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DISEASE AND ITS TREATMENT IN NEW LONDON, CONNECTICUT

1711-1758

by

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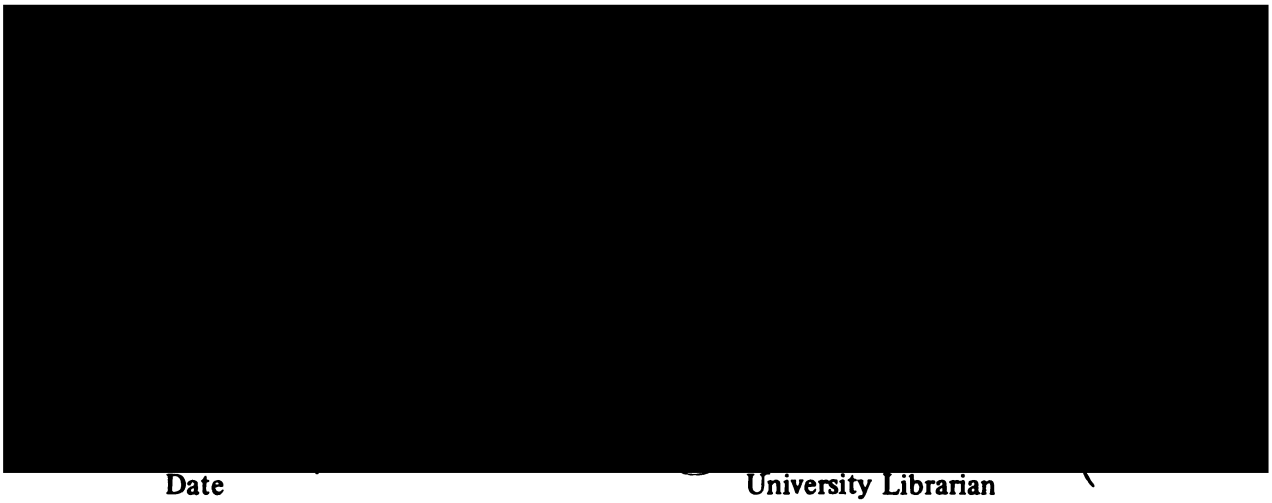

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INTRODUCTION

History of the New England Town

From George Bancroft and Herbert Adams in the nineteenth century to twentieth-century historians, most writers assume all New England villages had a standard way of life.[1] In 1963, for instance, Sumner C. Powell wrote "the concept of a typical seventeenth-century New England town is still accepted in many texts."[2] Powell believed his study of a seventeenth-century Massachusetts village could serve as a representative and revealing sample of the entire region; Puritan Village was an attempt, in other words, to present an exhaustive treatment of a single New England community as one step in the construction of an eventual synthesis of many such town histories.[3]

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[1]Bancroft and Adams played early roles in the ongoing debate over the origins of New England village democratic institutions. For a summary of this debate, see A. S. Eisenstadt's Charles McLean Andrews, A Study in American Historical Writing (N.Y.: Columbia U. P., 1956, p. 13ff.) Kenneth A. Lockridge briefly discusses the issues in his introduction to A New England Town: The First Hundred Years (N.Y.: W. W. Norton & Co., 1970), pp. xii-xiii.

[2]Sumner C. Powell, Puritan Village: The Formation of a New England Town (Middletown, Conn.: Wesleyan Univ., 1963; Anchor Books, 1965) p. xv.

[3]Ibid., pp. xv, xvii.

Over the past two decades a group of colonial scholars have used innovative research to depict individual Massachusetts settlements.[4] These scholars depart from prior New England town history in two ways. They focus on more intimate family and social interests rather than on politics and economics. Second, they analyze overall patterns, configurations and trends instead of concentrating on isolated events which took place in a static setting. These historians, like Powell et al, continue to extrapolate information from work on individual towns to draw general hypotheses for colonial New England society as a whole.[5]

Kenneth Lockridge and James Henretta theorize that seventeenth-century New England towns began as socially undifferentiated and geographically immobile societies. Isolated communities with their homogeneous societies were independent of the market economy, in contrast to a large seaport like Boston. Favorable health conditions (compared with those in Europe) led to a rapidly expanding population. By the mid-eighteenth century, this population growth had stimulated a series of social transformations. Available land could not sustain an expanding

