847-48	Worldwide	Influenza
1848	**Holland, Michigan**	**Ague and Typhoid**
1848-**49**	N. America, New York, Grand Rapids, **Holland Colony fringes**	**Cholera** (Third pandemic), Detroit 1,000 deaths (said to be carried by Dutch via Mississippi)
1849	**Holland, Michigan**	**Ague and Typhoid**
1849-50	New Orleans	Cholera: 3,000 deaths
1850	**Holland, Michigan**	**Ague and Typhoid**
1850	Nationwide	Yellow Fever
1850	Alabama, New York	Cholera
1850-51	North America	Influenza
1851-52	Coles Co., Illinois, Great Plains, and Missouri	Cholera
1852-53	Nationwide	Yellow Fever, New Orleans: 8,000 deaths
1854	**Pella, Iowa**	**Cholera, 16 deaths**
1855	Nationwide	Yellow Fever
1856	**Pella, Iowa**	**Small pox, few deaths**
1857-59	Worldwide **Holland, Michigan**	Influenza: one of the greatest epidemics **Peak mortality in Holland**
1858	**Zeeland, Michigan**	**Dysentery**
1860-61	Pennsylvania	Smallpox
1865-73	Philadelphia, New York, Boston, Baltimore, Washington D.C., New Orleans, Memphis, Mississippi, Ohio Valley, **Holland, Michigan**	Cholera (Fourth pandemic in U.S. 1866), Smallpox, Typhus, Typhoid, Scarlet Fever, Yellow Fever **Peak mortality in Holland, Mich., 1866-1868**
1868	**Zeeland, Michigan**	**Diphtheria**
1872	Worldwide; **Zeeland, Michigan**	**Small pox**
1873-75	North America and Europe	Influenza

Population and Mortality

The population of the Colony, with its major concentrations in Holland and Zeeland, became less primitive after 1850. However, U.S. Census mortality reporting is vastly underreported, and the statistics, therefore, are still not fully reliable.[69] The population was growing, and judging from the RCA membership records of 1851, the congregations in both townships were almost equal in size. But after 1854 Holland grew faster than Zeeland (see Table 4). This may have been due to many different situations, like an uneven rate of new settlers and increased trading and shops in

[69] This has been shown by researchers of the 1850 through 1880 censuses (personal comment by Robert P. Swierenga to the author).

Holland but more stable farming in Zeeland, and so on. The conditions of health, disease, and mortality may also have played a role.

Table 4. Population of the Colony and of Holland and Zeeland

	Total Colony	Holland city	Zeeland village	
1850	2315		885	
1851		624	632	(RCA records)
1854	2662	979	912	
1856		1418	1154	
1860	5197	1991	1466	
1864		2777	1693	all Holland figures orig. tp
1867*		4985		ct 2269 + tp 2716
1870		4678	2343	ct 2324 + tp 2354
1874		5185	2576	ct 2469 + tp 2716

*As from 1867 the Holland figures are composed of Holland city and Holland Township.
The total figures of 1850 and 1860 comprise Fillmore (Allegan County).[70]

The above cases of outbreaks of infectious diseases (dysentery in 1858 and diphtheria in 1868) affected Zeeland more than Holland. Thus, mortality records could reflect the slowdown. Sources, illustrative of general mortality, are the records of sextons. Unfortunately, a classification of the numbers of burials per year in the Zeeland cemetery is not available. Numbers of burials per year are available only of the Pilgrim Home Cemetery in Holland, which had its first burial in 1853.[71] A remarkable peak occurs in 1857, with a mortality three times the normal numbers (see Figure 6). History of epidemiology teaches us that during 1857 one of the biggest epidemics of influenza swept the world (see Table 3). The excessive mortality of 1857 (and less so in 1858, the year of the dysentery outbreak in Zeeland) is likely due to this event.

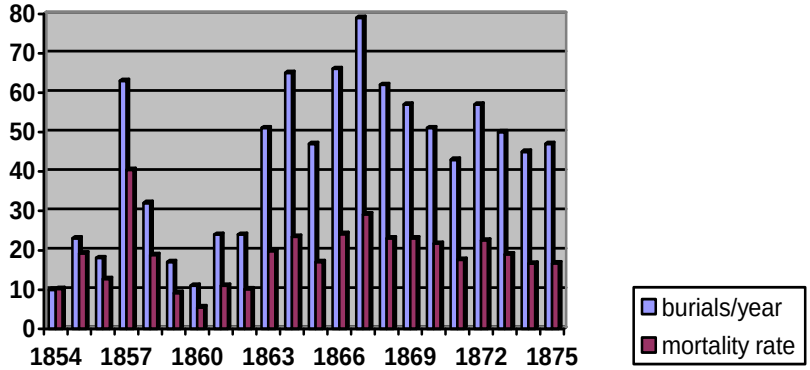
From 1863 the numbers of deaths increased steadily until a peak was reached in 1867. This latter may represent the natural mortality of the older cohort of the immigrants, but again the period 1865-73 witnessed epidemics of several diseases in North America. And Zeeland had its diphtheria problem in 1868.

A percentile representation gives a more realistic insight, but only the numbers of Holland city, and Zeeland Township for certain years, are available. Assuming a stable population with no major waves of new immigrants and natural population dynamics, extrapolation of the population size in the lacking years is acceptable. These, and the above numbers of burials, give an idea of the mortality rate (in the figure ten times the percentile to match the vertical scale, i.e. permillage). Both absolute numbers and mortality rate indicate the peak mortality in 1857 and 1867, but the latter in the peak years around 1867 is less dramatic because of the population increase. The rate seems to stabilize during the sixties and early seventies around 2 percent. The suggestive relation with epidemics in the sixties is thus less clear.

Compared with the Federal Census of 1849-50, those of 1859-60 and 1869-70 show completely different pictures in regard to numbers and causes of death. For the year 1859-60, Holland had 16 deaths, Zeeland 14, and Fillmore, Laketown, and Overisel 12 deaths (Table 5). With a total population of 5,197, this leads to a mortality rate for the whole Colony of 0.81. For the year 1869-70, Holland had 14 and Zeeland 11 deaths. It is remarkable that the number of deaths in Holland for the 1859-60 census is similar to the number of burials, but those of 1869-70 differ largely: 14 deaths against about 54 burials. The logic explanation remains to be detected.

[70] Data from 1854 onwards were collected by Robert P. Swierenga, Van Raalte Institute.
[71] Cemetery records and sextons' records of Pilgrim Home Cemetery, Herrick Public Library, Holland, Mich.

Figure 6. Absolute numbers of Holland burials in Pilgrim Cemetery 1853-75



The number of deaths in 1859-60 is way down compared to the 1849-50 census; also the excessive mortality of small children is somewhat less. Consumption is still the major cause of death, and more heart and liver diseases, cancer, bronchitis, and piles (hemorrhoids) can be seen, with much less dysentery and diarrhea (Table 5). 1870 shows a similar picture (not shown), reflecting a well-established stability: typhoid fever replaced bilious fevers, indicating the advancing knowledge in medicine. The four causes of cholera among babies must be considered as cholera infantum.

Table 5. Data on mortality from the pre-census year 1 June 1859 - 1 June 1860
Source: U.S. Census of Mortality, Ottawa & Allegan Counties, Michigan, 1860

Cause of death	adolescents and adults	5-10 years	< 5 years	Total
Apoplexy	1			1
Bilious fever	1			1
Burning fever*				0
Cancer	2			2
Chill fever			1	1
Childbirth	1			1
Congestive fever*				0
Consumption	6		2	8
Summer consumption*				0
Bronchitis	1			1
Cholera*				0
Diarrhea			1	1
Dysentery			2	2
Fever	2		1	3
Heart disease	1	1		2
Inflammation*				0
Jaundice*				0
Liver disease	2			2
Measles			2	2
Accident	2			2
Suicide	1			1
Syphoric fever	1			1
Old age*				0
Piles	1			1
Unknown/stillborn			7	7
Not recorded	1		2	3
Total	23	1	18	42/5197

* Cause of death in 1849-50.

6. Medical Care and Cure

Several immigrants from the Netherlands, Hendrik Barendregt (1846), Roelof Sleyster (1846), and Geert Heerspink (Allegan, 1850) recommended to those considering emigration to take Harlem Oil (*Haarlemmer Olie*) along. This was a universal remedy, famous in the old country for all sorts of intestinal ailments. Sleyster listed several remedies in a letter from Waupun, Wisconsin, to Rev. Brummelkamp in his home country: "Everybody should take house remedies along, especially Harlem Oil, chamomile, elder and linseed flour. No need to warn anybody for the evening air; that is healthy here, wherever I have been." (For explanations about the drugs mentioned, see Appendix B, p. 73ff.) Sleyster checked the Holland Colony out in spring 1847, found it rather inhospitable, but apparently at that time there were no sick yet. He may have inquired whether people had followed his advice. Anyway, he decided not to stay.

Other passersby were the occasional medicine peddlers from outside, letting blood and selling cinchona powder, brandy, or quack remedies, and disappearing without any follow-up, but with a good profit. One of those prescribed rhubarb and the outcome was pitiful.[72] Thus, later that year, Van Raalte tried in vain to invite qualified doctors from Kalamazoo, but Dr. C. B. Goodrich from Newark responded to his urgent request and made visits. Van Raalte paid him out of the community fund. This doctor, whom Rev. Smith earlier had called in for emergencies, was a lot more trustworthy than those quacks, but whether any of their medicines was apt is questionable, judging from Rev. Smith's diary. Moreover, their infrequent visits did not secure regular attendance of the sick.

So, when the stock of family remedies was exhausted, or did not give the results hoped for, Dominie Van Raalte was called on as pastor and pharmacist, just like Rev. Smith. Most likely, the occasionally visiting doctors replenished his stocks. Dominie Vander Meulen, who arrived in the summer of 1848 and settled in Zeeland, did not need to do much doctoring, because that village had Dr. Van Nus to care for the sick. Yet, the dominie was called a doctor (among other things) by two members of his flock: "He was our doctor, dominie and father. I shall never forget how good he was to us, when we all were bedridden."[73]

Dominie Seine Bolks, who arrived in 1848 and started the village of Overisel, had taken the effort to study some medicine in the year preceding his exodus, and served his people (among others) as a physician (Dutch: geneesheer).[74] Likewise, it is told of Dominie Maarten Ypma, who arrived June 1847 in the Colony and founded Vriesland, that his knowledge of medicines had saved many people from death. Bernard Grootenhuis recalled the caring activities of Rev. Van Raalte in general terms:

> In the first days we had no doctors. Everything was done by Rev. Van Raalte. "Night and day, in all kinds of whether, he was busy giving aid spiritually and for the health of the body. He carried the people in his heart and did all that he was able to comfort and relieve sorrow and pain.[75]

Van Raalte held office hours in his house and dispensed common medicines. In 1872 he recalled:

> Mid-summer, our ordeals rose to the highest peak, with the whole settlement becoming a sick bed of very many, despite the enlistment of (Amr.) doctors at general expense. Very

[72] "Engbertus Van der Veen's Life Reminiscences," in Lucas, 1:497. They were originally published in 1915 in pamphlet form.
[73] "Cornelius van Loo's Zeeland Township and Village," in Lucas, 1:249—first published in 1892. "Mrs. J. H. [Grietje] Boone's Journey and Arrival of Tamme Van den Bosch," in Lucas, 1:258.
[74] "James de Pree's Reverend Seine Bolks," in Lucas, 2:374, 381. Written in 1897.
[75] B. Grootenhuis, *Our History*, trans. P. T. Moerdijk, T 88-071, Holland Museum Archives.

> many died, particularly because of [bad shelter, suitable food, and heavy work]. My house was reshaped into an apothecary's bitter-kitchen (or bitter-cookery).[76]

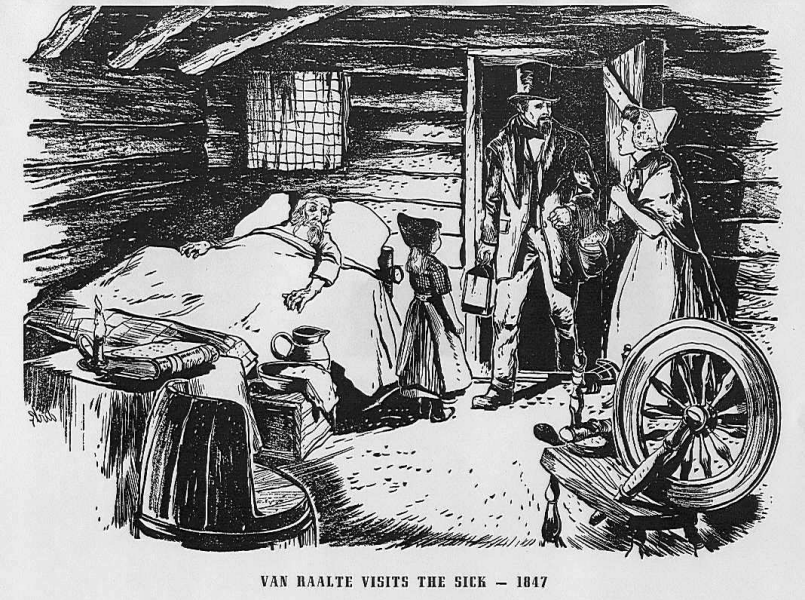
It is not clear what type of medicine was "cooked," but it is probable that tonics of bitter herbs and Peruvian bark or kina powder were prepared. Engbertus Vander Veen recalled that:

> Our never-to-be-forgotten Dominie van Raalte . . . comforted the sick. Every morning he received patients in his house, administering medicine with a tablespoon. Around him were bottles of quinine, blue pills, and rhubarb. The log kitchen served as a waiting room; the sick sat on a long board bench. In turn they went into the room where the dominie dispensed his medicines and gave advice, and this went on day after day.[77]

Two other primary sources inform us about Van Raalte giving medicine.[78] Geesje Visscher-van der Haar, a close friend of the Van Raaltes, recalled: "[Summer 1849] I and my husband got sick [probably the bloody flux] but Rev. Van Raalte gave us medicine and with Gods help we recovered soon." And Jacob Van Zwaluwenberg stated: "Dr.[!]Van Raalte came over once or twice and prescribed quinine [for the ague]" (July-August 1850).[79]

Figure 7. Pastoral or medical?

One of a series by Dirk Gringhuis, 1955.

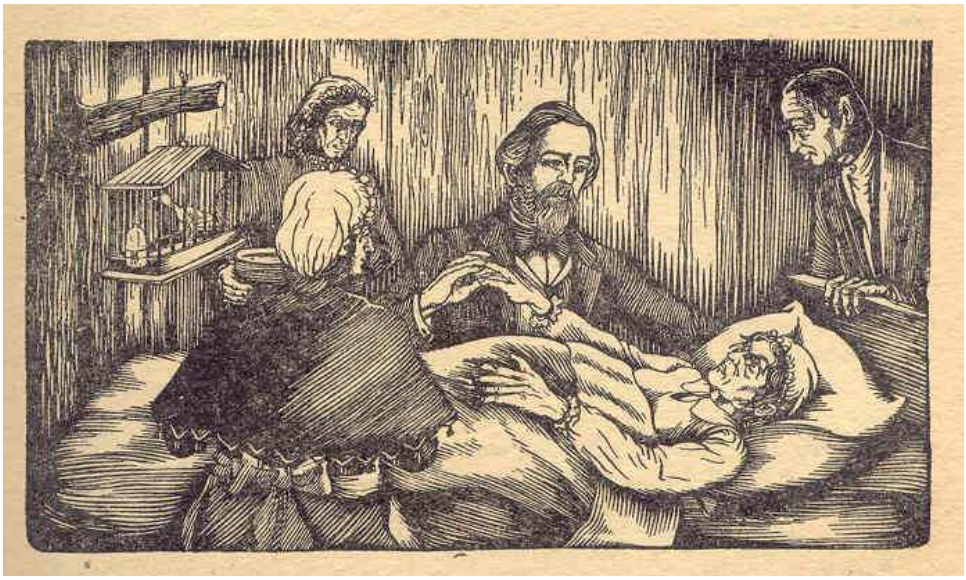


Apart from what he could get from the occasionally visiting doctors that first year, Van Raalte also bought medicines from L. D. Putman in Grand Rapids, but apparently he had difficulty paying his bills. He received a letter dated 12 August 1848: "Above I send you amount of your bill for medicine got by Rev. Dr. Penny [Hyma misread the handwriting; it is Rev. Wm. Ferry of Grand Haven] in October last [1847]. As we are much in want of funds at this time you will confer us a

[76] Van Raalte Collection 300, box 2 folder 2, ACC. (These are drafts for his speech at the Ebenezer celebration on 18 September 1872. See also Lucas, 1:487; 2:490.
[77] "Engbertus van der Veen's Life Reminiscences," in Lucas, 1:497. Published first in pamphlet form in 1915.
[78] Geesje Visscher, Diary, translation p. 9.
[79] Jacob Van Zwaluwenburg's account.

favor by sending in the amount as soon as convenient." Putman stated that he had received the payment in full on 5 October 1848.[80]

Figure 8. Rev. Van Raalte attending
From P. J. Risseeuw, Landverhuizers *(1946); ill. Willem Dupont.*



Van Raalte also ordered medicines from an East Coast drug company. The factory B. H. Smith & Co. advertised their sugar-coated pills as good remedies for fever and ague, blood flux, and all bilious ailments in *De Hollander* of 20 August 1852. It took advantage of Van Raalte's letter, using it as an endorsement for their product. Contrary to the many other ads on medicines, including B. Smith's sugar-coated pills, this one appeared only once. It is likely that Van Raalte objected to having his letter used in a commercial newspaper advertisement.

> [To Dr. Benjamin Smith] Dear Sir! I am a Dutch minister, arrived in November 1846 in this country. In our settlement here are many immigrants. Our difficult path had made many of us sick. We expect more sickness, since the danger is great and we have no doctor. However, we must thank God that we had your good "Indian Vegetable Pills." These are difficult to come by here. We request you to send us right away 60 boxes. I am well known to the rev. sir [Thomas] de Witt, minister at New York.
>
> I am, sir, your servant A.C. Van Raalte.[81]

This letter must have been written in the early summer of 1847, because Dominie Henry P. Scholte recorded the following after arriving in May of that year: "In New York I read in one of the newspapers among the many letters recommending a certain brand of pills, also a letter from the Holland Colony, in which a new order was placed [for such pills], and I got convinced that people there were faced with diseases and indispositions." It made him suspicious about the positive description of the Michigan settlement by his colleague Van Raalte and encouraged him to proceed towards Iowa.[82]

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[80] Albert Hyma, *Albertus C. Van Raalte and His Dutch Settlements in the United States* (Grand Rapids: Eerdmans, 1947), 162-63.
[81] Dr. Benjamin Smith Barton (1766–1815) was a naturalist, physician, and lecturer at the University of Pennsylvania, and was knowledgeable about Indian matters. Obviously, Van Raalte did not know that Dr. Smith had died long ago.
[82] H. P. Scholte, *Eene Stem uit Pella* (Amsterdam: Hoogkamer & Comp., 1848), 5.

During the ague months of 1849 (June-November), Van Raalte bought from suppliers in Holland city: *kina* powder (Peruvian bark) from Plugger's store and quinine from Post's general store, both medicines in considerable amounts, but much less in the years before and after.[83] Other sources that are specific about his stock of medicine are secondary or tertiary and mention also pain pills, sleeping pills, calomel, quinine, rhubarb, arnica, borax, and a few others.[84] Only calomel, quinine, and rhubarb are sure to have been in his medicine stock.

Not only did the Reverend extend care to his flock, but quite naturally the Van Raaltes also were concerned about the health of their children. At the beginning of the Civil War, the two Van Raalte sons voluntarily joined the Northern Army. Their mother was concerned about their health and wrote: "Whenever you have too much discharge, then you must not ignore it, but report it to the Doctor, please, dear children, because it may become dangerous, these times."[85] Particularly revealing is a letter from father Van Raalte to his son. Dirk had just enlisted in Kalamazoo as a medical orderly in the Michigan 25th Regiment Infantry under Captain William E. Dowd.

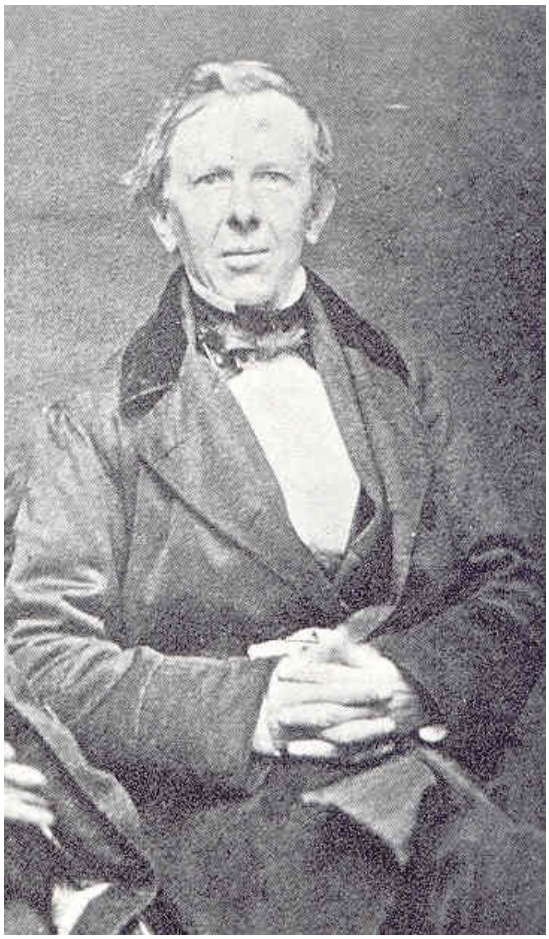

Figure 9. Father Albertus Van Raalte in the sixties
Holland Museum Archives

Beloved Dirk,
It is to our happiness that I notice that you . . . found work at the hospital. . . . You know that I am sort of a half-doctor and therefore can give you good counsel now. There is likely a dispensatory in the hospital. Rummage through that book and always turn up to the names of the medicines that are indicated. Learn to know the name of the illness, and observe the patient very carefully and also the effect of the medicines they give. If you investigate the things in such a quiet, unnoticeable way, you can learn in a single year an unbelievably great deal. The greatest secret of becoming a doctor is to stand at the bedside and observe the sick one steadily. Moreover, I hope that there may be in you a principle enabling you to do good for the sick, thus compensating them for the lack of care that the loving families can no longer give . . . believe me, people quickly notice the small attentiveness toward sick ones, and this will do much to clear the way to sick beds. . . . I'm sending you a small medical book written in English. I received it as a present from a Kalamazoo Doctor. When you hear of a sickness being named, you should look it up in that book and at the same time, compare it with the sick person. I am sending it to you because you may

[83] Financial records, Holland Township, Van Raalte Collection 300, ACC.
[84] Aleida J. Pieters, *A Dutch Settlement in Michigan* (Grand Rapids: Reformed Press/Eerdmans-Sevenson, 1923), 77; *Legends of the Dutch*, 350; *Albertus C. Van Raalte, Dutch Leader and American Patriot*, 49. Any of these medicaments may well have been distributed, but the authors give no reference. Aleida Pieters was the daughter of Van Raalte's successor and as such a close secondary source; she added only calomel to Van der Veen's short list.
[85] September 1862, Van Raalte Collection 300, box 9, folder 28, ACC.

> easily carry it in your pocket. . . . P.S. Doctor [*sic*] Dowd told me that . . . he had the right to appoint you as second Nurse. . . . Since Nurses also operate, as I understand, I judge it necessary that you take care to come far enough to hold every position of Soldier and Officer.[86]

This letter reveals the caring attitude that Van Raalte gave to his flock in the deepest periods of despair. It was that quality that many pioneers remembered of him. Among all his religious and managing affairs, he apparently had studied the medical book he now passed on to his son. Had he not hesitated as a young man between studying medicine and theology?[87] We have not attempted to find out which booklet he may have gotten from this Kalamazoo doctor, nor who that doctor was. Nevertheless, it may be a good guess that he got it during the early period, when there was hardly a resident doctor in the Colony. Considering his good bedside manner of careful observation, Van Raalte would indeed have been a superb family physician!

However, he was a Minister of the Word of God, and it would be interesting to know how he and his fellow reverends viewed the diseases that struck the Colony. Though I have been restrictive in citing religious considerations of the people about their sicknesses, I am convinced that (lack of) spiritual energy and resilience was important in coping with disease and death. But what were their views on "the Great Disposer of Events," in particular when events brought personal misery and loss? Some parents, losing child after child, may have exclaimed in their despair: "God, what have I done wrong that You punish us this way?" Often, people expressed thanks that their families were spared: "The Lord has tried us with fevers but has graciously healed us."[88] How did the fact that neighboring, equally pious families were decimated fit into their theological system?

It would be revealing to know more about the way the religious leaders comforted families in their grievances and which theological framework they relied on to help their flocks to accept misery and carry on with their lives. Adriaan Zwemer, himself a preacher, recalled the deathbed of his pious little daughter and Van Raalte saying: "Thank God for such a child and such suffering. It's a testing of God's gold."[89] It must have meant some consolation; otherwise the father would not have kept these words in his heart. But I do not succeed in trying to understand it. Were the terrifying epidemics and individual sicknesses considered a punishment from God for personal or collective sins, and if so, what had stirred the Avenging Angel? Did it depend on people's attitudes, whether an epidemic would rage through families taking many lives, or stop at the fringe of the Colony?

Van Raalte pointed to several environmental conditions of life that could shatter health conditions (pp. 26-27), but he also remarked that some families did not suffer at all from the change in climate while others suffered much. He certainly considered the way of life of many of his flock during the first years to be predisposing to diseases, but was the primitive situation of early Holland a sin, deserving such harsh divine retaliation? What did Van Raalte really mean, when he pathetically exclaimed, "Must we all die now?," or wrote, "I have certainly learned, more than ever before, that illness and health are in God's hand"? What was the magic of his pastoral consolaton to the mourners?

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[86] 15 September 1862, Van Raalte Collection 300, box 9, folder 25, ACC. The Michigan's 25th Regiment Infantry had a surgeon, as well as a first and a second assistant surgeon. The Company of Captain (not doctor) Dowd consisted of volunteers from Holland. Soon after this letter, the Regiment left Kalamazoo for battle <http://homepages.rootsweb.com/~janwhite/25thInf.html>.

[87] A. J. Pieters, *A Dutch Settlement in Michigan*, 159. This idea was disputed by Albert Hyma on the basis of some Leyden University documents (Albert Hyma, *Albertus C. Van Raalte and His Dutch Settlements in the United States* [Grand Rapids: Eerdmans, 1947], 31).

[88] J. Yzenbaard, "America: Letters from Holland," *Michigan History* 32 (March 1948): 37-65.

[89] "Adriaan Zwemer's Life and Emigration to America," in Lucas, 2:458.

Perhaps, the considered observation of Bernard Grootenhuis in his later years helps to come somewhat nearer an explanation: "God, as it were, from the start [of the Colony] blinded our eyes to the depth of the troubles, dangers and misfortune, under all circumstances and conditions, in order that He might come to the aid of a weak people and the ultimate aim might be realized. This was also shown by the actions of the people, for when their health conditions allowed, they were happy in their God, and did not murmur."[90]

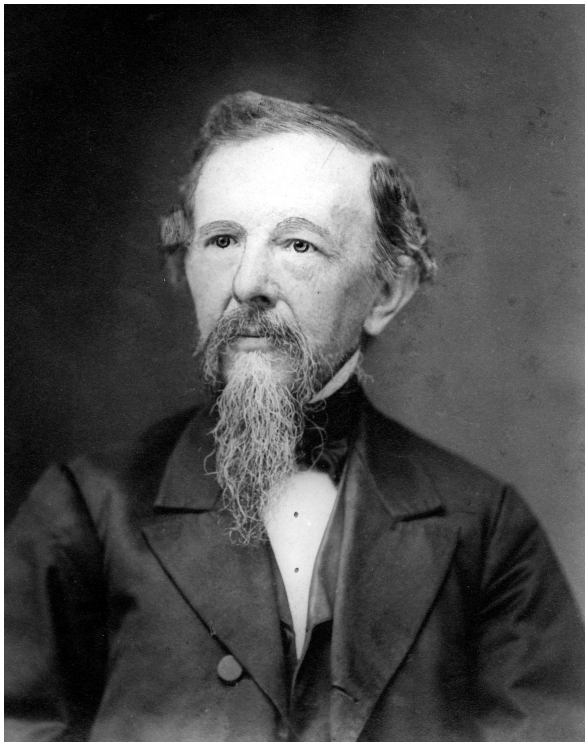

Figure 10. Rev. Van Raalte looking back upon twenty-five years in America
Joint Archives of Holland

The aim of the historian is to penetrate into the thoughts of his subjects, rather than judge with twenty-first century ideas. But I fail at this as I do not speak their (Calvinistic) language. And thus, as a Reformed microbiologist, I keep asking questions on health and disease, in relation to their and my religious beliefs. For example, if the Dutch considered a change of lifestyle to help prevent diseases, what would they think about the role of doctors in keeping up with health, vis à vis the statement of Jesus: "The healthy don't need a doctor, but the sick"? If vaccination was a non-issue among the members of the (Christian) Reformed congregations, as it had been among the majority of Seceders in the old country, why was the issue of insurance (covering the losses in case of fire) so hotly debated as meddling in Gods plan? I leave it to a theologically trained scholar to embark on a careful analysis of the many sermons and church records that are preserved, as well as the many sources of ordinary believers that I used in this study.

7. Medical Men and a Woman Who Served the Colony

Some medical men at this time and place had received an academic education, but most countryside doctors or medical practitioners had learned through an apprenticeship or in the army ("old school"). The latter performed all sorts of medical, surgical, and obstetric procedures, often quite skillfully, but their theoretical knowledge may have been less extensive. An attempt at regulation had already been made in 1827: an act of the territorial legislature of Michigan was approved. It contained twenty-nine sections, and it was believed to have done "much to save suffering pioneers from the horde of ignorant quacks found in every settlement and doing their deadly work without restraint."[91] Nonetheless, the title Dr. or physician was not protected, and there was no State Examining Board. (Michigan became a state in 1837.) The Supreme Court of Michigan ruled that: "A doctor is any person calling himself such." This remained valid until 1883.[92] After that, and

[90] B. Grootenhuis, *Our History*, T88-071, Holland Museum Archives.
[91] O. C. Cromstock, "The Medical Profession in Michigan," *Historical Collections.and Researches Made by the Michigan Pioneer and Historical Society*, vol. 22 (Lansing, 1894), 471-79. Hereafter referred to as the *Michigan Pioneer Collections*.
[92] P. F. Clark, *Pioneer Microbiologists of America* (Madison, Wis.: University of Wisconsin Press, 1961), 76. R. C. Buley, "Pioneer Health Prior to 1840," *Mississippi Valley Historical Review* 20, 1933-34: 510.

from then on, certain qualifications were legally required to practice medicine or surgery, and the Board of Health was obliged each year to present a list of physicians and their allopathic or eclectic qualifications.[93]

Some of the physicians or medical practitioners who cared for the Indians and the Dutch in Ottawa County are mentioned in the *Medical History of Michigan*,[94] but information about the majority had to be gathered from various sources. The records are incomplete in regard to their medical education and ways of diagnosing and treating diseases. Practice notebooks with information about patients were not preserved.

The physician who assisted Rev. Smith during his first years in Allegan and Ottawa Counties was Dr. Osman D. Goodrich (1808-87). He graduated in 1834 from Berkshire Medical Institute, Pittsfield, Massachusetts, and located in Allegan in 1836 as its first medical man. His circuit extended many miles in every direction. A large part of his time was spent in battling that scourge of Michigan, the fever and ague. His pioneer life "was one of hardship and privation," and he was frequently obliged to ford streams, following an Indian trail to the rude home of an early settler.

Dr. Goodrich was chosen by the Indians and Rev. Smith as physician and farmer at North Black River in 1842, but in 1844 he pulled out, as there was no mutual trust. Smith considered him unfaithful, a total failure in teaching farming to the Indians, and preferring a regular salary with a medical practice at Allegan. Their relationship cooled considerably and thereafter Smith called upon other doctors. Goodrich retired from practice and moved to Connecticut where he involved himself in a railroad company. In 1855 he returned to Allegan, where he practiced homeopathic medicine.[95]

Brothers and physicians William (1807-77) and Uriah (1808-?) Upjohn were born in Britain and came to the U.S. in 1828. Uriah graduated in 1834 from the College of Physicians and Surgeons, New York, and the brothers set out to seek their fortunes in the far West. They began medical practice in Richland in 1835 or 1837. The activities of the brothers were closely associated. Uriah rendered his services as cheerfully to the poor as to those who could pay. He attended the sick along Black Lake and relieved those with fever, fetching cool water and giving medicine. One Dr. Upjohn was called to the sickbed of Arvilla Smith in July 1844. Judging from a statement by Smith that "he made no charge for his services; he has been very attentive & kind . . ." it may well have been Dr. Uriah. He became prominent in educational and political affairs in the Kalamazoo area and founded the Upjohn Pill and Granule Company in Kalamazoo, which his sons made into a big pharmaceutical company.[96] William settled in Hastings in 1848, was placed on the board of Michigan University in 1852, and became surgeon-in-chief during the Civil War.

Dr. Isaac Lamborn (before 1800 to 1873) was in the company of his colleague Upjohn, when he visited Smith to see his sick daughter Arvilla. Lamborn was from Leesburg, Virginia, a Quaker, and dressed as such. He was trained at the University of Pennsylvania, a wandering cyclopedia, and apt debater, but he never practiced medicine—a quaint character, unmarried, and wandering around on horseback. In West Michigan, he was only known as "Old Doctor Lamborn" and many anecdotes circulated about him.[97]

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[93] *Public Acts and Joint and Concurrent Resolutions of the Legislature of the State of Michigan Passed at the Regular Session of 1883* (Lansing, 1883), 178-79.
[94] C. B. Burr, ed., *Medical History of Michigan*, 2 vols. (Minneapolis: Bruce Pub. Co., 1930).
[95] *Michigan Pioneer Collections*, vol. 13 (Lansing, 1889), 115-16.
[96] Leonard Engel, *Medicine Makers of Kalamazoo* (New York: McGraw-Hill, 1961).
[97] A. D. P. Van Buren, "Biographical Sketches of Some Unique Characters: Dr. Isaac Lamborn," in *Michigan Pioneer Collections* 13:508-17.

Dr. Horatio N. Monroe practiced first in Kalamazoo and later in Grand Haven and its wide surrounding area.[98] He was a pioneer in the practice of medicine in Ottawa County and traveled up and down the lakeshore on foot, on horseback, or in a canoe, suffering hunger and fatigue in his long tedious trips. A shrewd, energetic man, he was in 1857 the only physician in this part of the country. He was responsible for the health of the Indians and received $90 yearly from the Michigan Superintendent of Indian Affairs for his regular attendance on them. He was often called in by Rev. Smith, and when the smallpox manifested itself among the Dutch, he was asked to have vaccine material ready for the Indians. This vaccine material was obtained from the cow pox pustules of previously inoculated persons and scratched into the skin. I have not found any mention of Monroe in relation to the Holland Colony.

Dr. Chauncey B. Goodrich (1816-71; other sources 1818-79) from upstate New York pioneered in "nearby" Newark/Saugatuck as the first physician in town. He was related to Osman Goodrich and practiced in Allegan County from 1843 until his death. He often visited Holland. Once he was called to a Dutch family when his own little son had just died of the croup, and he went. He insisted that fresh air was beneficial for patients and ordered doors and windows to be opened, but he often found himself sad to be unable to prevent patients from dying.[99]

Hoyt Post wrote in his diary about a Dr. Mauley (or Manley) in the Colony: "Certainly his services are much needed here." The doctor, himself ailing at Allegan, was requested to attend a woman in the process of delivering. The husband had already called the Holland physician [likely Dr. Van Nus] whose skill was entirely inadequate to the task. The doctor rose from his sickbed, no longer being able to withstand the pleading of the man, visited the family, relieved the mother, and came back, having been conscientious in doing his duty, but at the risk of his health. He returned to Holland in early March with improved health and in excellent spirits, but left for good on 29 April 1849 for Sheboygan.[100]

Among the Zeelanders arriving in the summer of 1847 was a (military) doctor, J. J. M. C. van Nus. He immigrated for the adventure and had cared for the many sick during the ocean crossing on board the *Prince of Hannover*. Immediately after arrival at Black Lake and in full sight of the watching Indians, Van Nus girded on his saber and marched up and down the beach. He and his party camped at the Landing, where they built "Zeeland sheds." Two days after arrival he was reported to have relocated a broken arm of one of the men, who had been struck by a falling tree. Van Nus tried to convince Van Raalte in a rather dandy way to order wine and refreshments on behalf of the health of the people.[101] The sheds became a sick bay and Van Nus did what he could, but his means were insufficient for all those sufferers, as Engbertus van der Veen recalled in 1915:

> My sister Anna became deadly sick. The doctor came and gave her but little medicine. "Doctor," my father said, "The medicine you gave seems to be of no effect." "That is so," said the doctor, "But I have so little, and must divide it so that each one gets some of it." My sister died, along with four others that same night – and there was not a soul available to help the sick, for nearly everybody was suffering.[102]

As a newcomer Van Nus may not have been fully conversant with the logistics of drugs (and the visiting colleagues may have considered him somewhat snobby). During that winter he settled in the new town of Zeeland and was the only doctor during the first years of settlement. His abilities were not appreciated by everybody, but he also faced the ethical dilemma of rationing medical care.

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[98] During the forties there was also a Dr. Stephen Monroe in Grand Haven, but Rev. Smith explicitly mentioned Horatio N. Monroe.

[99] Mary Francis Heath, *Early Memories of Saugatuck, 1830-1930*, 4th ed. (Grand Rapids: Eerdmans, 1953), 100-4.

[100] H. Post, Diary, 18 February, 4 May, 30 April 1849.

[101] Van Raalte Collection 300, box 2, folder 22, ACC.

[102] "Engbertus van der Veen's Life Reminiscences," in Lucas, 1:496.

James Moerdyke wrote: "We had a sort of doctor here whose prescriptions proved helpful [against the fever in 1849]."[103]

Van Nus bought six acres for $48 on 15 October 1849 and was registered in the 1850 Census as married to C. T. [Van Nus], both thirty-five years of age. They moved to Pella, Iowa, in 1851 where he continued to practice medicine. There he told people that real estate is an unattractive business in Michigan. Owning a newly-built house and adjacent lot, located in the best part of the city of Holland, he would gladly accept . . . two or three hundred dollars less than the value of the property.[104] Whether he found a buyer or not, he paid his debts in full, with interest, and had a lordly brick house built in Pella.

Van Raalte had an advertisement published in October 1848 with the invitation for a physician to come and practice in Holland city.[105] It may have been the American physician Ch. D. Shenick (also wrongly spelled Seanenk or Seaneuk) who responded in 1849. He settled with his wife Mary and children in (Old) Groningen, halfway between Holland and Zeeland and was held in high esteem; the people trusted him. Shenick was one of the clerks at the first town meeting (on 2 April 1849 at Van Raalte's residence). Next year he was elected justice of the peace and director of the poor. In 1854 he left for the West.

Another American doctor, N. R. Parsons (1819-60) from Enfield, Connecticut, joined Shenick. The single reference to him is that he died in 1860 and was buried at the Groningen cemetery.[106]

Brothers Drs. Wells R. Marsh and Charles P. Marsh, both from Kalamazoo and graduates of Michigan University, settled in Holland in 1854. Their practice extended over the whole Colony, from Holland to Zeeland and the smaller villages.[107] C. P. Marsh was a prominent physician in Holland; he left after two years, when his guaranteed term was over (probably a probationary period). An account of W. R. Marsh, dated 21 March 1859, was found among the papers of R. De Putter in Zeeland, and included a debt for old bills of C. P. Marsh and of W. R. & C. P. Marsh.[108] On 11 July 1859 Van Raalte wrote that Dr. Marsh had been very sick and close to death. W. R. Marsh practiced for a time in Kalamazoo, and in 1867, settled in Fenton, Geneese County.