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[4]Three of the best-known works analyze demographic data by behavioral-science techniques and methods in order to advance hypothesis of family structure and social change. They are: Lockridge, New England Town; John Demos, A Little Commonwealth: Family Life in Plymouth Colony (N.Y.: Oxford U.P., 1970; Oxford Paperbacks, 1975); Philip J. Greven, Jr., Four Generations: Population, Land, and Family in Colonial Andover, Massachusetts (Ithaca: Cornell U.P., 1970; Cornell Paperbacks, 1972). James A. Henretta incisively critiques these three works, along with Michael Zuckerman's Peaceable Kingdoms: New England Towns in the Eighteenth Century (N.Y.: Alfred A. Knopf, 1970) in The Family in History: Interdisciplinary Essays, ed. by Theodore K. Rabb and Robert I. Rotberg (N.Y.: Harper & Row, 1971), pp. 191-210. ("The Morphology of New England Society in the Colonial Period.")

[5]James A. Henretta, The Evolution of American Society, 1700-1815: An Interdisciplinary Analysis (Lexington, Mass.: D. C. Heath & Co., 1973), Preface.

populace. This crisis produced two effects. It stimulated outward migration, and the remaining community became socially and economically polarized as market activity increased and wealth accrued unevenly to a few citizens. A lack of population density ensured a low incidence of disease, but with the increasing pressure on the land, this also began to change. A high birth rate along with a low death rate meant these towns often had a surplus of non-immune people; furthermore, the higher degree of population mobility brought these people more frequently into contact with foci of infection. Consequently, morbidity and mortality rates soared in the course of the eighteenth century. By 1750, the delicate ecological balance maintained by many older settlements had deteriorated into both agricultural and epidemiological crises.[6]

There are colonial scholars who advise caution in drawing conclusions from the limited evidence gathered from only a few towns. Edward M. Cook, Jr., for example, stresses the danger of claiming any one town as typical of a colony or of a region. By comparing statistical information from seventy-four eighteenth-century New England communities in four separate colonies, Cook located five distinct town typologies. His exhaustive analysis provides a conceptual framework for relating the

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[6]K. A. Lockridge, "Social Change and the Meaning of the American Revolution," in Colonial America: Essays in Politics and Social Development, 2nd ed., ed. Stanley N. Katz (Boston: Little, Brown & Co., 1976), pp. 493-501; Henretta, Evolution of American Society, pp. 5-23. Although Henretta disputes Lockridge's contention that New England towns were basically peasant societies, he is essentially in agreement on the pattern of social development. Richard L. Bushman's From Puritan to Yankee: Character and the Social Order in Connecticut, 1690-1765 (Cambridge, Mass.: Harvard U.P., 1967; Norton Library, 1970) draws many similar conclusions from its analysis of local conditions in Connecticut Puritan society. Bushman stresses the importance of economic influences in social and religious change.

experience of one community to others in the same vicinity. Cook suggests that the complexity of New England society should be considered before making generalizations about the mythical, ideal New England town.[7]

A number of demographic studies of historical New England communities point to these complexities. They include Susan Norton's analysis of population growth in Ipswich, Massachusetts, Daniel S. Smith's investigation of Hingham, Massachusetts fertility patterns, and a detailed examination of rural Massachusetts mortality by R. S. Meindl and A. C. Swedlund. While generally conforming to the theories outlined by

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[7]Edward M. Cook, Jr., The Fathers of the Towns: Leadership and Community Structure in Eighteenth-Century New England (Baltimore: The Johns Hopkins U.P., 1976). Cook demonstrates the diversity of towns within a single region, basing his types on the kinds of economies, social organizations, and political structures he found in the various towns: (1) City or urban center: substantial concentration of wealth in hands of wealthiest inhabitants--complex economy based primarily on commerce--highly developed political structure; (2) Major county town: local social and economic centers--often county seats, but too small to have definite urban character--distinctly stratified social structure--political structure similar to that of city, but more family continuity; (3) Suburbs or secondary centers: had fully developed social structure, but ranked lower commercially than (2)--similar political structure, but several families shared top positions; (4) Small, self-contained farming villages: egalitarian social order--commercial activities of the most basic nature--simple farming communities--major offices widely shared; (5) Frontier towns: newly settled, struggling, unstable--egalitarian structure most prevalent, but not consistently--low level of commercial activity--in most cases no clear political hierarchy. (pp. 165-183.) Susan Norton also points out that, besides considerable differences between the New England, Middle and Southern colonies, significant variations appeared among towns in a single province. (Susan L. Norton, "Population Growth in America: A study of Ipswich, Massachusetts," Population Studies, 1971, 25:433-52, p. 433.) Earlier Carl Bridenbaugh showed that five seaboard towns differing in location, topography and climate shared enough common characteristics to constitute an urban type. Cities in the Wilderness: The First Century of Urban Life in America 1625-1742 (N.Y.: Oxford U.P., 1938); Cities in Revolt: Urban Life in America 1743-1776 (N.Y.: Oxford U.P., 1955.