When C. P. Marsh left in 1857, he was followed by Dr. Bernardus Ledeboer (1812-79), who was trained at the University of Groningen. He immigrated to America (New York) in 1834, moved to Grand Rapids in 1857, and in 1859 settled in Holland. He ran an extensive and bustling practice, which demanded much of his strength every day and frequently at night, and was very much appreciated, especially during the years of the Civil War. He was appointed member of the City Board of Health and as Health Officer in 1867. He soon got various other tasks in educational and church activities (e.g. board of trustees of Hope College) and promoted higher education for women. He was elected mayor of Holland in 1868 and, in that function, had to deal with the great fire that ravaged Holland in 1871.[109] He was succeeded by his son, Dr. F. S. Ledeboer, who after a period of practice elsewhere returned to Holland in 1877.

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[103] "James Moerdyke's Autobiography," in Lucas, 2:421.

[104] Van Raalte Collection 78, box 3, folder 4, ACC; Van Raalte Collection 300, box 16, folder 15, ACC. Een Gelderschmen, *De Hollanders in Iowa, Brieven uit Pella* (Arnhem: D. H. Thieme, 1858), 165.

[105] Van Raalte Collection 300, box 16, folder 15, ACC. Only the payment of $3.50 is mentioned in the financial records of the city of Holland.

[106] "Albert Stegeman's Two Months of Early Pioneering," in Lucas, 1:168.

[107] Edward Cahill's mother was a sister of the two Marsh doctors. Cahill, later a judge in Lansing, lived for several years in Holland ("Edward Cahill's Old Colony Days in Holland," in Lucas, 1:373-77).

[108] De Putter folder, Zeeland Historical Society Archives.

[109] Ph. Phelps, "Bernardus Ledeboer," *The Anchor* 6 (1892): 3, 46-48.

Figure 11. Dr. Bernardus Ledeboer
Holland Museum Archives

Figure 12. Dr. Geert Manting
Holland Museum Archives

In 1867 there were more physicians in Holland. Dr. Sylvester L. Morris, who had settled in Saugatuck in 1860, was commissioned surgeon of the Fifth Michigan Volunteer Cavalry in 1863-64 and moved to Holland in 1865. He became editor of the *Holland City News*, but probably stayed for only two years.

Dr. T. E. Annis, a native of Erie County, N.Y., graduated from Rush Medical College in 1866. He enjoyed an extensive practice eight to ten miles around Holland for some eleven years. He was appointed clerk of the Health Board in 1867 and Health Officer in 1871. He erected a pleasant residence on River Street and a substantial drugstore on Eighth Street.

Dr. Willem Vanden Berg was mentioned as having held office in Drenthe, next to the Schotse Kerk, from 1857. He was considered an oracle for miles around. This was probably due more to his knowledge of human nature than to his preparation in his subject.[110] Kornelis Swartwolt called upon Vanden Berg in 1859 for the pneumonia of his wife, but went to see another doctor, when the treatment made it worse. Rev. Adriaan Zwemer called him in for his daughter Nellie, who suffered and died of chronic rheumatism.[111] He conferred his knowledge to an apprentice from Zeeland, Daniel Baert, in whose presence he operated on a chanker patient (see Cancer, p. 59). Also a Dr. Ypes was mentioned as having practiced in Drenthe.[112]

Dr. Geert Manting (1813-91; originally spelled Mantingh) was born in Borger, the Netherlands. Though his father was a medical practitioner, Geert first became a baker. He came to Michigan in spring 1847 and lived in Fillmore, Allegan County, where he married Maiske Westing (eighteen years old) in 1852. He had already devoted himself somewhat to the study of medicine in the old country, under the tutelage of his father. Deeming his new environment inviting to the profession of his choice, he continued to apply himself to the study. Gradually he developed into a thorough practitioner of the old school. One account, saved with the family papers, gives insight in what he ordered from the Holland store of Henry D. Post during the year 1856 (see page 73). His physician's license was first issued in 1862 and, from then on, extended yearly by the Internal Revenue Office, showing that there was no state examining board yet. He was appointed court physician and elected honorary member of the Grand River Valley Medical Society in 1881.

> It is not merely by a knowledge of drugs and nostrums that a physician gains success. Manting gained eminence by possessing the spirit of patient research and its intricacies, and by kindly sympathizing with those who confided in his humanity as well as his skill.
>
> He was charitable to the poor. As such he will be remembered longest by the many who found in him the kind-hearted physician, especially so during the early period of colonial life.[113]

Mrs. Maatje Baert (nee Gunst) practiced midwifery. She had qualified in the Netherlands at the School for Surgeons and Midwifes in Middelburg, province of Zeeland, in 1832.[114] She married in 1835 Georg Heinrich Baert, a war veteran. In July 1848 they arrived with four children in the Colony and opened a general store. As Mr. Baert preferred to go hunting, their son Daniel mostly attended the store. After the death of her husband in 1855 (from malaria as was said earlier), she married Lucas Aling in 1856. Her new husband took over the shop and young Daniel started studying medicine. For many years, Mrs. Aling took the place of a doctor in Zeeland and occasionally did cupping. She traveled by horse and buggy up to twenty miles distance to aid those in need of her services; her fee for a delivery was $3.00. She died in her sixty-fourth year.

In 1851 Maatje Baert got a competitor. A medical practitioner, Isaac D. Bailey, advertised his experience and services as *genees- heel- en vroedmeester* to the public in *De Hollander* and could be consulted in the Zeeland Hotel, Zeeland. However, no traces of his presence or practice in Zeeland are found.

Daniel Baert (1839-1904), son of the Zeeland midwife, practiced medicine in Zeeland from 1862 onwards. He was an "old schooler," having learned the profession as an apprentice of Dr. Willem Vanden Berg in Drenthe and later through a course by mail. Daniel married Trijntje (Kate) Boonstra and had a brick, Victorian-style house built in 1872 on a property that he had bought six years earlier. It contained a doctor's office, a surgical room, and a dental room. He was the first

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[110] *The Immigration and Early History of Zeeland*.
[111] "Adriaan Zwemer's Life and Emigration to America," in Lucas, 2:458.
[112] "Adriaan Keizer's Drenthe's History to the Present," in Lucas, 1:262.
[113] Manting Family Collection, T88-0117, box 1, and T88-0132, box 2, Holland Museum Archives.
[114] Maatje Baert's original certificate is on exhibit at the Zeeland Museum.

village physician and, since the incorporation of the village in 1875, its first President. His exceptional ability was remarkable, in view of the excellent success with which his efforts were crowned. He was a sympathetic and true man with a wide practice.[115] Marten Schoonbeek, who settled in Grand Rapids in 1873, wrote: "I still have the diarrhea. I am bothered by it a great deal and went to a Dutch doctor, but he was not able to cure me. So I have gone to another one. He impresses me more favorably although he has only given me one kind of medicine. This doctor lives five hours from here, in Zeeland, Michigan."[116] This doctor must have been Daniel Baert, but he too could not cure Schoonbeek, who died a year later, after having suffered from chronic diarrhea.

Figure 13. Maatje Gunst with second husband Lucas Aling and grandchildren Marsha (Maatje) and Oscar Baert
Zeeland Historical Society

Figure 14. Dr. Daniel Baert
Zeeland Historical Society

8. Sanitary behavior, Hygiene and Public Health

Epidemics of cholera were impressive, in that patients died from one day to the other and in a particularly unpleasant manner. This stirred the emotions of the public. During the third pandemic, the Grand River Eagle of 6 July 1849 published a list of precautions against this terrifying disease:

1. Sleep in well-ventilated apartments, and comfortably warm: having all bed clothing aired daily
2. Avoid all excitement or fatigue of mind or body, and overcome all fear if possible.
3. As to clothing–keep comfortable and change as the weather changes. Woolen is the best fabric to come in contact with the body. Have fires in cool, damp weather.
4. Baths as usual, if a good recreation follows with or without friction.
5. Take care to remove all nuisances, undergoing putrefaction.
6. Food must be plain, well cooked, nutritious and easy of digestion. May take beef, mutton, corned beef, tongue, boiled ham, salt codfish, salt pork, good potatoes, rice, hominy,

[115] *Zeeland Record*, 11 March 1904, and miscellaneous records in the Zeeland Historical Society Archives.
[116] *Dutch American Voices,* Letter, 18 August 1873, p. 258.

macaroni, stale bread and fresh butter. Avoid shell fish, stale and unripe fruits, stale and uncooked vegetables and salads, radishes, etc.

7. Drinks –Water, milk, tea, coffee, chocolate as usual. Avoid all acid drinks, soda water, and use ice water sparingly. Make no sudden changes in usual habits, and eat and drink nothing between the regular periods of taking food. Do not eat late in the evening, and never overextend the stomach. Avoid all preventive medicines; alcoholic and vinous drinks are not preventives, and will tend to produce the disease in those persons who are not accustomed to their use.

   In case of any derangement of the bowels, seek medical aid without delay.

These recommendations obviously promoted a healthy and regular way of life, but indicate that there was no idea as to how the cholera spread. Epidemic diseases like cholera were seen as resulting from an unbalanced state in individuals. Constitution, as well as environment, could play a role. The latter factor (the "constitutio epidemica") determined the (un)healthiness of a region. Roughly, until halfway through the nineteenth century, it was considered a given fact, and after his exploration and the experience of the first year, Van Raalte and his colonists had to decide whether to stay or to move on. In several contemporary witnesses of colonists, the situation of foul air (miasmata) and predisposition for contagious diseases in Holland is described as an inescapable fact. However, Van Raalte also considered that careless behavior also predisposed, implying that susceptibility was manipulable.

Rather than judge the accuracy of the time by our knowledge of epidemics and transmission, we conclude that there was a growing concern for environmental factors that this disease might induce and a sense of minimizing vulnerability to this contagious disease. The big epidemics did induce the need for public health; quarantine and disinfection came up as measures to contain spreading. There was a disease-making something, somewhere, and the contagionists had no alternative than to be reactive; medical men could only try to control epidemics that were already underway. To make it even more hopeless, it appeared repeatedly that quarantine measures failed to stop the spread of cholera, and many medical men considered this disease non-contagious. The above recommendations are probably composed by a medical doctor convinced of anti-contagionistic views.

The nineteenth century brought, however, a change in vision. It was revealing that the unhealthiness of a region was not so static; it could change and in some instances it could be made to change. It appeared possible to change the environment. These professionals favored general environmental and sanitary reform and did not want to wait until a new epidemic appeared. Though still convinced of contagious or miasmatic factors, their attitude was proactive and truly preventive by eliminating the conditions in which poisons arose.[117] Anyway, the early colonists lacked the material luxury of attending to this advice. One may even doubt whether any Hollander in 1849 had a subscription to this newspaper from nearby Grand Haven.

The fourth pandemic reached America in 1866.[118] The *S.S. England* left Liverpool with some twelve hundred passengers, among which some came from the Netherlands, Germany, and Luxembourg. Four days after departure the first cases occurred, and after eleven days, arriving in Halifax, the death toll was fifty, but one Dutch witness claimed fifty on one day! During the next ten days another two hundred died. Other ships were hit by the same disaster. Some passengers described the disease as: "Some were sick four days, others were well in the evening and in the morning a corpse." And: "When stricken, the malady was violent . . . and they gave themselves up to despondency." The author adds: "The physical symptoms included vomiting, cramps, dysentery

[117] Michael Worboys, *Spreading Germs, Disease Theories and Medical Practice in Britain 1865-1900* (Cambridge, U.K.: Cambridge University Press, 2002), 41-42.
[118] L. Lemmen, "Cholera at Sea: 1866," *Origins* 23, no. 1 (2005): 36-39.

and cold extremities, which turned purple." People increasingly concluded that the disease was extremely contagious. The early landing in Halifax was meant to prevent spreading in New York; the separation of sick and quarantine of the healthy was another way of confining the spread. And when no more died, the bedding of the ship was burned, the ship and the baggage were fumigated with chlorine gas, before the healthy passengers boarded and the ship headed for New York. One of the pioneers, who survived the disease, settled in North Holland, and he and other survivors never spoke about the horror of their crossing. This was a common reaction among survivors of concentration camps and battlefields.

Even during this fourth pandemic, the ideas of one British doctor, John Snow, who had discovered in 1849 that some cholera-causing agent could enter through the mouth (water from the contaminated wells of London), were still largely unknown among Michigan doctors. The regular or irregular outbreaks of cholera and other bowel diseases, that we now know to be transmitted by bacteria in drinking water contaminated by human excrements, raises the question about the behavior of the settlers in terms of defecation. Smith's daughter Etta recalled the situation when her parents opened their house for the Dutch in the winter and early spring of 1847:

> In the morning the good *vrouws* would empty out their night vessels, wash them and stir their pancake batter in them; [mother] could never witness this performance without being overcome with nausea. There were other habits, also similar in nature, but of which delicacy forbids a description.[119]

Before log cabins and outhouses were erected, the early settlers likely just got out of sight in the forest and it is this that Etta alluded to. If one to two thousand people do that every day for two years, it is not surprising (in hindsight) that their sources of drinking water were contaminated and caused the yearly bowel disease during the hot summer months.

The neglect of proper sanitary hygiene by the Dutch housewives during the first few years of settlement can only be explained by their lack of cooking utensils and by the general state of sickness of the whole Colony, which prevented them from exercising their proverbial cleanliness. Gradually, the idea of sources of unhealthiness and contagiousness grew. But even with outhouses installed in the backyards, proper sanitary hygiene was not always maintained. It was only after 1867 that these aspects of human behavior were placed under city supervision. On 29 September 1871, Dr. Annis reported to the Common Council that:

> Complaint was made of a certain privery on premises on Seventh Street belonging to Mr. Albers (jeweler); said privy was examined and found to be a nuisance and detrimental to the Health of the vicinity and recommended that action be taken to cause that nuisance to be abated.

The Board of Health, installed by the Common Council on 26 April 1867, was charged "to have the general oversight of all matters affecting or pertaining to the preservation of the health of the City from contagions, malignant or infectious diseases. . . ." This was in accordance with the growing insight among medical circles in Europe and America to take measures to protect and promote public health. Local governments began to comprehend the importance of such measures for the population and for trade activities and mobility and took their responsibility. As a consequence of this new situation, certain freedoms of the people were restricted and enforced by law and police. Among the elected members to the Board of Health were physicians B. Ledeboer, S. L. Morris, and T. E. Annis (clerk). Ledeboer was the first health officer and received $100 per year for his services. After he was elected Mayor, Dr. Annis was appointed as the Holland health officer.

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[119] Etta Smith Wilson, "Life and Work of the Late Rev. George N. Smith: A Pioneer Missionary," *Michigan Pioneer Collections*, vol. 30 (Lansing, 1906), 190-212.

The Board made up an ordinance on 19 June 1867 containing items on disinfecting all offensive substances and privies with a solution of sulphate of iron (or copperas) and to have cesspools, pig pens, dead animals, and manure heaps within the city limits cleaned or cleared. On 14 May 1870 another item was added to the ordinance. In case of any contagious disease, the Health Officer would make an examination of the case, and remove any person infected to a suitable hospital or pest house, together with all infected clothing, and post notices warning people to prevent any intercourse with infected persons and places. To that end the Holland Marshall confiscated the house of Frederik Bos, in which a probable cause of contagious disease had been hosted, and made it the city pest house.[120]

By 1870 smallpox was considered to be easily transmitted under unsanitary conditions. Dr. Ledeboer wrote a letter to the Common Council of Holland on 5 May 1871:

> Gentlemen: I would inform you that I have understood, that several Emigrants will arrive here from Holland [the Netherlands]. As these Emigrants come from places infected with small pox, I recommend that the Committee on Health be instructed to inform the Common Council, if it is necessary to take some measurements to prevent any danger of said disease. Respectfully

The Health Officer T. E. Annis responded the next week:

> I have considered . . . and would say that though said Emigrants will have been detained in quarantine at New York City it is possible that said disease may be developed among them subsequent to their leaving quarantine, hence it might be well for you to order them to be detained at such a place as you may designate until the Health Officer can make the proper examination to ascertain whether any among them are affected with said disease.

Unfortunately, there is a gap in the notebook of the Health Board, and no information about the practical application in case of an epidemic is recorded, particularly not during the smallpox epidemic of 1872. The contagiousness of that disease had been accepted by the public for a long time. We have a fairly detailed record of the measures that were taken in Zeeland. When Menno Swartwolt died of smallpox, his father wrote:

> Everything that had touched his body had to be burned immediately, and his room completely quarantined. This had to be done so that the disease would not spread. A notice was given us by the health department that no one other than the immediate family who lived there was to enter our house; this was to be posted on our front door and also on the Dams Plank (for public notices). [This meant] no friends and no neighbors. I could [however] choose one person to help me in the house.

By this time, vaccination against smallpox had become a public health measure, and the sub-inoculation from child to child was replaced by using pus or lymph from infected cows. However, vaccination was not an issue for the Holland Health Board, let alone being made compulsory as it was in Chicago in 1868. I have neither found any signs of organized vaccination of school children nor any opposition against it. Unless proven otherwise, I must assume that the population of the Colony simply did not bother about this way of protection, and once the disease struck, only the care, treatment, and sanitary measures of their physicians were accepted as the pious way to go.[121]

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[120] City Clerk Collection, T92-1296, box 20, Holland Museum Archives.

[121] I did find one notation concerning some people of the Dutch neighborhoods in Grand Rapids who were in great opposition to vaccination and severely suffered during the epidemic of 1905 (J. D. Kleiman, *Strike!* [Grand Rapids, Mich.: Grand Rapids Historical Commission, 2006], 30-31).

Though the village of Zeeland was only incorporated in 1878 and then was legally obliged to have a Health Board and a Health Officer, the regulations mentioned by Swartwolt in 1872 suggest that Zeeland may have made use of the Ordinances of the Holland Health Board. To what extent the personnel of the Health Officer was instructed or trained in handling the corpses and disinfecting houses has not been recorded.

9. The Health Situation among the Dutch in Pella and Iowa

The reason to compare the condition of health in the Holland Colony with that in the Pella Colony, Iowa, is obvious: the people came from the same stock and religion, and both colonies were founded in 1847. However, this section is not based on a thorough search of the sources and there is room for a specific, more thorough study. The problem for a study of the health situation in Pella, similar to the present one of Holland, will by definition show more lacunae. Unlike what happened in West Michigan, nobody urged surviving Pella colonists at the semi-centennial to write down their reminiscences. Therefore, the information on the early history of Pella and elsewhere in Iowa is less detailed, and future research will need to depend on a restricted number of contemporary documents.

I have contented myself by citing fragments from some letters and analyzing the causes of death of the years preceding the Federal censuses of 1850, 1860, and 1870. It soon became clear that the conditions were very different. Pella was situated in the prairie, near the Des Moines River. There was no shortage of food, meat and vegetables, and the people could eat "to heart's content." Nevertheless, the variation in diseases is comparable, like in most countryside pioneer situations in the borderline states.

A few quotes from letters found in the Archives of Calvin College and printed sources are given. C. Lakeman wrote on 30 October 1847: "Underway from St Louis to Keokuk I got the fever and had it every day. [In Pella] I lost it for a week. I could not get a doctor or a (school)master and was devoid of the means for healing. I was bedridden with fever and sick of headache.[122] The founder of Pella, Rev. Henry P. Scholte, wrote in summer 1848 that there were no special illnesses, but the stay of his party during the heat of summer of 1847 in St. Louis made him write: "The carelessness with food and drinks, and some having forgotten the Dutch cleanliness, have caused diseases of which some died."[123] Henry Hospers who arrived in Pella summer 1847, wrote December 1848: "There is little sickness; during this year only eleven persons died in this colony." Though he remained healthy over the years, he instructed followers repeatedly to bring Harlem Oil along.

The Federal Census for mortality covering the twelve months before 1 June 1850 was done by Rev. Scholte in his function as Assistant Marshal. He registered 24 deaths, among which were 18 children of five years or less. The main causes of death of the children were consumption (6x), weakness (4x, all infants), fever (3x), diarrhea (2x); measles, convulsion, and asthma were labeled the cause of death of one child each. Three adults died of consumption, two of diarrhea, and one of an accident. Another assistant marshal, Admiral B. Miller, registered among thirty-five deaths (half of them being adults) in a non-Dutch neighboring area a broader variation in causes of death. Remarkable diseases were cholera and smallpox. The absence of a doctor in Pella may have influenced the reliability of the death causes that Scholte listed. His colleague Miller added a statement:

> The year ending June 1st, 1850 was unusually healthy. The county of Marion is destined to be very healthy, as the situation of the county is getting rolling. The streams are pure, and the water of the best quality. Some seasons there is to some considerable extent [word left

[122] Collection 78, box, 39, folder 19, ACC.
[123] H. P. Scholte, *Eene Stem uit Pella* (Amsterdam: Hoogkamer & Comp., 1848), 9.

out] but of a mild form. & some lung fevers during the winter & spring, though it seldom proves fatal.