Lockridge and Henretta, they suggest a more intricate and pluralistic web of causation.[8]

Purpose and Method

Recent demographic work on colonial New England towns is of value to medical history by providing a needed perspective on the complex relationships between population, health and disease. There is, however, a distressing lack of information about detailed disease histories of individual communities.[9] Many writers, lacking primary sources, rely on Ernest Caulfield's excellent epidemiological studies and on John B. Blake's Public Health in the Town of Boston, 1630-1822 for disease information, supplemented by such broad works as John Duffy's Epidemics in Colonial America and Richard H. Shryock's Medicine and Society in America: 1660-1860.[10] Disease histories of individual towns are needed to augment the work of socio-demographic historians.

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[8]Norton, "Population Growth;" Daniel S. Smith, "The Demographic History of Colonial New England," J. Econ. Hist., 1972, 32:165-183; R. S. Meindl and A. C. Swedlund, "Secular Trends in Mortality in the Connecticut Valley, 1700-1850," Human Biology, 1977, 49:389-414.

[9]Greven, for example, whose analysis is the most thorough and comprehensive study with regard to disease factors, was reduced to a sketchy account. He and Norton both lamented the lack of specific disease information pertaining to the towns they studied.

[10]Caulfield's best-known work is "A History of the Terrible Epidemic, Vulgarly Called the Throat Distemper, as it Occurred in His Majesty's New England Colonies between 1735 and 1740," Yale J. Biol. Med., 1938-39, 11:219-272, 277-335. Others are: "Some Common Diseases of Colonial Children," Pub. Col. Soc. Mass., 1951, 35:12-13; "The Pursuit of a Pestilence," Proc. Am. Antiq. Soc., 1950, 60:48-52; "Early Measles Epidemics in America," Yale J. Biol. Med., 1943, 25:531-36. Blake's carefully researched volume (Cambridge, Mass.: Harvard U.P., 1959) is an excellent source for comparison of other towns with Boston. Duffy's Epidemics (Baton Rouge: La. State U.P., 1953), a catalogue of colonial diseases, is the only comprehensive survey of the subject. It unfortunately suffers from a number of inaccuracies and hasty conclusions (see John B. Blake's

This paper attempts to reconstruct the early eighteenth-century disease history of one New England town, New London, Connecticut. It is based on the study of the diary of Joshua Hempstead (1678-1758), the grandson of an original New London settler.[11]

New London was planted in 1646 by thirty-six Puritan families under the leadership of John Winthrop, Jr.[12] Like other pre-industrial societies, the town depended on subsistence farming; however, it was the site's deep, spacious, accessible harbor that had attracted Winthrop and that destined New London to become a commercial community. The early development of a coasting trade fostered an increasing dependence on a market economy and prevented New London from the isolation that characterized some of the inland New England towns.[13]

Too small and undiversified to be an urban center like Boston or Newport, New London nevertheless developed into a major county town. It grew rapidly until the second decade of the eighteenth century, when economic and population growth levelled off for a period of about twenty

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review in J. Hist. Med., 1954). Shryock's collection of essays (N.Y.: N.Y. Univ., 1960; Cornell Paperbacks, 1975), although useful as a reference, is heavily dependent on secondary sources.

[11] Diary of Joshua Hempstead of New London, Connecticut Covering a Period of Forty-Seven Years from September, 1711, to November, 1758 (New London: New London Co. Hist. Soc., 1901: N. L. Co. Hist. Soc. Coll. Vol. 1).

[12] Winthrop, son of Massachusetts' first governor, himself became the first governor of Connecticut. He developed strong interests in technology, science and medicine and performed numerous experiments. For a detailed history of the Winthrop family in the seventeenth and early eighteenth centuries, see Richard S. Dunn, Puritans and Yankees: The Winthrop Dynasty of New England 1630-1717 (Princeton: Princeton U.P., 1962).

[13] Caulkins, New London, pp. 27-49, 59-60, 229-35; Albert E. Van Dusen, Connecticut (N.Y.: Random House, 1961) pp. 24, 40, 44-45.

years. With the proliferation of mid-century wars against the Spanish and French, New London's population again prospered and expanded at a high rate. It continued to grow more or less steadily until the end of the eighteenth century.[14]

Joshua Hempstead belonged to an inner elite of "proprietors" who controlled New London's common lands.[15] By virtue of his involvement in town and colony affairs, he made frequent contacts with all elements of the community. Although he, like most men of his time, had many occupations, he never practiced medicine except in the domestic manner common to all colonial households, so his medical observations were those of a layman.[16] His diary covers a period of just over forty-seven years from September, 1711, soon after his thirty-third birthday, to November, 1758, approximately a month and a half before his death at the age of eighty. It was published in 1901 by the New London County Historical Society. The following excerpts from the introduction describe the diary and give some insights into its writer's character:

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[14]For a discussion of the information on which I base these conclusions, see the section on population in Chapter Two.

[15]Proprietors were those men who had held town lands before 1703. Frances M. Caulkins, History of New London, Connecticut, From the First Survey of the Coast in 1612, to 1860 (New London: H. D. Utley, 1860; reprint ed., 1895) p. 263; Bushman, Puritan to Yankee, p. 50.

[16]"The diversity of his occupations marks a custom of the day: he was at once farmer, surveyor, house and ship carpenter, attorney, stonecutter, sailor and trader. He generally held three or four town offices; was justice of the peace, judge of probate, executor of various wills, overseer to widows, guardian to orphans, member of all committees, every body's helper and adviser, and cousin to half the community. Of the Winthrop family he was a friend and confidential agent, managing their business concerns whenever the head of the family was absent." Caulkins, History of New London, p. 273. In addition to the foregoing, he was in turn an ensign, lieutenant, and captain in the militia, as well as serving eight times as a deputy to the Connecticut General Assembly.

> It is a diary in the strictest sense of the word--a systematic account of daily duties, occupations, and events . . . Hempstead cannot be called an historian, or even a chronicler in the true sense of the term, but simply a recorder. . . .
>
> (The diary) has another value than the presentation of miscellaneous facts and historical information; it possesses the impress of daily life and reflects the image of the society in which the writer lived . . . (it) stands forth conspicuously because it is a record of the daily routine of life, written by a citizen of that interesting period known as the colonial era, and conscientiously maintained with hardly an interruption for nearly half a century. . . . Unlike the town records of that period which were meagre and often silent upon events now of import, . . . Hempstead's records were full and accurate. This fullness and accuracy is retained in the present publication, the manuscript being printed verbatim and even the orthography strictly followed.[17]

This characteristic of meticulously recording details of daily life in a straightforward manner is precisely the quality that gives the diary its value as a historical document. In an era when the clergy kept most such personal records, Hempstead's diary stands out because of its matter-of-fact style, unadorned by theological musings, agonizing self-examination, or religious hyperbole.

The diary's morbidity and mortality records are admittedly incomplete. There are a few gaps where the entries are missing or illegible. Then, too, it is unlikely that Hempstead noted every death over a period of forty-seven years.[18] Nevertheless, this diary compares favorably with many official vital records of the colonial period. Town records are

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[17] Diary, pp. vii-ix.

[18] I found five additional deaths in Caulkins's History of New London missed by Hempstead between 1711 and 1735. These people lived on the outskirts of town, or died during Hempstead's illness or long absence.

notorious for underrecording births and deaths;[19] moreover they often fail to mention the cause of death or age of the deceased. Hempstead listed a cause for slightly over one-fourth of the more than 1,500 deaths he recorded, and it is often possible to deduce from the context the causes of others. More often than not, he reported the person's age, or at least gave some indication of it; that is "infant," "child," "old man," et cetera. Since several of his occupations (making caskets and gravestones, probating wills) brought him into wide contact with community mortality, he was aware of most deaths. Combined with his tendency to faithfully note the most routine events, this makes the diary a relatively accurate, complete report of diseases and deaths in New London.[20]

Disease Prevalence

To construct this history it was necessary to determine as closely as possible which diseases prevailed in the community and at what times. The prevalence of a disease was evaluated by considering the number of