The population of Pella was 945 by the end of 1847 and 1057 in 1850. The mortality rate was thus roughly 2 percent and for three quarters due to the death of infants and small children. Compared to the figure in Holland, with its mortality rate of 3.84 percent and half of them children, the health condition in Pella was indeed much better, with much less of over-fives and adults dying.

After the initial years, however, several diseases took their toll, either during nationwide epidemics, or as local burdens. A cholera epidemic during the hot summer of 1854 claimed sixteen deaths.[124] One of the first to die, after an illness of only a few hours was the wife of Dr. J. van Nus, who had moved from Holland to Pella.[125] Another reminiscence gives the following: "Many were stricken by that dread sickness, but fortunately recovered. In most of the fatal cases death came very suddenly, often on the same day that the patient was stricken. This was the case with Dr. H. D. Rubertus, who was stricken while driving along the street, on his return from calling on some of his patients. He lived only a few hours after reaching his home. This was a serious loss to the community, as Dr. Rubertus had proved himself as an able physician, and his services were in constant demand."[126]

In 1856 Pella was ravaged by an outbreak of smallpox that spread over the entire settlement, though the fatalities were not numerous. Travelers avoided Pella and trade went down, causing a deadly silence in the town for months.[127] Apart from these two epidemics I have found no description in the official publications I screened about diseases that undoubtedly must have occurred. There are a few letters. Jan George Zahn wrote from Muscatine in the fall of 1856: "There are many sick people here, especially among the Dutch and the Germans—mostly from the bloody flux and fevers. I also had the diarrhea but I'm over it. I did not have the bloody flux."[128] Jannetje Kuiper-Jongewaard wrote: "My husband has been ill lately of the bloody flux [Dutch: roje loop] that is bad here [in Pella, 30 August 1856]. Many suffer from the fever, they last here rather long, two to three days-and nights [2 September 1859]."[129]

In his booklet "The Hollanders in Iowa," which was published in 1858, a Dutchman from Guelders (J. Nollen) stated that Iowa was a healthy region.[130] Though it served a propagandistic goal for readers in the old country, the author did not conceal that new settlers were susceptible to certain diseases. One important factor was the behavior of the settlers themselves, their habits of food, clothing, and dealing with the weather and the seasons. The other is the fact that bottomlands are unhealthier than uplands. Moreover, after cultivation of prairie and forest, the vegetable material decomposes and rots after exposure to the sun. Vapors of the soil fill the air and cause intermittent fevers and bloody flux.

These ideas are in line with common thoughts about the causes of disease and reflect the plain logic of mid-nineteenth-century people. However, nowhere is the author specific about the reality that bloody flux could bring about death, let alone the risks of dying. Also, the epidemics of cholera (1849, 1854) and smallpox (1856) go unnoticed.

The twelve months before the Federal Census of 1860 showed a variety of death causes, both among adults and children. The total of deaths was 25, among which were 18 children, similar

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[124] *Netherlanders in America*, 352.
[125] Van Nus became a morose and grumpy hermit and the room of his wife remained untouched for years. He led a secluded life, but, incidentally, he put on his army uniform to do his shopping (Leonora Scholte, *Een vreemdelinge in een vreemd land* [A Stranger in a Strange Land] [Iowa City: State Historical Society of Iowa, 1939], 132-33).
[126] *Souvenir History of Pella, Iowa, 1847-1922* (Pella, Iowa: G. A. Stout Pub., 1922), 82.
[127] Ibid., 98.
[128] *Dutch American Voices*, Letter, 17 November 1856, p. 395.
[129] Collection 78, box 39, folder 19, ACC.
[130] Een Gelderschman, *De Hollanders in Iowa: Brieven uit Pella* (Arnhem: D. A. Thieme, 1858).

to a decade earlier. However, the population had grown to 3,291 people, and thus, the mortality rate was reduced to 0.76, a bit less than the figure for Holland, Zeeland, and the Allegan villages of the Colony, which was 0.81.

Another ten years later, Pella had 36 deaths, among which were 26 children of five and below, which was again 72 percent of the total. Given a population of 4,975, this gives a mortality rate of 0.72.[131] The rate for Holland and Zeeland had by then dropped to 0.36.

Two remarkable diseases deserve a comment: cholera infantum (7x), a bowel disease that was also called "summer complaint," and probably due to wrong feeding of infants and not contagious. The other disease is brain fever (6x), most likely (cerebro-)spinal menigitis, a bacterial infection of the brain membranes (see p. 65).

The health situation in Pella appears remarkably stable after the first few years. Considering the fact that excess child death was a given fact everywhere during the nineteenth century, the contemporary comments on the favorable health situation of Iowa are not too much exaggerated.

The censuses give the situation every tenth year, and as stated above, during the years in between many events took place. In order to give some details that add to our understanding of the situation in Pella as well as Holland, two disease cases are selected from Dutch immigrants in Burlington, Iowa. The cases concern the families Wormser and Budde, and are scarlet fever and meningitis. These diseases occurred both in Iowa and in Michigan, but I have not found detailed descriptions in the Michigan sources.

The Budde family emigrated from Amsterdam summer 1847 and decided not to join Rev. Scholte in Pella, but settled in Burlington, Iowa. Their letters to Dutch friends, Johan Adam Wormser and family, convinced his brother Andries Wormser and his family of four daughters to emigrate as well. On 29 October 1848 they arrived in Burlington. In long letters to J. A. Wormser in Amsterdam they report:

> Two days before arrival, seven years old Sophia Wormser became disposed and developed a red rash all over. A doctor diagnosed scarlet fever, characterized by a swelling of the throat, with painful sufferings, and usually choking in phlegm. Her neck swelled up and nothing availed. She was out of her mind for three days, except for the last moments. She died in torment after suffering the most awful shortness of breath.
>
> Shortly after that, her sister Anna (eleven years old) fell ill with the same disease, but with little rash. The illness began with vomiting. The throat swelled on the inside and the neck on the outside, phlegm running from the nose and mouth, the mouth turning black. It seemed as if her eyes would ulcerate; the stench coming from her mouth was so unbearable that it gave us a headache. The doctor was not very hopeful. Her voice became weaker but she remained conscious to the last; in the morning she was no more.
>
> The illness is contagious; the neigbor children had to take a medicine, and the doctor also gave medicine to his own children. The pills they give here are very small and the liquid medicines are usually given in drops from a bottle twice the size of a Harlem oil bottle.

The Budde children also came down with a light degree of the disease, but nine-year-old Diedrich became seriously ill.

> We thought it was a nerve and sinking disease, but his body turned red, his throat began to swell; his nose and mouth were so choked with phlegm that he could no longer rinse his

[131] I found quite a different number of inhabitants of incorporated Pella in a booklet issued by the Iowa Commissie van Emigratie, *Iowa: Het Land voor Emigranten* (Pella, Iowa: Betzer Bros., 1870). It records that in 186 7 there were 1,833 people and in 1869 1,847 people.

> throat. Then a little stick with a piece of cloth attached was used to [dab] his throat to prevent him from choking in his phlegm. The intensity of the fever diminished, but the swelling of the throat turned outward, requiring constant dabbing, and settled on his gullet. This was no less dangerous and painful. When the doctor came to operate on him, he said that it looked barbarous. He lanced the swelling. A very great deal of bad fluid issued forth and since his suffering persisted, incisions were made in other places as well. So that while we were dabbing, healing was occurring. Diedrich was snatched from the dead for us, as it were.[132]

Many years later, in October 1863, young Diedrich Budde became ill again, with high fevers. His mother described his suffering:

> The doctor said it was nerve and sinking fever and feared that he would not make it. He gave him musk powders* to take in. A few days later he broke out in tremors, shaking like someone having a fit of epilepsy, so that we had to call everyone to help hold him down; it looked like someone who is involved in a struggle. Then things quieted down. The doctor had prescribed chamomile to drink and after that he perspired somewhat. The high fevers got worse, but from time to time he was in full command of his faculties. During the seizures he was very strong and dangerous, so that we finally decided to bind him with sheets. He got Spanish flies on his back and chest, which caused blistering.* After five days his face was already broken and his hands and feet were getting cold. He passed away quietly in full concience.[133]

The course of this nerve and sinking fever (Dutch: zenuw en zinkenkoorts) with fits is indicative of meningitis. The cold extremities were caused by bacterial scepsis, a common complication of the endstage of this often fatal disease.

Musk is a stimulant to the nervous and vascular systems and has an antispasmodic effect. Likewise, chamomile has calming and antispasmodic properties in cases of nervousness, anxiety, spasms, and hysteria. Powder of Spanish fly causes blisters that were considered to lower the brain inflammation. Though the treatments were of no avail, the physician who treated Diedrich must be considered an able professional.

[132] Compiled from the letters of Andries Wormser and his wife and of C. M. Budde-Stomp (J. Stellingwerff, *Iowa Letters: Dutch Immigrants on the American frontier* [Grand Rapids: Eerdmans, 2004], Letters W 18, W 21, W 25, and W 33.

[133] Compiled from letters of D. Budde and C. M. Budde-Stomp (ibid., Letters W 69 and W 70). The words marked here with asterisks indicate the words that are translated incorrectly in the translation in *Iowa Letters*.

APPENDICES

Appendix A. A Guide to Michigan Diseases

What does the name of a disease really mean when it is transported across 150 years? Does what doctors called cholera in 1850 have any relationship to the disease cholera as we know it today? We are readily confused about the understanding of diseases in historic times, as we know them, and think our predecessors had the same ideas. Since the knowledge of germ causation of disease was still decades away, people and doctors necessarily named diseases entirely by their symptoms. Therefore, we must indulge in considerable speculation in trying to understand the disease processes being described. One example is a quote about cholera in about 1850:

> It is a point of utmost significance that at each of the *malarial localities* that *produced* the disease [cholera] in North America, at none was this *malarial influence* exercised or apparent until *after* the arrival of individuals previously infected by the cholera.[134]

Apparently, the prevailing idea was that bad air produced cholera, and the author (Dr. Wynne) opposed this by arguing that it was people who brought the disease, not the air. This varying use of terms, even during the nineteenth century, also applied to a whole array of fevers, bilious, remittent, intermittent, all being of "mal-arious" nature. Obviously, "malarious disease**"** included the fever & ague, the malarial disease, and malaria, as we know it.

In his *History of Grand Rapids*, Baxter mentioned ordinary diseases of the period from 1830 to 1860, including: the ague, typhoid fever, continued fevers, and the contagious and exanthematous diseases, particularly diphtheria, scarlet fever, epidemic cerebro-spinal meningitis or spotted fever, measles, whooping cough and erysipelas.[135] There was nothing new in this. The immigrants of the seventeenth and eighteenth centuries suffered similar sickly conditions; both dysentery and typhoid fever were the most likely causes of death. Medical insights had improved little during two hundred years. [136]

Before the emergence of the germ theory there were various ways to classify diseases. One was to group them by their supposed origins:

Miasmatic—diffusible through air or water and producing fevers of two main types, those from the human body or animal matter (smallpox) and those derived from the earth and plant matter (ague);

Contagious—communicated person-to-person by contact, puncture, or inoculation (syphilis, scabies, some cattle diseases);

Dietary—arising in the blood from poor diet or bad food (scurvy);

Parasitic—animal and plant organisms infesting the skin, intestines, and other structures of the body (lice, worms).[137]

Another way of classifying diseases was to group them in accordance with symptoms and/or organs: fevers (ague, enteric fever), disorders of the respiratory organs (croup, pleurisy, consumption), of the throat (scarlet fever, diphtheria), the skin (erysipelas, sores), and the gastrointestinal tract (cholera, typhoid, dysentery, worms).

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[134] *Pioneer Microbiologists of America*, 68.
[135] Albert Baxter, *History of the City of Grand Rapids, Michigan* (New York / Grand Rapids: Munsell & Comp., 1891), 693.
[136] *The Deadly Truth*.
[137] *Spreading Germs*, 36-37.

Diseases could also be associated with age. Among the diseases of infants, diarrhea was the major killer (possibly in relation to feeding); others problems were teething, croup, and whooping cough. Older children could suffer from measles, scarlet fever, diphtheria, and smallpox. Adults were (still) vulnerable to cholera, enteric fever, consumption, and dysentery.

I have generally left out problems relating to childbirth, accidents, psychiatric disorders, and the disabilities of increasing age (failing eyesight, heart disease, malignancies), though reports could be found. However, I found many descriptions of the symptoms and medical interventions too general to recognize specific morbidities. In particular, the consumed faces, as if returned from the realm of ghosts, has been difficult to attribute to a single disease. Most of the recognizable diseases and more are discussed below.

The doctors practicing in the Colony must have had their frustrations in not being able to diagnose many of the plethora of diseases that people undoubtedly had, often more than one at the same time. Many times their arsenal of bloodletting, blistering, mercury, antimony, and opium failed them (or worse), despite their wide empirical knowledge. Bleeding (bloodletting and cupping) and purging, and washings with cold water, were methods to alleviate the suffering. Geesje Visscher-Vander Haar, who started her diary in 1869, recalled that her daughter fell sick during the summer of 1849; she was not well and had no appetite:

> I gave her some medicine which I thought would do her good. But that afternoon she became worse. I helped her to bed but she got even worse and then we called the doctor. He said we should rub with brandy [*brandewijn*], which we did; we couldn't give her any medicine because she could not swallow anything. She was unconscious for eight hours, [but then she got better]. The doctor said that it might be considered as a means in God's hand that I had given her the medicine which I had.

This description is too short to label it with a particular disease. The same holds for another occasion, when her youngest child had the fever.

> It got a fit so badly it seemed as if he would die. The doctor put him in lukewarm water for ten minutes and then wrapped him in a woolen blanket in bed. Until night he laid as dead, but then awoke and took the breast.[138]

Stimulation of the skin in various ways was something that could always be done, but understandably (for us) it was of no avail.

Bloodletting was another common practice. A grandfather in Zeeland recollected that he went as a small boy with his mother to Mrs. Alving (Baert), the town's midwife.

> She took in many ways the place of a doctor. Mother was not at all well then and the *juffrouw* [lady] had advised to have her blood let. Though she was not a general doctor, she did this for mother as a special favor. She took out a cup of blood from her arm. That is "cupping." Mother said that this cupping did not help her at all.[139]

Cupping was a special procedure for letting blood, if no leeches were available. Heated glass cups were quickly placed over scarifications of the skin; the under-pressure would cause blood to flow.

Before describing and interpreting health conditions, one should know medical history and understand the contemporary meaning of the terms of the past, both in Dutch and in English. On the other hand, people did not describe the diseases of their beloved ones to allow a professional diagnosis. It was the outcome that counted, as well as to recount the suffering as a lesson for others. After all, deathbeds were great teachings for the survivors.

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[138] Geesje Visscher, Diary, translation pp. 9-10.
[139] Zeeland Historical Society Archives.

All the knowledge that we have in the twenty-first century does not always help us when assessing causes of death based on family histories. For example, the widow of Marten Schoonbeek described the illness of her husband, on request of her son in the old country, as follows:

> Father was brought home sick on May 9. So sick that he told me he had never been so sick before. He was a little better for a few days and then worse until the day he died. A half hour before his death [May 14] he still got up from his bed and smoked a pipe of tobacco. I sat with him then and said to him, "How cold your hands are." Then . . . he gave me a kiss and went back to bed. Subsequently, he became very uncomfortable and he was gone in a quarter of an hour."[140]

Knowing that Schoonbeek had been ailing for a year from chronic diarrhea does not give us much further help. But the contemporary doctor, who had to certify the cause of death, was forced to fill in the form. Both he and we have limitations when judging lay descriptions of disease symptoms and ways of dying.

The following outline of diseases in West Michigan should be appreciated in that sense and criticized where necessary. It may replace an earlier attempt by Adrian van Koevering (not without merit) in his book Legends of the Dutch (1960).

Ague

Van Raalte wrote in his propagandistic letter of January 1847 to friends in the Netherlands:

> Concerning the strange or European settlements, one notices that some of them get the every other day fever, which they call a naturalization of the climate. This, however, brings no danger in the least. This sickness, however, can be prevented by carefulness, and usually by using some medical means is turned away in a few weeks.

Indeed, the first physical infirmities the colonist faced were fevers and chills. These problems were mostly unknown to them. This ague, as the English used to call it, manifested itself by daily fevers and chills, or they came every other day. There are many settlers who reported or recalled later how frequent these fevers were. One is detailed in the timing of arrival and the first symptoms:

> About three weeks after our arrival here [in Holland, July 1850] we all had the "Michigan fever," which was quite common. . . . From that time until the following spring we frequently had fevers.[141]

They may have grown familiar with the Michigan rime:

> And on every day there, as sure as day would break /
> Their neighbor 'ager' came that way, inviting them to shake.

The ague was widespread in nineteenth-century United States, including the Midwest and Michigan.[142] The Michigan historian A. Van Buren wrote in 1882 a detailed description of the sequence of symptoms, obviously from his own experience:

> We could always tell when the ague was coming on, by the premonitory symptoms—the yawnings and stretchings; and if the person understood the complaint, he would look at his finger nails to see if they were turning blue. No disease foretold its coming by such unerring signs as the "fever'n ager." The adept could detect its approach before it got within ten rods

[140] *Dutch American Voices*, Letter, 14 July 1874, p. 269.
[141] Reijer Van Zwaluwenburg's Life Sketch," in Lucas, 1:413 and 422. Printed in 1911 in *De Grondwet*, it also can be found in the Moerdijk Collection, Holland Museum Archives.
[142] Margaret Humphreys, *Malaria, Poverty, Race, and Public Health in the United States* (Baltimore: Johns Hopkins University Press, 2001).

> of him. At first the yawns and stretchings stole upon you so naturally, that for a time you felt good in giving way to them; but they were soon followed by cold sensations, that crept over your system in streaks, faster and faster, and grew colder and colder as in successive undulations they coursed down your back, till you felt like "a harp of a thousand strings," played upon by the icy fingers of old Hiems, who increased the cold chills until his victim shook like an aspen leaf, and his teeth chattered in his jaws.
>
> There you laid shaking in the frigid ague region for an hour or so until you gradually stole back to a temperate zone. Then commenced the warm flashes over your system, which increased with heat as the former did with cold, until you reached the torrid region, where you lay in burning heat, racked with pain in your head and along your back, for an hour or so, when you began by degrees to feel less heat and pain, until your hands grew moist, and you were relieved by a copious perspiration all over your body, and you got to your natural feeling again. Getting back to your normal condition, you felt relieved and happy, and as you went out of doors everything about you was pleasant and smiling, and you seemed to be walking in a brighter and happier world.[143]

The shakes were uncontrollable, and pots and pans in the cupboard of the log cabin would rattle along. These "ague days" were so inconvenient that work or school could be only attended on "well days."

Van Buren clearly stated that pioneers had to go through this initiating process to acquire citizenship in Michigan, and that no one was ever supposed to die with the ague.

> It was not considered a sickness, but a sort of preface or prelude to disease. 'He ain't sick, he's only got the ager' was a common expression among the settlers. . . . It is a fact worth recording that, for a large part of the first pioneer decade, the 'fever'n ager' was almost the only disease or sickness that afflicted the settlers. . . . The other more dangerous diseases came in later years.

At least for the Holland colony this did not hold during the first years!

Surprisingly, the ague is hardly heard of thereafter. Also, in Grand Rapids "the malarial forms are still observed, although to a much less degree than formerly."[144] The people apparently had accustomed themselves to it, indicating that they may have developed some degree of immunity. But that this could be lost is clear from the sudden incidence among the Indians in 1846, after years of relatively low profile.[145]

Ague, a French word that means sharp, was known all over Europe. The term can be traced back to the English seventeenth-century doctor Thomas Sydenham, and far beyond into the British Middle Ages, and indicated the sudden, and often regular bouts of fever.