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[19] Greven, Four Generations, pp. 6-7; Norton, "Population Growth," p. 439; Lockridge, "Population," p. 332. Norton estimated that 41% of all deaths in Ipswich went unrecorded; Lockridge suggested that the registered deaths in Dedham represented only 44% of the true figure. Maris Vanovskis evaluated the accuracy of colonial town vital records and bills of mortality. He concluded that the latter were generally more complete; however, they are seldom available. ("Mortality Rates and Trends in Massachusetts before 1860," J. Econ. Hist., 1972, 32: 184-213). Vital records for New London are in existence; however, it was not possible for me to go to Connecticut to study them for this project. I intend to do so for comparison when expanding this investigation into a doctoral dissertation, although Caulfield has stated they are "obviously incomplete." ("History of the Throat Distemper," p. 311.)

[20] Hempstead invariably recorded town, freeman and proprietor meetings, even when he could find nothing more interesting to write than "I was at itt." He also noted every Sunday whether the regular minister had preached all day, or whether there was a visiting minister for part or all of the day.

times it was mentioned, the number of times it was listed as a cause of death, and Hempstead's entries stating a certain illness was prevalent. Indirect evidence was also utilized--for example, multiple deaths within families in a short period of time for which no cause was given.[21] In some cases, such other sources as Noah Webster's history of eighteenth-century epidemics provided supporting evidence.[22]

Determination of prevalence depends on disease definition, that is, what Hempstead meant by the names he used for illnesses. Many of these terms are vague by present-day standards. "Apoplexy," "dropsy," "fits," "flux" and "consumption" are not disease entities, but categories covering a broad range of ailments. Although Hempstead used more specific names with increasing frequency in the later years (yellow fever, rickets, diabetes), it is difficult to know exactly what they represented at that time.

This question is crucial for any historian researching early sources for medical references.[23] It is important to understand that the concept

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[21]Caulfield ("History of the Throat Distemper") used multiple deaths within families as one criterion to distinguish diphtheria from scarlet fever. (pp. 265-66.)

[22]Noah Webster, A Brief History of Epidemic and Pestilential Diseases; with the Principal Phenomena of the Physical World, which Precede Them and Accompany Them, and Observations Deduced From the Facts Stated, 2 Vols. (Vol. 1) (Hartford: Hudson & Goodwin, 1799).

[23]Darrett Rutman and Anita Rutman encountered the problem while studying the prevalence of malaria in the early Chesapeake. Recognizing that diagnosis from literary evidence is impossible, they built a convincing circumstantial case for the endemicity of malaria by combining the evidence with a contemporary understanding of malaria, then testing the case against demographic attributes of colonial Chesapeake society. Darrett B. Rutman and Anita H. Rutman, "Of Agues and Fevers: Malaria in the Early Chesapeake," Wm. & Mary Quart., 1976, 33:31-60. Ernest Caulfield dealt with the question expertly in "History of the Throat Distemper" by using inferential evidence to distinguish two kinds of throat

of disease was flexible. Biological activities in illnesses had to be inferred from symptoms and signs that today's medicine recognizes as characterizing more than one disease entity. Combinations of diseases and other individual circumstances presented a changing picture to the medical observer, preventing clear-cut disease identification. Therefore the historian can seldom diagnose diseases on the basis of literary evidence alone,[24] but must construct a circumstantial case.

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distemper (diphtheria and scarlet fever) in early eighteenth-century New England. He combined mortality levels and multiple death statistics with literary evidence to present a convincing argument for the dual nature of the 1735-40 throat distemper epidemic. Caulfield and the Rutmans are among the few writers on colonial diseases who have effectively dealt with the identification problem. Others have avoided the issue by concentrating on such fairly clear-cut diseases as smallpox and measles, or by accepting terms at face value. Duffy and Blake both devote sizeable sections of their texts to smallpox. Wyndham B. Blanton accepted any reference to "ague" as meaning malaria. (Wyndham B. Blanton, Medicine in Virginia in the Seventeenth Century (Richmond: The William Byrd Press, Inc., 1930)).

[24]In my analysis I have used caution in stating what diseases were prevalent. In addition to acquainting myself with eighteenth-century fever theory, I consulted modern symptom descriptions in The Merck Manual of Diagnosis and Therapy, 13th ed. (Rahway, N.J.: Merck Sharp & Dohme Research Laboratories, 1977). David Werner's Where There is No Doctor: A Village Health Care Handbook (Palo Alto, Ca: The Hesperian Foundation, 1977) provided a model of diseases encountered in underdeveloped communities. Numerous other texts were useful for symptom descriptions and outlines of untreated disease courses: Robley Dunglison, Medical Lexicon. A Dictionary of Medical Science, 7th ed. (Philadelphia: Lea & Blanchard, 1848); A. McGehee Harvey and Victor A. McKusick, Osler's Textbook Revisited (N.Y.: Meredith Publ. Co., 1967); Commemoration Volume (Chicago: AMA, 1915); Philip Manson-Bahr, The Dysenteric Disorders: The Diagnosis and Treatment of Dysentery, Sprue, Colitis and Other Diarrheas in General Practice, 2nd ed. (Baltimore: Williams & Wilkins Co., 1943); Joseph Felsen, Bacillary Dysentery, Colitis and Enteritis (Philadelphia: W. B. Saunders Co., 1945); J. D. Rolleston and G. W. Ronaldson, Acute Infectious Diseases: A Handbook for Practitioners and Students, 3rd ed. (St. Louis: C. V. Mosby Co., 1940); C. H. Stuart-Harris, Influenza and Other Virus Infections of the Respiratory Tract (Baltimore: Williams & Wilkins Co., 1965). Using these as guides, I have built inferential cases for diseases wherever possible.

Mortality

The second step in writing New London's disease history was an estimation of the annual mortality. This entailed counting all the New London deaths reported in the diary and classifying them for each year according to sex (for adults) and age.[25] Whether or not the diary contains every death occurring over the forty-seven years, it yields significant information about community mortality.

Since mortality totals are meaningless without some knowledge of population changes, it was necessary to estimate New London's population at various points. This task was the next most challenging after disease identification. Population figures for the years prior to Connecticut's first reliable census in 1756 are sparse and fragmentary,[26] so shreds of evidence from the diary and several secondary sources were used in constructing a hypothetical population curve.[27] Some of this information (for example, early tax lists) could be used as a base for a reasonable

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[25]Hempstead usually, but not always, gave ages. Even when age was missing, it was generally possible to determine whether the person was under twenty, between twenty and sixty, or over sixty. It was not possible to classify child mortality by sex, as Hempstead frequently failed to record the sex of a child.

[26]For evaluations of early censuses, see Robert V. Wells, The Population of the British Colonies in America before 1776: A Survey of Census Data (Princeton: Princeton U.P., 1975); J. Potter, "The Growth of Population in America, 1700-1860," in Population in History: Essays in Historical Demography, ed. D. V. Glass and D. E. C. Eversley (London: Edw. Arnold, Ltd., 1965); Evarts B. Greene and Virginia D. Harrington, American Population Before the Federal Census of 1790 (N.Y.: Columbia U.P., 1932; reprint ed., Gloucester, Mass.: Peter Smith, 1966).

[27]Greene and Harrington, American Population; Bushman, Puritan to Yankee; Caulkins, History of New London; Lois K. Mathews, The Expansion of New England: The Spread of New England Settlement and Institutions to the Mississippi River 1620-1865 (Boston: Houghton Mifflin Co., 1909); Diary of Joshua Hempstead.

estimate, but much of it was indirect and circumstantial references to military companies, numbers of freeman, formations of new towns and parishes, and tax assessment values. The derived estimates are crude, but they provide points of reference for the mortality data.

Use of numerical data does not guarantee the ability to make statistical analyses or interpretations. In this study, the time span is too short and the evidence too fragmentary for such a treatment. Nevertheless, most of the population and mortality information is presented in the form of numbers and graphs because that is the clearest, most concise way of doing it. Crude death rates were calculated as a means of making rough quantitative comparisons. This does not imply mathematical precision; rather, it is a convenient language for expressing the diary's mortality records. The approximate nature of these operations makes any interpretations tentative.

In order to give these data a broader interpretive context, I have compared and contrasted New London's crude mortality patterns with those of two other towns. Norton's and Greven's studies have made data available for comparisons with Ipswich and Andover, Massachusetts, both of which share some characteristics with New London, but differ from it in other ways. While Ipswich and New London were both commercial port towns, Ipswich was larger, and was situated in a more "urban" region than New London. Andover and New London were approximately the same size and had the same growth rate up to the 1740s, after which Andover's population declined while New London's grew rapidly. Andover was an inland agricultural settlement with a static, "peasant" type of society,[28]

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[28]Norton, "Population Growth;" Greven, Four Generations; Cook, Fathers.

whereas New London was a more mobile, diversified waterfront community. Because of these similarities and contrasts, Ipswich and Andover are ideal for comparison with New London.