Hendrik Brinks recounted the story of his parents in 1912: "[In 1850 or 1851] mother was stricken by the three day fever, as this disease was called then . . . and father too began to suffer from the same illness and ailed from it for an entire year."[146] This looks like an intermittent fever, and considering the fact that the "three days" were sometimes considered as one-day fever (one day free and again one day fever), it must have been the ordinary Michigan ague (later called malaria) that was called "every other day fever" by Van Raalte. H. Lanning from Drenthe province called it

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[143] A. D. P. Van Buren, in *Michigan Pioneer Collections*, vol. 5 (Lansing, 1884), 300-1. Also in *Historic Michigan*, vol. 1, ed. G. N. Fuller (National Historical Association, 1924), 309-13. Hiems is a word for winter, as in Shakespeare: "And on old Hiems' thin and icy crown/ An odorous chaplet of sweet summer buds/ Is, as in mockery, set (A Midsummer Night's Dream).

[144] *History of Grand Rapids*, 693

[145] Van Buren considered it a rare event that Indians would suffer from the ague, but the Memoir of Rev. Smith tells another story.

[146] "Hendrik Brinks' Brief Life Sketch of Roelof Brinks," in Lucas, 1:232, 234. First published in 1912.

the cold fever (*kold koorts*) that two of his family got shortly before 12 October 1847.[147] Geert Heerspink wrote from Allegan to his folks in the Netherlands that he had caught the fever in the fall of 1849 and suffered three months. He called it "Zeeland fevers," which were, without other complications, not lethal, also not contagious.[148] Heerspink was not a native of Zeeland province, but the islands in the Southwest of that country and were renowned in Europe for their "Zeeland fevers." It is therefore not surprising that an immigrant put this label on the Michigan ague. The ague, or malaria, was also common in the coastal areas of the Netherlands and was called the "on and off fever" (*tussenpozende koorts*) or "every other day fever" (*anderdaagse koorts*)—in modern terms, the intermittent fever(s).

Indeed, malaria occurred in Zeeland province of the Netherlands, as the British invasion force had experienced in 1809, suffering some 10,000 sick and 4,000 deaths. Later scientists deduced that the underlying disease of the "Zeeland fevers" was typhoid fever, which caused the life-threatening enteric problems of the invading army. The indigenous islanders were left untouched, which would suggest that the Zeelanders suffered less of the ague and the enteric fevers, because they were somewhat immune. Interestingly, one of the Zeelanders stated: "Those [immigrants] coming from higher and dryer areas in the Netherlands suffered from the fevers in their poor accommodations [in the Colony], the consequence of inhaling malaria [bad air]."[149] Two daughters of Jacob Harms Dunnink in Beaverdam (five miles north of Zeeland and Drenthe) got the fever for about three weeks in September 1851, three years after settling. Dunnink's land was situated rather high, about twelve feet above the normal water level, which probably made it a healthier place than the lowlands and explaining why it took the girls so long to acquire the ague.[150] Also, Rev. C. Vander Meulen remarked that Zeeland suffered less from life-threatening diseases than Holland did.

It was well known that the "fever and ague" could be cured by quinine, and by the bark of the cinchona tree (Peruvian Bark); without one of those remedies one would simply have to wear it out. Elvira Langdon, the schoolteacher, remembered that some tried quinine and some tried other remedies; in her opinion, the best was plenty of cold water and a sweat. A qualified medical practitioner or physician would probably advise taking two two-grain pills of quinine three times a day. However, the enteric fever that coincided with ague did not respond to quinine. Smith was able to tell the two feverish diseases apart.

In the memoirs of the settlers around 1890, the Michigan fevers were often mentioned as being malarial fevers, or malaria short. This nineteenth-century term malaria referred to the Italian *mal aria* or bad air, and the common belief of doctors, naturalists, and lay people alike was that the foul-smelling marshes produced miasmas that caused the fevers. Several pioneer records allude to the same vision. See further under Malaria, p. 63.

Animal Nuisances

Rev. Jacob Vander Meulen used the expression: "They attacked as flies on the meat during the dog days and as mosquitoes on the first settlers in the forests.[151] This description reflects real life in the Colony, where hordes of insects were after food, decaying meat and excrements, blood, and shelter during summer and early fall.

[147] Collection 78, box 40, folder 16, ACC.
[148] G. Heerspink, Allegan, to unknown person, 24 January 1850, Collection 78, box 28, fldr. 2, ACC.
[149] J. Vander Meulen's speech of 1897, *De Grondwet*, 4 February 1913. See also T88-0234, box 6, Holland Museum Archives.
[150] *Dutch American Voices*, 33.
[151] *Ter Nagedachtenis van Rev. C. Vander Meulen* (Grand Rapids: Standaarddrukkerij, 1876).

1. Flies. I did not find any complaint or other mention by settlers on the abundance of flies during the summer months, but the fact that fly killers could be bought from Post's general store, indicates that these insects were a nuisance.

2. Mosquitoes. There is another argument for modern historians to ascribe the ague, and later the malarial fevers, to malaria proper. In 1898 a British doctor in British India, Ronald Ross, and an Italian zoologist, Benito Grassi, discovered at the same time that certain mosquitoes transmitted the blood parasite. And where did one find mosquitoes? It was in the neighborhood of water (including marshes). The term marsh fever gave a whole new light. Not the miasmas but the mosquitoes that bred in the (marshy) pools of forests and riverbanks were the culprits. For America it turned out to be that *Anopheles quadrimaculatus* was the chief vector of malaria; it is very similar to its European sister species *A. maculipennis atroparvus*.[152]

The immigrants arriving at the shore of Black Lake could not keep off the countless mosquitoes that assailed them . . . and the woods were filled with countless multitudes of mosquitoes which attacked the men in the forest while peeling bark from the hemlocks.[153] Fluctuations of the (water-)temperature may well have had some influence on the size of the mosquito population. The mild fall and winter of 1847-48, followed by a hot summer 1848 probably caused many mosquitoes to survive hibernation, and extra summer generations of mosquitoes might well have been the cause of the widespread ague/malaria among the settlers that late summer and fall. The next summer was very dry. However, malaria incidence cannot easily be associated with climatic conditions, and thus, with mosquito populations that change from year to year. Epidemic waves of malaria generally take a couple of years to emerge and wane, as was the case in the year 1846-50. The sudden influx of several thousands of pioneers, who all got the infection, had certainly increased the intensity of that wave.

Van Buren has an interesting account about mosquitoes in Calhoun County. He indicated that the damp and ill-ventilated log houses with their large families attracted many mosquitoes. To reduce the nuisance during the evening, when they became active and entered the habitations, people would fill old pans with chips, kindle a fire, and keep it smoking. Sometimes the smoke became as much a nuisance as the mosquitoes. The quality of the houses and the standard of living had improved by 1850, and there were 168 cows and 70 oxen in Holland Township. These animals may have deflected some mosquitoes away from the people, but not enough to reduce the incidence of malaria.

Van Buren continued: "It has been claimed by some authorities that the mosquitoes were created as pests, and sent here for the purpose of compelling the settler to drain and improve the swamps, lowlands and marshes. [154] He spoke of settlers in general, not specifically about the Dutch, but he knew the area and its history well. Of course, nobody associated the ague with the mosquitoes, but rather with the foul-smelling marshes. The major man-made changes in the environment may have increased the burden of nuisance (and malaria) and forced the settlers to drain their land. But estimating a decrease in nuisance did not fit in the way of reasoning of the time. Along the banks of Black River and Black Lake, enough breeding space for mosquitoes remained, to sustain a fair amount of nuisance till this very day. Even the gradual changes in frequency and virulence of certain diseases, like malaria and typhoid, were not actively recognized by the contemporary writers of the Colony.

Eventually, malaria disappeared, not only in Holland and in Western Michigan, but in many Northern and Midwestern states, without doubt through a complex of factors that reduced the frequency of contact between man and mosquitoes.

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[152] C. M. O'Malley, "The Biology of *Anopheles quadrimaculatus* Say," in *Proceedings of the Seventy-Ninth Annual Meeting of the New Jersey Mosquito Control Association* (1992), 136-44.
[153] "Lambertus B. Scholten's Memories of Early days in Graafschap, in Lucas, 1:91, 95.
[154] A. D. P. Van Buren, "Mosquitoes," *Michigan Pioneer Collections* 5:303.

3. Lice. Engbertus Vander Veen recalled that when sleeping with several people together during the first year 1847:

> There was much amusement over our scratching which began with the plague of Egyptian lice. The woods and huts were all filled with the pests, and no remedy could be found so long as we lived herded together. The lice had been brought in by the immigrants.[155]

Infestation caused by head lice (*Pediculus humanus capitis*) has been a public health nuisance for thousands of years. The writer obviously referred to the third plague in Egypt declared by Moses. Once settled in the colony, the mothers would have been delousing their kids, using their thumb nails or a nit comb, but I found no specific report. The related human body louse (P. humanus corporis) may also have occurred among the colonists; it can transmit louse-borne typhus fever, but this disease did not occur in the Northern United States. See Typhus.

4. Bed bugs. Eventually, bedbugs may have arrived. These insects (*Cimex lectularius*) hide during the day in cracks of the walls or ceiling and mount the occupied beds. They suck blood, cause itching, but don't transmit any disease agent. It is told that a visiting minister, staying with an elder of Perch Lake Christian Reformed Church in the 1890s, asked whether there were bedbugs in the room, much to the offence of the tidy housewife.[156]

5. Mites. Van Buren described in 1882 the Michigan Rash as one of the old pioneers' foes. It was an unpleasant and troublesome cutaneous disease (considered an impurity of the blood) that could break out and cause a lot of scratching. Whole families, yes, whole neighborhoods, would have it at the same time. It would break out in a school, and go from pupil to pupil and to the teacher. Most people had this disease as they did the ague, until they wore it out.[157] This rash had obvious traits of contagiousness and the symptoms were likely scabetic. Scabies may have manifested itself from time to time. It is caused by the skin mite *Sarcoptes scabiei* which creeps, feeds, and reproduces under or in the skin, mainly of the hands, armpits, and groins.

Though Van Buren added to his description that a lack of fruit and vegetables was supposed to have something to do with the Michigan rash, it fits less well with the cutaneous sign of Pellagra (see p. 66), or with one of those harmless viral rashes, or poison ivy or poison oak that the pioneers did not know from Europe. One may suppose that the men engaged in forest work would soon get to respect these plants, we did not find any allusion to it.

Another mite, living in flour, may have caused the red arms of women, when baking bread.

Apoplexy

It is an old-fashioned term used to mean neurological impairment or stroke (in cases of lost consciousness); also, uncontrolled bleeding into an organ.

Bloody Flux or Dysentery

Both terms, bloody flux and (bloody) dysentery, were in use at the time. Rev. Smith generally used the term dysentery, probably because he was more educated. The various testimonies confirm that this disease mainly occurred in summer and that it was not confined to children; people could catch it also beyond the major epidemic upheavals. Swartwolt, as well as Rev. Vander Meulen, referred to the wave of dysentery in 1858 that struck Zeeland and Holland, but there may also have been a wave two years before or a year later. Geesje wrote about one of her children having the bloody flux in 1859, but that does not mean that there was an epidemic.[158] The other witness (Jacob den

[155] "Engbertus van der Veen's Life Reminiscences, in Lucas, 1:499. First published in 1915.
[156] Paula Vander Hoven and Angie Ploegstra, "The Short-Lived Perch Lake Christian Reformed Church," *Origins* 23, no. 2 (2005): 26-31.
[157] A. D. P. van Buren, *Michigan Pioneer Collections* 5:302.
[158] Geesje Visscher, Diary. The translation mentions 1858, but that is a misreading.

Herder) told the story some forty years later, placing it in 1856, but he may have been mistaken by two years. Finally, Hendrik Brinks most likely described the same epidemic of dysentery; he recorded this in 1912: "Then, in 1858 a terrible disease appeared among the children and also among some of the older people [in Zeeland], and they [his parents] then lost 3 children within 24 hours. Mother and I lay also at the brink of death. Father alone was spared."[159]

Shigella dysenteriae bacteriae undoubtedly caused the form of dysentery in the Colony. They cause an inflammation of the large intestine, which starts festering and bleeding; patients have acute fever and painful cramps (tenesmus), produce frequent watery stools containing blood and mucus, and become dehydrated. Moreover, they have difficulty taking in food or fluid. Because the gut wall is severely affected, a peritonitis may occur (due to fecal leakage through the damaged bowel wall), which leads to death. *Shigella* is extremely contagious to people of all ages; the infection spreads through contact and food or water contaminated by human waste. Knowing this, it is not difficult to comprehend the fact that the whole Swartwolt family came down with dysentery. Handling of the diarrhea of the two children who died and the diaper-changing practices, as well as father's walks with the stool of his baby to show to the doctor (probably judging whether there was still blood in it) made the family one big unit of infection.

On the hill where Jannes Vande Luijster built his house in Zeeland, there was a spring, which at that time furnished water for the whole community. Also, "the creek which ran through Rev. Vander Meulen's lot furnished water for the Zeelanders. A barrel was sunk into the ground, and the fresh water was clear and filled the barrel to overflowing, supplying many families. The water was dipped out with pails. There were no wells in Zeeland for many years."[160] In hindsight, it is most likely that these sources of water were severely contaminated.

Smith recorded only five cases in the years 1845, 1846, and 1848, in which three persons died. The Van Raaltes lost their half-year-old Maria in August 1849 of dysentery (Death Records 1849-50). The frequent bowel disease of the Indians that occurred simultaneously with the fever and ague in summer and fall of 1846 was not dysenteric (i.e. with bloody discharge); otherwise Smith would have recognized it and named it properly. The same holds for the early settlers and their enteric fevers (typhoid).

Bilious fever

A widely-used term for malaria, typhoid, and other enteric fevers (Dutch: *galkoorts*) that are supposedly caused by a liver disorder, is used when the skin turns yellow. The latter sign indicated an undue amount of bile in the blood. Maria Van Raalte (the second Maria) suffered from bilious fevers on 29 September, 1862.[161] During the period of June 1849 to June 1850, bilious fever was given eleven times (out of 89) as the cause of death among those four children below five years of age. As all but one died in the period June-November, we may register these cases under malarious and/or typhoid fevers. Infectious hepatitis A is also a good candidate. Like enteric fever, this viral disease is transmitted by fecal-oral contact.

Brain fever. *See* Spinal Meningitis

Cancer

A case of fatal cancer of an old man is reported in Holland, after much and long suffering, but probably she meant canker.[162] Dr. Van den Berg of Drenthe operated on a man from Vriesland with

[159] "Hendrik Brinks' Brief Life Sketch of Roelof Brinks," in Lucas, 1:233-34. Published in *De Grondwet* in 1912.
[160] *The Immigration and Early History of Zeeland*.
[161] Van Raalte Collection 300, box 9, fldr. 10, ACC.
[162] Geesje Visscher, Diary, translation p. 14.

a malignant growth on his lower lip; this event was recorded and followed by *De Hollander*, 5 August 1857.

Childbed Fever

Geesje Visscher recalls the disease and death of her sister in 1865. Three days after giving birth to a healthy son, this sister got the fever, and on the fifth day, she was sure that she would die. She lingered five days as if she was passed out most of the time, but sometimes she was fully conscious. The fevers became worse and on the tenth day she succumbed. The term childbed fever is, however, not mentioned![163]

Cholera

In the summer of 1849, the physicians of Grand Rapids were busy with an outbreak of Asiatic cholera at Grandville; it was part of the third pandemic. The mortality rose to 35-40 percent, but it did not reach Grand Rapids.[164] James Moerdyke recalled that in 1849, while traveling to the Colony, a case of cholera was manifest on board between Utica and Rochester. "Probably cholera morbus, from eating green apples in orchards near the canal. A young lad . . . was taken, and died in a couple of hours, and was hastily buried near the canal. . . . All were shocked. . . ."[165] Mortality due to cholera was registered eight times from June 1849 to June 1850 in the whole of Holland Township plus Fillmore. In order to assess the spread in the Colony, one would have to locate these families. However, the number of sick that survived the cholera is not retrievable. The *Sheboygan Nieuwsbode* reported on 19 September 1850 that the cholera in Milwaukee had almost gone and that the rumors of the fierceness of the disease had been largely exaggerated.

On 4 April 1851 a new outbreak of Asiatic cholera had started in India. The reporter for this Dutch newspaper wished that this mysterious and fearsome curse of the human race, which hovers year after year around the whole earth, carrying death, misery, and destruction, would not hit again. It did, however, in 1854, including in Grand Rapids, but "the visitation was light, there being only three or four deaths here from this cause." Pieter Lankester from Milwaukee casually wrote that he had had an attack of the cholera during the summer of 1854 and that it "was quickly quelled by the Lord's intervention."[166] The Lord's power is beyond discussion, but I doubt that it really was cholera. Even in a mild form it would have had a more dramatic impact.

An undated recipe for a cholera medicine was written by a Dutch-American, most likely in Michigan. It is obviously in American handwriting, but with a few Dutch words:

> [Ch]*olera – Drank* [that is fluid medicine]
> *1 Pint water, 8 teaspoons full white sugar*
> *1 teaspoon ful*[l] *extract of peppermint*
> *24 drops laudanum*
> *1 teaspoon ful*[l] *Hofman drops*
> *Shake well*
> *Use 1st time 4 eetlepels vol* [tablespoons full]
> *10 minutes later 2* [ditto]
> *And then 1 every hour.*
> *For children teaspoons ful*[l].[167]

[163] Geesje Visscher, Diary, translation p. 16.
[164] *History of Grand Rapids*, 693.
[165] "James Moerdyke's Autobiography," in Lucas, 2:418.
[166] *Dutch American Voices*, letter, 15 February 1855.
[167] Collection 465, box 1, folder 11, ACC.

Laudanum or opium and Hofman drops were meant to relieve pain in the nineteenth century. Peppermint tea and peppermint oil were used internally and externally, along with rubbing. Most remedies used during a cholera epidemic contained calomel and camphor, aloes or castor oil, as purgatives (see Appendix B). According to the prevalent view, the morbid factor had to be removed.

Cholera was very impressive because of its rapid speed and dramatic signs. It spreads through feces-contaminated water and food, but at the time, the eating of unripe fruit was generally considered to be one of the causes (see p. 45). The real cause is a toxin produced by the bacterium *Vibrio cholerae*, which acts on the small intestine to cause secretion of large amounts of fluid. The painless, watery diarrhea and the passing of rice-water stool as well as vomiting are characteristic. Massive body-salt depletion occurs, and the skin turns pale blue. It leads to shock and death, often within a day or two. Survivors go through a period of fever. The above purgative and sedative treatment was to no avail; patients need to drink to compensate for the enormous loss of fluid.

Cholera Infantum or Summer Complaint

A common, non-contagious diarrhea of young children, occurring in summer or autumn. It was prevalent during hot weather and was characterised by gastric pain, vomiting, purgation, fever, and prostration. It was common among the poor and in hand-fed babies. After this summer diarrhea, death frequently occurred in three to five days. It was not true cholera, but symptoms were similar (gastroenteritis); however, during cholera outbreaks, the cause of death of young children was often called cholera infantum.

Chorea. *See* St. Vitus dance

Consumption

A young man of nineteen years old, visiting Zeeland from Chicago, was in a weak condition. Rev. Vander Meulen described his situation as “death hot on his trail” and may have recognized his frail and pale look as consumption (Dutch: *teering*).

In the death records of Ottawa County of June 1849 to June 1850, twelve cases of consumption are mentioned for Holland Township, among them two children (plus three cases of summer consumption). In 1869 Rev. Pieter Oggel, Van Raalte’s son-in-law, was very ill with consumption and died at the end of that year.

Consumption was mostly a disease of crowded habitation (cities), characterized by fever, night sweats, and coughing up blood. It was called “the consumption” because the victims wasted away and were almost literally consumed by it. It also took the lives of many children. Later, this respiratory disease became known and feared as pulmonary tuberculosis, caused by the bacterial species *Mycobacterium tuberculosis* through the sputum of an infected person. Scrofula was a TB affection of the lymph nodes in the neck.

Croup

A child of Dr. G. B. Goodrich from Saugatuck died of it. No other cases were found. It is an edematous obstruction of the voice box and windpipe, characterized by a hoarse, barking cough and difficult breathing. It is caused by a virus and is transmitted through the exhaled air with little droplets. It occurs chiefly in infants and children.

Diphtheria

Van Koevering mentions the death of two De Jonge children on 24 July 1852.[168] Geesje Visscher

[168] *Legends of the Dutch*, 348.

recalled that in 1863 many children died of the throat disease; hers did not contract it.[169] Maria de Pree Klaasen died of it on 16 October 1868 in Zeeland, as well as two Den Herder children in Vriesland. Finding later the personal account of the father, Jacob Den Herder (page 28), sets such an objective observation in a different perspective, even when stripped from the emotional and religious exclamations. His observation of one of his daughters that "the poison passed down into her legs and worked out in sores so that she soon got over it" is interesting but hard to validate. His description of the symptoms with which the last child died ("of the same terrible disease [that] first affected her bowels and after a few days it moved to her spine") sounds less like diphtheria.

It is an acute infectious children's disease with fever caused by a toxin-producing bacillus *Corynebacterium diphtheriae* acquired by contact with an infected person or a carrier of the disease. Visiting doctors and pastors may have spread the disease. It was usually confined to the throat and characterized by the formation of a tough, grey-green membrane attached firmly to the underlying tissue that would bleed if forcibly removed. The membrane obstructs breathing and the endotoxin produced by the bacteria would affect several organs like the heart and nerves. It could be very virulent and lethal, up to 50 percent of the cases, particularly in families of more children (as in the above case). After an epidemic, immunity would develop in a community (sustained by healthy carriers), eventually waning in time or by influx of new people. In the nineteenth century the disease was occasionally confused with scarlet fever and croup.

Dysentery. *See* Bloody Flux

Erysipelas

Smith reported the death on 8 April 1844 of an Indian woman who suffered from Erysipelas for a few days. On 14 April 1846 he again found an Indian woman sick with the Erysipelas: ". . . attacked, got very wet. It is seated on the right side of her head, face and neck, baldly swollen, some blisters. I gave her salts, ordered her face bathed in warm water, and if her head grew worse to blister her anew." It was also known as Saint Anthony's Fire. Smith's diagnosis is very clear, but we did not encounter the diagnosis among the Dutch settlers, and the Dutch names *wondroos* or *belroos* were not used in the sources. It is an infectious, acute, febrile, skin disease, caused by hemolytic *Streptococcus* bacteria, which find their way to the subcutaneous tissue and lymph vessels through a wound (possibly aided by flies). Characteristically, it spreads diffusely, causing deep-red inflammation of the skin or mucous membranes of face or leg and resulting in a rash with a well-defined margin and blistering.

Fevers

Confronted with the wide variety of fevers and having no diagnostic tools for differentiation and no specific treatments, middle-nineteenth-century medical men were largely helpless to tell the forms apart, and they often let nature take its course. Fever was even considered to be part of the healing process, and, therefore, treatment was initially withheld to let the fever have its course.

Remarkably, Rev. Smith described the ailments of an Indian family in August 1841 as follows: "They appear to have, some of them, fever, perhaps intermittent; others fever and ague." Maybe Smith was not yet experienced enough to distinguish the various forms of fever by which the ague manifested itself. However, other observers of the time also distinguished congestive fevers, bilious remittent fevers, intermittent fevers, nerve sinking fever and fever & ague, which then would develop into dumb ague (without the shakes), and the chill fever (according to Van Buren). Congestive fever generally responded to quinine or bark and thus must have been a clinical manifestation of malaria, but it was considered to be caused by "venous congestion." This led to the frequent use of bloodletting to relieve the "congestion" as a primary mode of treatment.

[169] Geesje Visscher, Diary, translation p. 15.

From summer 1849 to summer 1850 fifteen fatal cases of various forms of fever were registered in the Colony. In the reasoning of contemporary doctors, it was not strange that the ague fever could also develop into enteric fever, causing heavy diarrhea, the rotten disease or bilious fever (*rotkoorts,* or possibly sinking fever) or into dysenteric fever. Mild purgatives, like mercury were applied to regulate the bowels of patients if necessary. Mercury in the form of blue pills was used by Rev. Smith to treat his fever patients.

Influenza

True influenza (a viral infection) always involves the respiratory tract. Though several epidemics spread over the U.S., I have not found descriptions of this disease and its mortality among the Dutch settlers. The only record found is in Rev. Smith's diary, mentioning that he and his family were down with influenza in early March 1849. However, there is a convincing coincidence of a major pandemic in 1857 and a tripling of deaths in Holland Township, as evidenced by the numbers of burials of that year. It would not be surprising to find that this year showed an unusual amount of elderly having died.

Malaria

During the nineteenth century, the terms ague and malaria were synonyms. In 1880 a French doctor discovered that the blood of a malaria patient contained microscopically small animals that parasitized in red blood cells, but it took half a century before doctors would habitually confirm their clinical diagnosis by examination of the blood by microscope. The parasite was then already called *Plasmodium*, but gradually it also became clear that there were three different species, each causing a different type of malaria.

One type is malignant and occurs, or occurred, in the tropics and in the subtropics (Mediterranean Europe and the Southern United States), while the two others are benign and also thrive at more moderate climates (England, the Netherlands, Southern Scandinavia, Northern United States, and Northern Asia). These latter parasites are called *Plasmodium vivax* and *P. malariae.* They have a peculiar behavior in the blood. Once inside red blood cells, these parasites digest their host cells and divide into 8-16 daughter parasites that break away and find another red cell. The digested debris from the parasite liberated in the blood cause fever. Under certain conditions all these parasites start doing this at the same time, which gives rise to bouts of fever. *P. vivax* completes its cycle in two days and *P. malariae* in three days; hence the intermittent fever patterns of every other day ("tertian malaria") or every third day ("quartan malaria"). This would create one or two healthy days, respectively. We have not found any indication of quartan ague or quartan malaria among the reports from Michigan; this type would have occurred in the fall. The qualification "benign" refers to the fact that generally such infections are not fatal, but the patients experience utterly exhausting fever days, during which cold chills with uncontrollable shivering are followed by heat and profound sweating, fever, headache, and muscle pain.

European and American historians have always had to deal with the ague and mortality.[170] Often, they have taken ague for malaria, with no other diagnostic tool than mortality records. This may hold for subtropical regions, but for temperate climates, as in the American Midwestern states (Michigan, Iowa), the Netherlands, and England, this is a shaky, if not worthless indicator.[171] Most of what was called the Michigan ague, which peaked in August, was indeed malaria, and in fact was the type caused by *P. vivax*. Again, it did not cause the mortality in the Holland Colony by itself. However, for the writers of the turn of the century and the contemporary witnesses of the

[170] *Malaria: Poverty, Race, and Public Health in the United States*.

[171] N. H. Swellengrebel and A. de Buck, *Malaria in the Netherlands* (Amsterdam: Scheltema & Holkema, 1938); Robert A. Hutchinson and Steven W. Lindsay, "Malaria and Deaths in the English Marshes," *The Lancet* 367, no. 9526 (10 June 2006): 1947-51.

early years of settlement, we cannot and must not be too sure. They were not aware of modern insights, and the mere fact that a new term got gradually adopted does not mean that every ague or malaria was an infection caused by *Plasmodium*. In other words, ague and mortality in **their** understanding were perfectly matching.

For example, the above cited case of the Van Zwaluwenburg family, who caught the Michigan fever within three weeks after arriving, very well fits with (tertian) malaria, but the follow- up does not: "After father had had the fever four or five times he became sleepy. We had to awake him, for if not he simply would sleep endlessly. After two days in bed we could not rouse him and one evening he died." And after mentioning the noxious fevers, his friend Hendrik van Eijk wrote in his diary (August 1850): "To my great distress I noted that his constitution gradually declined, his strength failed. After a sleep of forty-eight hours he passed away into his long dark deep death sleep."[172]

This course of sleep and death may fit malignant or pernicious malaria, caused by *P. falciparum* (i.e. coma), but is not typical of benign tertian malaria. As lethal malaria did not occur in Michigan, other explanations for the frequent mortality are required. The other hypothesis to explain early intermittent fevers along with considerable mortality is that the parasite strain *P. vivax* was more virulent in the nineteenth century than the strain that occurred in the temperate zones of Europe and America of the twentieth century. Though *P. vivax* has manifested itself in a host of biological and clinical differences all over the world, its degree of virulence cannot be assessed on the basis of contemporary records. The British physician and malaria expert Sidney James wrote in 1929 that benign tertian malaria, when left untreated with quinine, is often a serious disease, which, in persons who are enfeebled from any cause, not infrequently results in fatality. Thus, the ague, together with other debilitating conditions, aggravated the course of other underlying diseases. However, the most likely cause of death during summer and fall, both among the Indians and the Dutch, was typhoid, which fits with the above case (see typhoid fever, pp. 69-70). This is confirmed by the reminiscence of the above episode by his son Jacob, who suggested, "Father doubtless developed typhoid." In the view of the time, the ague fever could develop into enteric fever, and by consequence the two were not strictly kept separated.

One more characteristic of *P. vivax* is that, despite a full course of quinine, it could relapse after weeks, months, or even some years. We now know that this is because some parasites can hide and rest in the liver, unaffected by quinine, and revive at some later time. Clinically, it was not possible to tell whether such an attack was due to a relapse or a new infection. The relapses may partly explain why some people had fevers ongoing through the winter and spring. Moreover, there is also the fair possibility that their treatment with quinine had not been sufficient, either in dose or length of the cure, allowing the parasites in the blood to linger on.

Over the years, the ague/malaria became less of a threat to the people in the towns of West Michigan. This may partly be due to people developing immunity after having experienced several episodes, and partly because quinine became more widely available. But there is also the factor of better living conditions. James's statement about the situation in malarious East England perfectly fits the social and economic situation in the West Michigan area:

> Roads are made; scattered houses become easy of access; there is co-operation between various households; villages spring up; a school and church are built; educated people come into contact with the inhabitants and it becomes possible for a doctor to make a living in the locality; sick-clubs may be formed . . . and there are arrangements for dealing with infectious diseases and epidemic outbreaks; later there may be arrangements for lighting, for water-supply, and for the disposal of night soil and refuse. It is not contended that all

[172] "Hendrik van Eyck's Diary," in Lucas, 1:467, 478. Note that in the original 1851 is inserted in brackets; even more wrongly, the translation gives 1852.

> these arrangements have a direct influence in reducing the incidence of malaria [and for that matter, any other infectious disease], but they are signs of progress towards a higher and more cleanly standard of living.[173]

In fact, malaria receded from many of the Eastern and Midwestern states, and that this phenomenon occurred long before the mode of transmission was known supports the contention that improved standard of living and economic development plaid a significant role.

Measles

In 1856, or the next year, Geesje Visscher mentioned that "the measles came along" and that three of her children got it, although they soon were well again. The older children had had the measles on the ship to America. And after the births of two more children, she wrote that in 1866 there was no serious illness, except for another slight epidemic of measles, and Maria and Gezina had them, but were soon well again.[174] Jacob den Herder from Zeeland recalled that in July and August 1868 most of his children were taken down with the measles, from which they gradually recovered.

Measles is a communicable, air-borne disease caused by a virus, and often comes with epidemic waves. Symptoms are fever and congestion, followed by a red rash. It conveys lifelong protection, as Geesje obviously knew. The witnesses only reported about benign courses, but measles could also be very virulent and even lethal.

Meningitis

Spinal meningitis was a lay term, also called cerebrospinal meningitis. Other names were brain fever, or nerve and sinking fever. There was an epidemic in Ottawa County around 1860, but it probably remained local and did not hit the Colony. Baxter mentioned cerebrospinal meningitis as occurring in Grand Rapids.[175] Diedrich Budde from Burlington, Iowa, died of it, as well as six people in Pella, during the year 1869-70.

It is an inflammation of the membranes enclosing the spinal cord; it affects infants and young children and is caused by a strain of gram-negative bacteria *(Hemophilus influenzae)*. Perhaps commonly it is caused by another bacterium, *Neisseria meningitidis*, among older children and adults. Bacteria reach the cerebrospinal fluid from the blood. Bacterial meningitis can be quite severe and may result in brain damage, hearing loss, or learning disability. It may be fatal for small children. The signs and symptoms are high fever, headache, and stiff neck. These symptoms can develop over several hours, or they may take one to two days. Other symptoms may include nausea, vomiting, discomfort looking into bright lights, confusion, and sleepiness. In newborns and small infants, the classic symptoms of fever, headache, and neck stiffness may be absent or difficult to detect. As the disease progresses, patients of any age may have seizures. Some forms of bacterial meningitis are contagious. The bacteria are spread through the exchange of respiratory and throat secretions (i.e., coughing, kissing).

Nerve and Sinking Fever. *See* Meningitis

Pellagra

This disease may have occurred among the Dutch settlers in the early years, judging from the circumstances and symptoms that are described: monotonous food, consisting of corn, and general

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[173] S. P. James, "The Disappearance of Malaria from England," *Proceedings of the Royal Society of Medicine* 23 (1929): 71-85.

[174] Geesje Visscher, Diary, translation pp. 13 and 19.

[175] Dr. J. B. Mc Nett, "Early Medical History of Ottawa County," *Michigan Pioneer Collections*, vol. 9 (Lansing, 1886), 333; *History of Grand Rapids*, 693.

lethargy among the colonist families. Poverty and consumption of corn were the most frequently observed risk factors for Pellagra, and it was corn that they had to eat, to their disgust. In the Southern United States, Pellagra occurred mostly during spring and early summer, with signs including malaise, diarrhea, apathy, weakness, and lassitude, as well as skin sensitivity to sunlight and itching red lesions (the word means rough skin). It was not recognized before 1902, but most likely existed already long time.

Dr. Joseph Goldberger proved in 1914 that it was a nutritional disease that was not contagious. It is a vitamin-deficiency disease caused by a dietary lack of niacin (vitamin B3) and protein that contains tryptophan; both are lacking in corn. Unbalanced food, with corn as a major component, may induce the symptoms within two months. Milk does contain tryptophan, which the body can convert into niacin, thus preventing pellagra, but milk was scarce in the first few years of the Colony.

Interestingly, Central-American Indians remained essentially pellagra-free. They presoaked maize in alkaline lime prior to cooking, which, as we understand now, liberates bound niacin, enhancing the dietary content of niacin and ensuring protection against pellagra. Preparation instructions for corn that the Dutch pioneers received from the Ottawa Indians included first cooking in ashes. Bernardus Grootenhuis, one of the companions of Van Raalte recorded: "[In spring 1847 our food consisted of] half-decayed beans and corn. Cooking did not soften it [the corn]. Later we were told to cook it in the ashes. It was like saleratus or potash, unbearable odor and taste. After taking it from the ashes it had to again be cooked two or three times in fresh water."[176] One wonders if that had the same effect of binding niacin.

Pleurisy

A. De Weerd, living in the Colony, wrote that he had had the pleurisy (*pleuris*) on 4 December 1848. He describes heavy congestion (Dutch: *bezetting op*) of the breast and pain in the side, thinking that his shred of life would be cut short, unless the Lord would soon grant deliverance. After prayer and sleep, the windpipes opened all of a sudden and the disease was stopped, and he gradually regained strength.[177] Hoyt Post mentioned in his diary on 18 February 1849 the death of one person in the village "from what the Hollanders call pleurisy." This remark is amazing for an American native, as the term pleurisy was in general use.

This respiratory disorder is an inflammation of the pleura, the membranous sac lining the chest cavity, with or without fluid collected in the pleural cavity. Viral infection is probably the most common cause. Symptoms are chills, fever, dry cough, and pain with breathing in the affected side (a stitch). It was often a sign of tuberculosis or influenza (see entries for these).

Pneumonia

A son of Geesje Visscher became very ill with lung fevers. The doctor came and God blessed the medicines used for his recovery.[178] Kornelis Jacob Swartwolt of Zeeland provides a more complete account:

> In the spring of 1859 my wife [Trijntje] came down with a severe cold in her chest which turned into pneumonia (Dutch: *longontsteking*). For a while we went to Doctor Van den Berg, he gave her medicine. She got worse instead of better, I was afraid that I would lose her. I then went to another doctor in Graafschap [possibly Dr Manting in Fillmore] and took along a urine sample from my wife. He gave me medicine to take back. Sixteen times I went back and forth. One night Trijntje had a very high fever and I did not think she was

[176] B. Grootenhuis, "Our History," trans. P. T. Moerdijk, T88-071, Holland Museum Archives.
[177] A. De Weerd to G. F. Schoenmaker, 11 December 1849, Collection 78, box 19, folder 15, ACC.
[178] Geesje Visscher, Diary, translation p. 14.

> going to make it through the night. By morning the fever subsided. Again I went to the doctor for more medicine. This time, he said to continue to take the medicine until it was all gone. Healing finally did come and she was healthy again.[179]

This infection and inflammation of the lungs is caused by a bacterium *Pneumococcus*. It causes chill, chest pain, high fever, cough, and thick brown sputum. If it is untreated, mortality may reach up to 30 percent.

Rheumatism

Rev. Adriaan Zwemer of Vriesland recorded the sickness and death of his daughter Nellie, of what he called chronic rheumatism, in spring 1860. She no longer wanted to play outside.

> Early one morning she began to complain about the pain in her arms, her legs and her back. The attack of pain lasted about half an hour. The following and the third day it came again, each time a little later. Dr. W. Van den Berg thought at once that she was in a serious condition. Later the attacks came at shorter intervals, even to the last day when they came every hour. Cupping, rubbing, hot baths as well as medicine were applied but she only grew worse. . . . Between the attacks she was unusually patient and she soon entered the rest she had hoped for, —to be with Jesus."[180]

Other examples of rheumatic pains due to cold, rain, dampness, and excessive physical strains were to be expected, but not encountered in the sources.

Saint Anthony's Fire. *See* Erysipelas

St. Vitus Dance

Disease of the nervous system, characterized by jerky movements that appear to be well coordinated but are performed involuntarily, chiefly of the face and extremities. Rev. Smith's father suffered from it; Smith once called it St. Anthony's dance! Synonym: chorea.

Scarlet Fever

While waiting to embark for America, the party of Rev. Cornelis Vander Meulen had suffered twenty-seven fatalities due to scarlet fever (another witness stated that it was the measles). Some of the Zeelanders may have carried the disease with them (as Van Koevering suggested), but I found no specific indication of scarlet fever during the very early years.

In February 1857, two daughters of Rev. Vander Meulen, Sara (age 12) and Anna (age 5), died one day after each other of scarlet fever, as their brother recollected in 1876.[181] Already in March 1849, another sister Anna (age 8) got a violent fever and became unconscious for a while; she languished and succumbed after being sick for about six weeks. Her suffering was intense but she was clear until the end. The description of her signs and symptoms are too few to be sure about scarlet fever. Otherwise, we conclude from the scarcity of reports that it was not a very frequent disease in the Colony. A clear description of the disease is given on page 50.

Scarlet fever (scarlatina; Dutch *roodvonk*) is a children's disease caused by a toxin from hemolytic *Streptococcus* bacilli that destroys red blood cells. Symptoms are sudden fever, sore throat, headache, vomiting, and an accompanying red rash on chest, armpits, and face (except mouth area) that disappears upon pressure. The tongue is coated with a white, removable exudate. After a week the skin of palms and soles peels off. Sepsis may occur, causing secondary infections

[179] "Life Journal of Kornelis Jacob Swartwolt."
[180] "Adriaan Zwemer's Life and Emigration to America," in Lucas, 2:458.
[181] *Ter nagedachtenis van Rev. Cornelius Vander Meulen* (Grand Rapids: Standaard Drukkerij, 1876).

in bones and joints. The uncommon toxic shock syndrome (sepsis) is highly lethal. Transmission occurs airborne from infected patients and asymptotic carriers and through direct contact, such as drinking from a common glass. The infection rate increases in overcrowded situations (e.g. schools, institutional settings).

Scrofula. *See* Consumption

Smallpox

After the short outbreak of summer 1847, the Colony remained free of smallpox (Dutch: pokken, or kinderpokken, or de kinderziekte). In Chicago a round of compulsory vaccination took place in 1868, which covered 95 percent of the city population. This was just in time, because in 1872 a large epidemic broke out in Europe, which quickly spread to America as well. It soon became evident that those vaccinated in their youth, had become susceptible as well, and hastily, revaccinations were started.