The Hempstead Family

The final segment of this study analyzes the Hempstead family and its experience with illness and death. This forty-seven year medical history reveals something of the family's position as a social unit in relation to the community at large. Joshua Hempstead was "cousin to half the community."[29] His siblings, in-laws, aunts, uncles, children and grandchildren comprised a significant portion of New London's population. With such an extended kinship network, family and community coincided to a high degree.[30]

There are few detailed studies of illness in colonial families.[31] Medical historians emphasize colonial physicians or a single disease and so avoid studying health and disease in daily colonial life. The story

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[29] Caulkins, New London, p. 273.

[30] Philip Greven explores mid-eighteenth-century changes in kinship community in Four Generations (pp. 209-10).

[31] One of the few good diary studies is Cecil K. Drinker's Not So Long Ago: A Chronicle of Medicine and Doctoring in Colonial Philadelphia (N.Y.: Oxford U.P., 1937). It is especially valuable for its female perspective on childbirth experiences. (See Catherine Scholten's article, "'On the Importance of the Obstetrick Art': Changing Customs of Childbirth in America, 1760 to 1825," Wm. & Mary Quart., 1977, 34:426-445.) The Rutman article I cited earlier constructed the malarial history of the Landon Carter family from diary evidence. A recent study of an eighteenth-century diary attempting to deal with the effects of sickness and mortality on the family suffers from a lack of documentation. The author also makes speculative leaps in drawing conclusions from her evidence. (Rose Lockwood, "Birth, Illness and Death in Eighteenth-Century New England," J. Soc. Hist., 1978, 12:111-128.)

of smallpox inoculation in Boston, for example, received ample treatment,[32] but virtually nothing is known about the people who had smallpox. There is also sizeable literature on Philadelphia's early physicians,[33] but little about the effects of disease on the lives of their patients. This study of the Hempstead family is an attempt to help fill that gap.

This section concentrates on the family's experiences with disease and mortality in general; hence, the identity of specific disease entities is not crucial. Of more interest is the part illness played in daily life, how family members behaved in response to illness and death, and the care available to them. The answers to these questions delineate the interrelationships of family, community and disease.

Answers for other Hempstead family members are less than total, since Joshua left a complete record of only his own activities. However, the diary furnishes glimpses of other family members which, taken together over time, tell something about their histories.[34] The

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[32]One of the perceptive analyses is John B. Blake's "Smallpox Inoculation in Colonial Boston," J. Hist. Med., 1953, 8:284-300.

[33]See especially Whitfield J. Bell, Jr., The Colonial Physician and Other Essays (N.Y.: Science Hist. Publ., 1975) and John Morgan: Continental Doctor (Philadelphia: U. Pa. Pr., 1965); William H. Williams, America's First Hospital: The Pennsylvania Hospital, 1751-1841 (Wayne, Pa.: Haverford House, 1976). As further evidence of the attention that has been given to the study of prominent figures, view the enormous list of publications on Benjamin Rush in Genevieve Miller's Bibliography of the History of Medicine of the United States and Canada (1939-1960) Baltimore: The Johns Hopkins U.P., 1964).

[34]In order to assemble the necessary facts, I carefully examined the text numerous times. This was necessary not only for an understanding of the context in which medical events took place, but because the significance of certain events was not obvious until they were viewed in the light of later developments. The repetition of family names also necesitated a close study in order to avoid confusion in identifying family members. Since several of Hempstead's children and grandchildren had the same first names, it often took detective work to determine which person the writer meant.

limitations of these data make the study descriptive and admittedly impressionistic. This information does, however, add a human dimension to the analyses of disease and mortality. The paper's three aspects--disease prevalence, mortality patterns, and personal experience--create an image of New London community health in the first half of the eighteenth century.

CHAPTER I

NEW LONDON'S DISEASES

Eighteenth-Century Disease Theory

In present-day medical thought, a disease is a specific set of biological processes having a definite etiology. Prior to the nineteenth-century development of anatomical and clinical pathology, however, medical theorists had to infer the biological activities of illness solely from each patient's symptoms and signs. Each individual's unique circumstances, including his health-disease environment and his medical treatment, constantly modified his clinical picture so that a mosaic of signs and symptoms confronted practitioners. For example, even an acute epidemic of a familiar disease could appear in an unfamiliar way when combined with other diseases or with malnutrition. Bleeding and purging produced physiological changes that could confuse the picture. Such conditions encouraged a concept of disease considerably more flexible than that of today.[1]

There was, however, one symptom that was almost universally present in infections--fever. Hence, some physicians based their ideas of disease on the concept of fever as an underlying unity in all illness.