A couple from Grand Haven announced on 31 August 1872 in a death notice in *De Wachter* that their son and daughter-in-law had deceased, as well as their little grandson: "After the doctor's declaration, they died of the 'pestpox,' after 5 and 7 days of grievous suffering." And Dr. Mc Nett of Grand Haven recalled: "A malignant type of confluent small-pox appeared in our midst, which occasioned so much sickness and so many deaths, as to close all the churches, and put the town into quarantine. This is the most serious epidemic that has ever visited the city."[182]

Holland and Zeeland were largely susceptible to the disease, but Holland apparently, and surprisingly, was not affected. However, smallpox did break out in Zeeland, as the description of Swartwolt showed (page 29). Geesje Visscher lost her oldest son Willem to the smallpox in February 1872 while he was preparing to become a missionary in New York, but amazingly, she did not mention a word about the outbreak in nearby Zeeland that hit the Swartwolt family so hard.

Smallpox was caused by a virus, a relatively benign form *Variola minor* and the dangerous *V. major*, whereby little pustules (blisters) formed on the skin and on the inside of the mouth and throat, sometimes swelling and preventing a person from breathing. Material of the dried pustules was infectious when inhaled. Note: "the pox" usually refers to syphilis.

Sores

Alice Kolean-Plasman recalled her grandmother saying that her father, Derk Plasman, contracted the "black plague." It was rampant in Kalamazoo and people were dying at an alarming rate.

> One day great grandfather's forehead was all open sores and there were sores on his body too. The doctor (Dr. Annis, the only one in town) said he was sorry but he had done everything he knew to help, so he could do no more.
>
> The chief of the Indians came along with a salve, they had made from the plants and he told my grandmother to rub the salve on the sores. In three days the sores were healed over and he recovered.[183]

The term "black plague" used by a person without medical background cannot be considered as the bubonic plague or "Black Death." The actual disease with sores and its supposed mortality remains obscure. Also the Van Koevering Family Register mentions bubonic plague among the pests of the

[182] J. B. Mc Nett, "Early Medical History of Ottawa County," *Michigan Pioneer Collections*, 9:332-34.
[183] "Memoirs of Alice P. Kolean," T88-0099.1, Holland Museum Archives.

early settlers.[184] This disease swept over the world during the Middle Ages, but did not hit the United States until the year 1900.

Spotted Fever

It was mentioned by Baxter in 1891 as occurring in the Grand Rapids area. It may be identical to what is presently called Rocky Mountain Spotted Fever. Symptoms are fever and rash, mainly occurring during the summer, but difficult to tell apart by contemporary medical men from other exanthematous diseases with fever. The causative agent is a Rickettsia bacterium, transmitted by ticks.

Tapeworm

A regularly-appearing ad by Post's grocery store in *De Hollander* (1852) reads (in Dutch):

> THE TAPEWORM. This worm is the most difficult to destroy of all [worms] that torment the human constitution; it grows up till an almost undetermined length and twists and attaches itself firmly in the intestines and the stomach and afflicts health in such a sorely way, that it causes the St. Vitus' Dance Seizures etc. The afflicted rarely if ever guessed that it was the Tapeworm, that dragged them so early to the grave. In order to kill this worm, one has to start with a powerful means: for that it is good to take 6 to 8 of my Liver Pills, to clear all clogging, so that the Worm Syrup can act immediately at the Worm. It had to be taken with 2 table spoons at the time, 3 times a day. Whenever people have abided to this prescription, cure has never failed, not even in the most persistent cases.
> These remedies are only certified, when they are undersigned as with J. N. Hobensack. They are to be obtained, together with the necessary instruction, at POST, Agent

We did not come across cases of tapeworm among the Dutch settlers in West Michigan. However, the fact, that Post put this ad daily in the newspaper, may indicate that tapeworm infestation was not a rare event among the settlers. After use of such vermifugal remedies, the patient was likely to produce a whole worm, intact or in pieces.

There are two species, one is acquired from eating infected, insufficiently heated beef (*Taenia saginata*), and the other from pork (*Taenia solium*). The eggs spread through human defecation in pastures, where cows (or deer), and pigs graze. In the latter case, the feces of a human carrier may be infective for other people as well, and the infection thus acquired may cause severe epilepsy when the larvae settle on the cerebral membrane (cysticercosis). The above claim that it causes St. Vitus Dance (see that entry) may refer to the epileptic seizures caused by pork tapeworm.

Teething

Geesje Visscher mentioned that her three-year-old son was ailing in 1848 and that his teeth bothered him a great deal. The doctor cut his swollen gums three times. His older sister (4 years old) was healthy and well.[185] Teething is sometimes recorded as the cause of death.

Typhoid or Enteric Fever

Jacob van Zwaluwenburg, described the death of his father in 1850 after catching the ague "but a few days" after arriving at Black Lake in July. He was treated with quinine, but: "Father doubtless developed typhoid and he was soon unconscious. We thought he was only sleeping and tried several times to awaken him. He lingered two weeks and died, followed by my little half-brother

[184] Adrian Van Koevering, *Record of Izaak van Koeveringe Family in America after 1847* (Zeeland, 1953). Adrian was a printer, publisher, and editor and later wrote *Legends of the Dutch* (1960), in which bubonic plague is not mentioned.
[185] Geesje Visscher, Diary, translation p. 8.

and my Aunt."[186] The account was written in English and because of the confusing meanings in English and Dutch, the description of the symptoms should settle the diagnosis (see below). The records of Grand Rapids suggest a large epidemic in the autumn of 1855, and a number of citizens lost their lives.[187]

It is an infectious, often-fatal, febrile disease, usually occurring in the summer months, and characterized by intestinal inflammation and ulceration. It is caused by the bacterium *Salmonella typhi* in the intestinal tract, which is usually introduced by contaminated food or drink. Flies may facilitate transmission from feces and urine to food. Symptoms include prolonged hectic fever, malaise, transient characteristic skin rash (rose spots), abdominal pain, enlarged spleen, slowness of heart rate, covered mind, drowsy (somnolent), and delirium. If left untreated, 10-25 percent might have died of the complications (perforation of the gut, shock, and coma). Survivors had the chance of a recrudescence, but generally they would develop a degree of immunity, which reduced the chance of clinical signs. Only much later, the possibility was recognized that people, who had been cured from typhoid, could still spread the agent. They were called healthy carriers; Typhoid Mary became an American icon. It was not a disease that swept over the country, but rather was characterized by outbreaks that were caused by local situations, i.e. contamination of drinking water with excretions of infected people; infected food handlers and milkmen spread the disease. In late summer and early fall, the water sources and reservoirs would be low, which increased the concentration of contamination.

The name typhoid came from the disease's similarity to typhus. The two were not differentiated until 1837 (by an American physician, W. Gerhard), but it took more than a decade before doctors actually began diagnosing the one from the other (on the basis of rarely performed autopsies). The correct Dutch term for typhoid fever is *buiktyfus*, which is not the same as the Anglophone term typhus (see that entry). Dosker wrote (in Dutch) that Rev. Van Raalte had suffered from typhus in 1846, and that he had difficulty with his speech. Aphasia is an uncommon, but typical symptom for advanced (untreated) typhoid fever, rather than typhus, and is now thought to be caused by a neurotoxin damaging the speech area. Patients may regain their speech completely as in the case of Van Raalte, but some have lifelong sequels.

Typhoid is also difficult to distinguish from the ague or malaria, which had its peak in August as well. Therefore, it is highly likely that the settlers in their first years not only had malaria, but also enteric fever, from which they readily could die. It did not respond to quinine and that was one way of distinguishing the two. Yet, a Civil War surgeon proposed the term typhomalarial fevers, for the many cases in which signs of both diseases were mixed.[188] The term putrid fever (*rotkoorts*) may have been used for typhoid and typhus alike.

Typhus

Endemic or murine typhus is carried by rat fleas (modern Dutch: *endemische vlektyfus)*. The causative bacterium is *Rickettsia typhi*. It occurs most commonly in warm, coastal regions and is endemic in the Southern United States. It was a regular disease, occurring in epidemic form where many people lived closely together (labor, military, refugees, etc).

Epidemic or louse-borne typhus (modern Dutch: *epidemische vlektyfus)* was a much more devastating disease and occurred during the wars of the nineteenth and twentieth century. Its agent, the related Rickettsia prowazekii, was transmitted by human body lice. It was imported to America by the poor, famine-stricken Irish immigrants, who poured in by the ten thousands. However, this

[186] J. van Zwaluwenburg, Holland Museum Archives. Original in W. L. Clements Library, Ann Arbor.
[187] *History of Grand Rapids*, 693.
[188] *The Deadly Truth*, 129. The author considers typhoid one of the most significant epidemic diseases of the Midwest in the nineteenth century (p. 134); some 10 percent of the cases were lethal after being sick for three-four weeks. For "Typho-malarial," see *Medical History of Michigan*, vol. 1, 754-56.

new disease did not spread, and contrary to expectations, it did not strike during the Civil War. It now occurs in Middle and South America only.[189]

Both types are similar in symptoms and extremely difficult to differentiate on the basis of nineteenth century records. It used to peak during the winter months and is not associated with diarrhea, which makes it discernable from typhoid fever. Whether the endemic form of typhus was present in the United States at that time is uncertain. In accordance with the absence in the Northern States, we have not found clear indications of it in the Colony, at least no report of characteristic eruption of reddish spots on the body. Relapsing fever, in conjunction with typhus fever, was called the famine fever and did not occur in America (see Animal Nuisances, p. 56ff.).

Whooping Cough or Pertussis

In 1858 the two youngest children of Geesje Visscher got the whooping cough (*kinkhoest*), but not in the most severe degree, and they were soon well again.[190] The children of Adriaan Zwemer also got it early in 1858, with little hope of recovery; Mary looked like a skeleton, she was so thin. Yet she recovered and became well and strong.[191] Lancing the throat was a standard procedure. Pertussis is caused by a *Coccobacillus* infecting the respiratory tract and is contagious through the air (droplets). Children develop tough, slimy mucus, which condition becomes lethal in about 10 percent of the cases.

Worms

Along with the tapeworm advertisement, another appeared regularly in *De Hollander* during the first years of its existence:

> Subjects that relate to health and happiness of a people, are of the utmost importance at all times. I have no doubts at all, that anybody does what is in his power to sustain his own life and that of his children. to any sacrifice. I count it as my duty to solemnly assure you, that WORMS are the first causes of a great magnitude of ailments to which children and young people are subjected. This is also witnessed by the most famous Doctors.
> If your appetite changes regularly, wanting now this and then that type of food, if you remark a bad breath, stomach ache, tickling of the nose, firm and thick belly, dry cough, retarding fevers, irregular pulse, then surely keep WORMS as the cause and immediately take this remedy:
> HOBENSACK'S WORM SYRUP
> It is based on Scientific Grounds, composed of purely herbal substances that one can safely take, even for the tenderest children, with the blessed result. Where Ailments of the Intestines and Diarrhea or Blood flux has weakened them, are the strengthening properties of my Worm Syrup such, that it is on the list of medicaments as without comparison. It gives resilience and strength to the Stomach and therefore, it is an infallible medicament for all that are having an infirm digestion or weak stomach. The amazing cures that were established by this Syrup, after Doctors had tried with no avail, are the best token of its superior and superb action.

The most common worms were likely to be the *Ascaris lumbricoides* (Dutch: spoelworm) and the minute *Enterobius vermicularis* (known as pinworms; Dutch: aarsmade). The former has a stout appearance of about 10-20 cm. In larger quantities it may cause constipation. When human stool is used as manure, the worm eggs may be consumed through raw vegetables and larvae

[189] Margaret Humphreys, "A Stranger to our Camps: Typhus in American History," *Bulletin of the History of Medicine* 80, no. 2 (summer 2006): 269-90.
[190] Geesje Visscher, Diary, translation p. 14.
[191] "Adriaan Zwemer's Life and Emigration to America," in Lucas, 2:416.

develop into adult worms in the small intestines. These may spontaneously leave the body. The latter worm is a nuisance among children, because it causes itching of the anal area. The small white worms (less than a cm) can be seen on the stool. The eggs easily get to the fingers (scratching the anal area) and subsequently into the mouth.

Other possible diseases

I have not come across Mumps, Chicken Pox, or German measles (rubella), but these were, in general, harmless and self-healing diseases, so that people may not have bothered to mention them. Also, syphilis and other venereal diseases were not obviously occurring among the population of the Colony. Some diseases, like certain forms of cancer, might have been called consumption. Clear indications of scurvy during the first years, which might have been expected because of insufficient and monotonous food, were also not found. Possibly, the incidental fruit or vegetable may have had enough anti-scorbutic effect. Along similar reasoning, pellagra may not have become prominent.

Apart from that, food was difficult to preserve, meat would decay, or maggots would grow and feed in it. Beans would spoil; onions and potatoes would rot or freeze, for example. Decreasing quality of food certainly did not favor health. Food poisoning (due to bacterial toxins of *Staphylococcus aureus*) must have occurred, but was not worth mentioning by the settlers. It was just one of those frequent diarrheas.

The viral disease hepatitis A may well have occurred as one of the gastro-intestinal disorders that were contagious via contaminated water. Also, leptospirosis (Weil's disease), a bacterial zoonotic disease caused by *Leptospira*, may have been present. The infection is transmitted by contact of contaminated water with wounds, eyes or mucous membranes.

Appendix B. The Black Lake Pharmacopoeia of the Mid-Nineteenth Century

Information on contemporary ways of treatment is scarce. Rev. G. N. Smith's diary and memoir give detailed information. Of interest is an account for Doctor G. Manting of Fillmore, Allegan County, about the ingredients and medicaments he bought from Post's general store in 1856. The document is literally transcribed here. I have accumulated a list of the drugs that Rev. Smith and Dr. Manting used, and assume that Rev. Van Raalte had access to the same, as he dealt with some of the same doctors that Smith consulted.

Doct. G. Manting

	In a/c [account] *with H.D. Post*	*Dr*	
1856 Oct 16	*To 2 oz Spti Nitri* [Salpetri Nitri]	*.08*	
1856 Mch 5	*" 1 Bot*[tle] *Olive Oil*	*.50*	
6	*" Medicines per bill*	*.42*	
		$ 1.00	
	Contra Cr[edit]		
1856 March 11.	*By cash to bal*[ance]	*$ 1.—*	
1856 March 11	*To 1 lb Chocolate 18*[;] *1 oz oil Lemon 38)*		
	blue pill 1/.)		*.69*
29	*Cham*[omilla] *Flo*^{s} *87*[;]*Valerian 16*[;]*1 collen*[?]*15*		*1.18*
Apl 14	*Soda 15*[;] *Cream tartar 38*[;] *Elecampane 45*		*.78*
28	*Elecampane 25*[;] *Valerian 31*[;] *Cham flos 31)*		
	Iceland Moss 25[;] *½ lb Pure Peruvian Bark 1.50)*		*2.62*
May 8	*Soda 15*[;] *1 oz Turkey Rhei 63*		*.78*
" 3	*1 Keg White Lead*		*2.60*
Aug 30	*Jujuba 50*[;] *Irish Moss 25*[;] *Sal Ammonium 25*		*1.—*
Oct 13	*Aqua Ammon 8*[;] *Red bark 50*[;] *Iceland Moss 13)*		
	Jujuba 12[;] *1 oz Quinine 75)*		*1.58*
Nov 5	*½ lb Fol*[iae] *Chamom*[illae]		*.31*
			$ 11.54
	Contra Cr.		
1856 July 4	*By cash for white Lead*	*2.60*	
Nov 6	*" cash*	*.38*	*2.98*
&% [?].	*Bal*[ance] *due H.D. Post*		*$ 8.56*
Dec 17. 1856			
	Rec[eived] *pay by due bill* *$5*		
	Cash *3.56*		*$ 8.56*
			H. D. Post

Henry Denison Post, attorney, notary, judge, post office holder, and shopkeeper, not only supplied doctors with ingredients, he also sold family remedies. These he advertised from 1852 onwards in the newspaper *De Hollander* (Dutch/English), along with medicaments in stock and for sale:

> DALLEY'S Magical Pain extractor, a celebrated remedy for pines and sores of all kinds
> All of DR. JAINE'S celebrated family medicines
> BOUR'S LIFE PRESERVING CORDIALS. An effectual remedy for bowel complaints

DR. BENJ. SMITH'S Sugar Coated Pills. Good family pills, and very easily taken as they have no taste but sugar
KILL THE FLIES!! The best kind of poison
PURE COGNAC BRANDY and OLD PORT WINE, expressely for medical use
GENUINE HARLAEM OIL
UNRIVALLED TONIC BITTERS, which is a sure safeguard against fevers and agues
QUININE
GENUINE HOFFMAN'S ANODYNE, for pain relief and sleep-inducing
BULLARD's OIL SOAP, excellent liniment for burns, sprains &c.
BURDSALL'S ARNICA LINIMENT, a justly celebrated remedy for Rheumatism, Burns, Scalds, Sprains, Bruises &c.
DR. HOBB'S FEVER AND AGUE PILLS
SULPHATE MORPHINE
WRIGHT'S INDIAN VEGETABLE PILLS
FAHNSTOCK'S VERMIGUGE, a sure cure for worms


SLOAN'S
POPULAIRE MEDICIJNEN
worden verkocht bij
S. LAING en H. S. MARSH te SHEBOYGAN,
en bij Winkeliers, Apothekers, enz., in bijna
elke town in de Ver. Staten en Canada.
GROOT GENEESMIDDEL!
SLOAN'S
beroemde huis-zalf,

Other advertisements appeared as well in *De Hollander*. For example, Sloan's remedies and famous house-salve were recommended as great medicine, available from shopkeepers and apothecaries in virtually every town in the U.S. and Canada, Post's shop included (see Figure 15, at left). Post functioned thus as a dispensary for drugs, but was he also a druggist-apothecary? So far, no indications have been found that he had personnel with some medical knowledge to give advice about dosages. In other words, he only dispensed raw material to doctors and proprietary brands to lay clients. Dr. Manting and his colleagues had their own pharmacy and composed the medicines from ingredients that they obtained from Post.

It would be nice to know which of these house or family remedies were also used by the qualified doctors or medical practitioners, and if the brands, formulations, and dosages were the same as what they prescribed. Comparing this list with the one extracted from Rev. Smith's diary, we can only come up with anodyne, quinine, and brandy. The above mentioned sulphate morphine may have had a similar application as Paragoric that also contained a moderate amount of morphine.

It is worth noting that Peruvian Bark and Quinine salts were the only drugs of the time that were effective against one single disease (i.e. ague/malaria). Peruvian Bark was not always trustable in terms of its purity, and many people may have hesitated to take Quinine because of its extremely bitter taste and side effects. However, I found no comment on it; nor was there any complaint recorded about the common side effects of ringing of the ears or temporary deafness. Yet, this may have been the reason that there were various family remedies for fever and ague, expressly advertised as not containing quinine, like the Tonic bitters, sugar coated pills, and Dr. Hobb's pills. The latter were advertised by Post as "made of powerful ingredients that do not harm the system. Taken as prescribed one will certainly benefit from them, otherwise one may be refunded."

Similarly, Brandreth's Pills were on the market, "always to be used in good confidence, to heal all infirmities, because they do not contain calomel." Apparently the purgative action of calomel was such that it was safer to use it only on doctor's prescription.

In putting together the list below and explaining the many remedies and drugs that were encountered in the archival sources of West Michigan, I have freely drawn from medical and genealogical websites on the internet, as well as medical handbooks.

Ammonia	Sal Ammonia. *Ammoniae Spiritus Aromaticus* (aromatic spirit of ammonia). Ammonium carbonate is dissolved in ammonia water and water, and after twelve hours is added to an alcoholic solution of the oils of lemon, nutmeg, and lavender flowers. After mixing, the solution is allowed to stand for twenty-four hours, and then filtered. Used as a stimulant and antacid, well diluted. Dr. Manting bought some from Post's store in 1856.
Anodyne	Pain reliever, such as "Hoffman's anodyne," a tincture (alcoholic solution) of oil of wine (ethereal oil). Smith gave anodyne to his wife who was confined (7 March 1843). It was advertised and sold by Post's in Holland.
Antimony	Tartar emetic (*antimonium potassium tartrate*) used against fever and pneumonia and to induce vomiting and perspiration. Dr. Monroe used it properly (according to contemporary knowledge) for lung complaint (27 October 1845).
Aloes	A laxative; it also destroys and expels intestinal worms (used for many other ailments as well). Derived from *Aloe vera* or from the American False Aloe (*Agave virginiana*). Smith treated an Indian boy with it (26 May 1842) in combination with senna.
Alum	Alum Root, also called cranesbill root (*Geranium maculatum*), a strong astringent, introduced to medicine by the American Indians. It was used to reduce inflammation of mucous membranes, curb irritation of hemorrhoidal tissue, and to restore venous health, as well as for treatment of diarrhea, dysentery, and leucorrhoea, among other conditions. It is usually given by infusion. Smith only mentioned alum as bought in December 1845
Bitters	The "bitter-kitchen or bitter-cookery" at Van Raalte's home, may have been meant to make an alcohol based tonic from Peruvian cinchona bark, or from other herbs. The bitters sold commercially contained large amounts of ethanol (Lash's Bitters 21 percent; Dr. J. Hostetter's Bitters 43 percent). Post sold tonic bitters in his general store.
Blue pills	Or blue mass. The main ingredient was elemental mercury, mixed with liquorice root, rose-water, honey and sugar, and dead rose petals. In the 1800s, these blue pills were commonly prescribed for a wide variety of conditions, including worms, consumption, toothaches, and cholera. They also were often prescribed for hypochondriacs. President Lincoln may have been intoxicated by using blue pills. Smith gave it in case of fever and abscess (4 May 1846), lung complaints (21, 27 September 1846), fever (19 October 1846; 30 October 1848). Van Raalte bought blue pills or blue mass on several occasions from Post in 1849 and 1850. Manting bought blue pills from Post, in 1856.

Blister	Blistering with hot flaxseed poultices and mustard plasters for throat and chest troubles. The unpleasant and uncomfortable "blister treatment" was a fairly common, if drastic, practice in early medicine of applying irritants to the skin, in the belief that internal diseases could be thereby drawn to the surface of the body and dispelled. Endorsed by Dr. Monroe, Smith applied it in cases of lung complaints (27 October 1845 and 21 September 1846) and of erysipelas (14 April 1846).
Blister salve	Smith bought it on 23 April 1846.
Calomel	By 1800, calomel (a chloride of mercury) was widely accepted for its general powers as an "alterative," i.e., medicine that altered the overall constitution of the body. In large doses, calomel acted quickly as a laxative "to purge the bowels." Because of its dual activity, calomel was included in both bilious Rush's Pills (eliminating excess bile through purging) and by itself in powder form.[192] Smith gave it to an Indian with fever and ague, together with jalap (13 May 1844). Dr. Upjohn gave it for "lung fever" and lung congestion of Arvilla Smith (23 July 1844 and following days). Dr Goodrich gave Mrs. Smith, who had delivered prematurely, calomel in abortive dose, probably to deliver the placenta (14 April 1845); Smith gave it to a woman in stupor and with fever (4 October 1846).
Castor oil	A purgative. Smith bought 2/6 $0.31 (13 April 1849).
Camphor	Made from the camphor tree (*Cinnamomum camphora*), gum camphor was used as a pain reliever of skin diseases; internally used to induce sweating to combat fevers. Treatment of cholera often included spirit of camphor. It was also used as a mild cathartic. Toxic effects of camphor are nausea, vomiting, and abdominal colic. Smith bought camphor--1 oz 0.19 (31 July 1844) and g[um] camphor (1 April 1848); Van Raalte bought it in 1850 and 1851 from Post.
Chamomilla	Chamomile from the plant *Matricaria chamomilla* has calming and soothing properties. It is used for nervousness, headaches, anxiety, and hysteria. It has antispasmodic properties, benefitting cramps and spasms. It is a diuretic. It helps with fevers, colds, headaches, insomnia, rheumatism, relieving gas, and expelling worms. Dr. Manting bought flowers (Flos.) and leaves (Fol.) in 1856 from Post. Diedrich Budde got it during his brain fever.
Cholagoyer	Correctly: cholagogue. It is a substance that promotes the discharge of bile from the liver and the gallbladder, thereby aiding digestion. Smith bought a bottle of it on 15 October 1846 from Dr. Monroe for an Indian family. Van Buren mentioned a decoction (concoction) of "culver root" used for fever, as a kind of cholagogue (1882).
Copperas	A mineral mixture of ferrous and copper sulfates. It has a blue-green color and its medical use was to treat iron-deficiency anemia. It was also used in dyeing and tanning and in the manufacture of ink. Iron sulfate (vitriol of iron) was commonly prescribed at the time as a tonic or as an agent against

[192] G. B. Risse, "Historical Vignette : Calomel and the American Medical Sects during the Nineteenth Century," *Mayo Clinical Proceedings* 48 (1973): 57-64.

	intestinal worms. Smith bought 1 oz. per Dr. Goodrich 24 January 1844, and again, 13 April 1849, 1 lb., 1/ $0.2, but he did not state for what use.
Dovers' powder	Consisted of powdered ipecac(-uanha) and opium, compounded in the United States with sugar or milk. Dover's powder was largely used in domestic practice to induce sweating, to defeat the advance of a "cold," and at the beginning of any attack of fever. Ipecac from the South American plant *Cephaelis ipecacuanha* was on its own a treatment for dysentery and a reliable emetic and diaphoretic. Intentionally inducing vomiting or sweating was considered a way to alter the body's balance and encourage the restoration of health. Smith used it once, in combination with blue pills, to treat a fever case (19 October 1846).
Elder	The flowers, leaves, and berries of the brush *Sambucus nigra* (Dutch: *vlier*) were used to treat inflammation and fever and to soothe the respiratory system. The leaves have antiseptic action and the berries are laxatives and have diuretic effects. Elder was one of the family remedies, recommended to be taken along from the old country (Sleyster, 1847)
Elecampane	Horse-heal, or wild sunflower scabwort (*Inula helenium*), is a perennial composite plant common in many parts of Eurasia. Extract of its roots are used for irritating cough, bronchitis, or asthma, because it causes mucus to become thinner. It is also used for intestinal discomfort and against worms. Dr. Manting bought it in 1856 from Post's.
Godfrey's cordial	A famous drug made expressly to calm children. It was just molasses salted with opium. As a soothing syrup of opium tincture effective against colic, it was prodigious. Smith bought it probably to keep his youngest child quiet (3 February 1849).
Dr. Goodrich's pills	Smith likely meant pills obtained from Dr. Goodrich. It is not a brand name. He distributed them for lung complains (29 September 1846) and for bowel complaints (5 October 1846).
Harlem Oil	This genuine product of Haarlem (ricinus oil or castor oil) was introduced in 1696 in the Netherlands and has been popular ever since, among other reasons, as a laxative and to induce delivery. In fact this miracle oil was (is) believed to cure every disease. Castor oil is derived from beans of the castor plant *Ricinus commmunis*. It was one of the products on sale at H.D. Post's.
Iceland Moss	Iceland moss is a lichen (*Cetraria islandica*). Prepared from dried material,. it was used as a medicinal agent to stimulate the appetite and relieve dry cough and inflamed oral tissues. Dr. Manting bought it on several occasions in 1856 from Post's shop. Post once wrote Irish Moss, but that may have been a mistake.
Indian Vegetable Pills	These were applied for rheumatism, consumption, sore throat, pain in the side, liver complaint, asthma and all sorts of stomach and bowel disorders.

Their composition is not very clear. Rev. Van Raalte ordered Dr. Benjamin Smith's Indian Vegetable Pills, probably in 1848. Post sold the much more common Wright's Indian Vegetable Pills

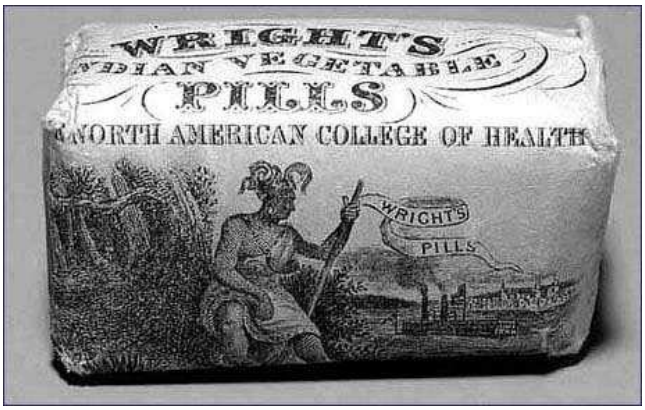

Figure 16. Wright's Indian Vegetable Pills
<www.History wired.si.edu>

Ipecac — See Dover's powder.

Jalap — Powdered jalap derived from the Mexican morning glory (*Exogonium purga*) worked as a rather harsh, but safe purgative. It was extensively used in the nineteenth century. Smith gave it to an Indian with fever and ague, together with calomel (13 May 1844).

Jujube — The fruit of *Zizyphus vulgaris.* Jujube decoction is employed as a demulcent pectoral, and like other acidulous and sweet fruits, jujube enters into the composition of tisanes for the relief of throat and broncho-pulmonic irritations. Manting bought it from Post in 1856.

Laudanum — An alcoholic extract or tincture of opium (about 20 percent).

Licourice — The herb (*Glycyrrhiza glabra*) is the basis for the production of licorice. It helps loosen phlegm and ease non-productive coughs. It is also very helpful for bronchitis, congestion, and colds. As a demulcent, licorice soothes mucous membranes and helps relieve sore throats.[193] Smith bought it on 18 December 1845.

Linseed — Or Flaxseed (*Linum usitatissimum*). As whole seeds was used as a laxative for constipation and gastro-intestinal discomfort (Dutch: *lijnzaad*). Also used in blisters. As a flour it was applied to painful boils, and as an oil it was appreciated as anti-inflammatory and anti-allergic and strengthener of the skin. The flour was recommended to be taken along from the old country by Sleyster in 1846.

Lus' pills — Smith bought 1 box Lus. Bib Pills 3/ $0.37 (24 August 1841). He took them because of his ague (27 August 1846). Probably he meant Rush pills. For more about Rush pills, see under calomel.

Morphine — See under Opium and Paregoric. Van Raalte bought it on 23 May 1851 from Post.

[193] C. Fiore et al., "Licorice from Antiquity to the End of the Nineteenth Century: Application in Medical Therapy," *J. Nephrol* 17 (2004): 337-41.

Musk

A product from musk deer, it is applied as an antispasmodic in the form of powder, pills, or tincture. It was used in cases of epilepsy, chorea, hysteria, spasmodic affliction, hiccough, pertussis &. Diedrich Budde was treated with it during his brain fever. Note: the Dutch word muskus should not be translated as muschatel or muskroot (Adoxa moschatellina), which is a perennial with musk-scented flowers and has no medical application.

Nitre

The medicinal nitrate, saltpetre (potassium nitrate) was both mined as a mineral and extracted from plant and animal matter. Smith gave it for black tongue disease (5 September 1844). Dr. Manting bought Spti Nitri from Post in 1856.

Onions

Onion (*Allium cepa*) is said to possess expectorant properties. It liquefies phlegm and prevents its further formation. It has been used as a food remedy for centuries in cold, cough, bronchitis and influenza. Smith gave it to a patient with inflammation of the lungs as an expectorant (21 September 1846).

Opodildoc

More properly spelled opodeldoc. It was a mixture of soap in alcohol, to which camphor and sometimes a number of herbal essences (rosemary oil or wormwood) were added. Used for rheumatism, paralytic numbness, chilblains, enlargements of joints, and indolent tumors. Where the object is to rouse the action of absorbent vessels and to stimulate the nerves, it is a very valuable external remedy. In several cases of lumbago and deep-seated rheumatic pains, it has been known to succeed in the almost immediate removal of the disease. Smith bought a bottle of it (13 March 1848).

Opium

Delivered as a powder or as a tincture of opium (laudanum) from the plant *Papaver somniferum*). It contains approximately ten milligrams per milliliter of morphine. In the nineteenth century, laudanum was used to relieve pain and diarrhea and was widely prescribed for ailments from colds to meningitis to cardiac diseases. The solution is more concentrated than Paregoric, and smaller volumes are given; however, their actions are almost identical. Therefore, it was often abused, as it was sold widely as a tonic and cure-all, in shops.

Smith gave opium to a woman in stupor and with fever (4 October 1846) and treated his wife with opium during chill fever (30 October 1848). He bought one-half oz. opium, apparently as a powder (12 February 1849). Van Raalte did the same (6 September 1850). Smith mentioned opium-containing Godfrey's cordial, but not laudanum.

Paregoric

Or camphorated opium tincture. The principal active ingredient is morphine, with other ingredients being benzoic acid, camphor, and anise oil. The main effect of this preparation is to increase the muscular tone of the intestine and to inhibit normal gut movement. Its medicinal use is to control severe diarrhea. It is also a cough suppressant. Paregoric contains 0.4 milligrams of morphine per milliliter, while tincture of opium (laudanum) contains 10 milligrams of morphine per milliliter. Smith bought 4 1-oz. vials (25 June 1842) and 4 ozs. (14 April 1846) but did not mention its use.

Peruvian Bark

This is the bark of the cinchona tree (*Cinchona officinalis)*, which was used in powdered form for the treatment of the fever & ague (quina or kina). As one of the few drugs that actually cured a disease, cinchona was soon tried against other fevers and many other constitutional ailments even though it had little, if any, effect. The cinchona probably arrived in America via London, rather than directly from South America. Quinine (sulphate) was extracted from it (right). Manting bought Pure Red Peruvian Bark on 28 April and 13 October 1856 from H. D. Post's shop. Van Raalte in 1849 regularly bought *kina* (powder) from Plugger's shop.

Figure 17. Cinchonoa bark
<www.chm.bris.ac.uk/motm/quinine/bark.gif>

Physic

A laxative or cathartic medicine used to relieve constipation is called a physic. Epsom salts and calomel are among the stronger physics. Dr. Goodrich gave calomel and injected physics (probably as an enema/clyster) to Mrs. Smith, which operated (15 April 1845). Smith gave salts as a physic to an Indian with constipation; also injections (20 September 1846).

Quinine

The quinine alkaloid is an extract from the natural bark of the *Cinchona* tree, in the form of a salt, quinine sulphate. Before its discovery in 1820, the powdered bark itself (quina) was used (see Peruvian Bark). As the bark was used well into the nineteenth century, it is not always clear whether quinine was actually the bark or the extracted product. A dozen ounces of the alkaloid equaled the therapeutic effect of a large volume of powdered bark. Generally a few grains of quinine were prescribed (1 grain = 0.0621 gram). Quinine was widely used "to break the ague," and is mentioned at least ten times by Smith during the summer/fall wave of the ague of 1846. Remarkably, he never talked about side effects, such as *tinnitus aurium* (ringing of the ears).

Figure 18. Quinine Sulphate
<www.horsesoldier.com/catalog/r10987.JPEG>

Smith bought one bottle of quinine from Dr. Monroe (15 October 1846). He gave twelve drops quinine for bronchitis and tonsillitis (28 October 1846). Hiccough may occur after abuse of quinine; on the other hand, quinine in low dosage may relieve the hiccough. Smith gave a portion of quinine "which stopped hiccough" (13 September 1846). He bought ten grains of quinine powder at Post & Co (1 January 1849). Quinine pills were apparently not used by Smith. Van Raalte regularly bought quinine from Post, typically during the ague season (July-November). The peak year was 1849. Dr. Manting bought also quinine from Post (1 oz $0.75). How he

decided to treat the intermittent fevers, by red Peruvian bark or quinine, is not clear.

Rhubarb — Most mid-nineteenth century all-purpose household medical guides recommended rhubarb root extracts from *Rheum palmatum* or *R. officinalis* for bowel complaints. It has mild purgative and astringent effects, reinforcing the digestive tract and relieving diarrhea. It was used for dysentery, choleric affections, and a host of other maladies. Medicinally, it was a sheer delight, as it eliminated unwanted humors from the body.[194] It also came as Gregory's powder (*pulvis rhei composita*), composed of two parts rhubarb, six parts magnesium, and one part ginger.

Pioneer women brought rhubarb seeds with them on the Overland Trail, sowing them beside their log cabins and sod houses. Extract and syrup were used for "bowel-complaints" and indigestion. An 1866 medicinal catalogue recommended fifteen drops for children needing a laxative.[195] Smith sent some to a patient (5 December 1848). Dr. Manting ordered "Turkey Rhei" in 1856; this is Turkey rhubarb root *Rheum palmatum*.

Salts — Possibly Epsom salt or bitter salt**:** magnesium sulfate. It reduces swelling and inflammation. Also used as an anti-arthritic. Smith applied it for a swollen face and neck of an erysipelas patient (14 April 1846). He bought 1/ 0.13 on 13 April 1849.

Salve — The grandmother of Alice Kolean collected cattail roots [*Typha angusti-folia*] and boiled them until the centers were soft. She removed the skin and scraped out the soft pulp centers. This she mixed with some mineral oil to form a salve. It was used effectively on burns, cuts, scrapes, and light infections. She learned it from the Indians.[196]

Sarsaparilla — From the roots of South-American (Smilax sp). It contains saponin, which strongly activates mucous membranes of the intestines. It causes production of saliva, vomiting, and diarrhea. It was used to treat syphilis. It figured on Van Raalte's shopping list at Post's 31 October 1849.

Senna — A cathartic and laxative, used as a tea to expel worms or to be used after another vermifuge (*Cassia senna* or *C. occidentalis*). Smith treated an Indian boy with it (26 May 1842) in combination with aloes.

Smallpox vaccine — The vaccine, by then in use for some forty years worldwide, was harvested from sores of a vaccinee or a calf with cow pox (vacca = cow). The Indians were keen on being vaccinated as they feared the smallpox outbreaks. Smith does not record another round of vaccination after Dr. Goodrich had vaccinated forty-nine people on 19 February 1845. A call on Dr. Monroe to bring vaccine matter (17 October 1846) did not materialize as the doctor was ill and the Indians soon left for Grand Rapids to cash their allowances. The Dutch settlers had conscientious objections against vaccination, as most of them had belonged to the Seceeder Church in the Netherlands. However,

[194] Clifford M. Foust, *Rhubarb: The Wondrous Drug* (Princeton, N.J.: Princeton University Press, 1992).
[195] Sandra Dallas, "Rhubarb Pieplant a Blessing to Colorado's Pioneers," *Silver Queen Preservation News: A Publication of Historic Georgetown, Inc.* 33, no. 1 (spring 2003).
[196] "Memoirs of Alice P. Kolean," T88-0099.1, Holland Museum Archives.

we have not come across any remark on this issue, and church historians confirm the absence of the item in records of the RCA and the CRC.

Spanish flies — A powder made from a shiny-green blister beetle (Lytta vesicatoria). It is also called cantharides, after which cantharidin was named, a substance in the beetle's carapace that irritates human tissue. It was used as a diuretic and an aphrodisiac and also to raise skin blisters. This local irritation would diminish the inflammation of internal organs thought to cause disease. When improvement in the symptoms of mental disorders occurred, it was attributed to reduction in inflammation of the brain or its blood vessels. It was applied to Diedrich Budde during his fatal brain fever.

Tartar — Cream of Tartar (potassium bitartrate). Derived from the tartar deposited on wine casks, cream of tartar was a common ingredient in laxative preparations, often combined with senna, jalap, or scammony. Physicians also prescribed it alone as a mild laxative. A derivative of cream of tartar was Tartar Emetic**,** used to induce vomiting (see Antimony). Emetics were usually given to help the patient eliminate any noxious substance that might be producing imbalance. Smith bought cream of tartar, 4 ozs 0.12 (31 July 1844), without stating the use. Dr. Manting bought it on 14 April 1856.

Tansy — Common tansy (*Tanacetum vulgare*) was largely used for expelling worms in children (the Dutch name literally means farmers' worm herb). It was also valuable in kidney weaknesses, a stimulant for menstrual flow, and good for low forms of fever, ague, and hysterical and nervous affections. In moderate doses, the plant and its essential oil are stomachic and cordial, being anti-flatulent and serving to allay spasms. Smith used it for a patient whom he found stupid [in a stupor?]. Together with warm cloths he "added" tansy, thus apparently not as an infusion, but as dried leafs (4 October 1846).

Valerian — Tinctures and extracts from the roots of *Valeriana officinalis* have been used since time immemorial in herbal medicine as a sedative and for insomnia. Dr. Manting bought it in 1856 from Post's shop.

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Figure 19. The gang of savants at the Van Raalte Institute: Bob, Donald, Jack, Elton, and Karen
Photo taken by J. P. Verhave

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It is my sincere hope that the students and researchers of the Van Raalte Institute and the Joint Archives may continue to work under the blessing of the Almighty, as I have likewise experienced. And I encourage all readers, who have comments or criticism or have found new information, to send it to the Van Raalte Institute.

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