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[1]Rutman and Rutman, "Agues and Fevers," p. 32; Donald G. Bates, "Thomas Willis and the Epidemic Fever of 1661: A Commentary," Bull. Hist. Med., 1965, 39:393-412, pp. 396-97.

Every infectious disease was a kind of fever.[2] In the seventeenth century, Thomas Willis defined "fever" as heat, motion, and their sequelae.[3] John Huxham, an eighteenth-century British authority on fevers, elaborated on Willis's concept. According to him, all fevers were modifications of a basic, non-pathological febrile state. In this condition, the blood's velocity, friction and heat increased as a result of vigorous exercise, exposure to cold moist air, or alcoholic overindulgence. While at this point the fever could quickly be relieved by warmth and rest, it could also progress to a more serious form requiring medical intervention if two or more of the conditions (exposure, exercise, overindulgence) were combined, if the wrong kind of treatment was given, if the timing of treatment was off, if the patient's constitution was especially susceptible, if certain dietary, weather or mental variables were involved, or if contagion was a part of the picture. If the blood was too violently agitated, expecially in a person of vigorous constitution, an "ardent" or inflammatory fever would develop. Pneumonia, for example, was an inflammatory fever. In a person of "low" constitution, diet and weather might play prominent roles in producing a "slow" or "nervous" fever like typhoid. Intermediate between the ardent and slow types were the intermittent fevers (usually malaria) and contagious fevers (mainly plague and smallpox). These could resemble either inflammatory or slow nervous

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[2] Ibid.

[3] Thomas Willis stated this concept clearly in the seventeenth century, although it was already traditional at that time. Bates, "Thomas Willis," p. 407. Willis's contemporary, Thomas Sydenham, took the view that diseases were separate entities or species (Knud Faber, Nosography in Modern Internal Medicine (N.Y.: Paul B. Hoeber, 1923; reprint ed., 1930)), but the idea that all fevers were essentially one persisted far into the nineteenth century.

fevers. The most serious febrile state, the putrid malignant, developed from poor timing in the treatment of inflammatory fevers or from the influence of contagion. Thus a particular febrile form resulted from a unique combination of circumstances.[4]

Whenever many diseases were present in the population at the same time, they created a bewildering variety of changing signs and symptoms. Huxham recalled one such confused array:

> I well remember that the catarrhal Fever, which spread through all Europe under the name Influenza in the Spring, 1743, frequently became pleuritic, or peripneumonic; and as frequently, after two or three Days, ran into a Quotidian, or Tertian: the Difference of the Constitutions of the Patients, &c. thus altering the Face and Nature of the Disease. Sometimes quotidian, semi-tertian and tertian Fevers, are very rife and cotemporary with epidemic Pleurisies, and Peripneumonies; as particularly in 1744.[5]

Since the most obvious characteristic of disease was, to his eyes, its tendency to change form, prognosis and therapy hinged on this element. Timing was of paramount importance in an inflammatory fever, for if the patient was bled promptly, he would soon recover. Conversely, any delay allowed the disease to sink into the dangerous putrid malignant state. Inappropriate therapy could change an intermittent fever into an acute continual fever, but proper treatment could reverse the process. Even a slow nervous fever, more difficult to cure than any other kind except putrid malignant, could soon be cured if it were first changed to a

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[4]John Huxham, An Essay on Fevers, and their Various Kinds, as depending on Different Constitutions of the Blood: With Dissertations on Slow Nervous Fevers; on Putrid, Pestilential, Spotted Fevers; on the Small-Pox; and on Pleurisies and Peripneumonies, 2nd ed. (London: S. Austen, 1750) pp. 2-5, 12, 17, 18, 35-40, 46, 57, 126-127.

[5]Ibid., p. 20. Catarrhal, pleuritic and peripneumonic fevers were inflammatory states, while the terms quotidian, semi-tertian and tertian referred to intermittent fevers.

regular intermittent.[6] Fever was conceived as a system in a state of flux, susceptible to many influences.

American colonial writers on disease inherited British theories. Huxham's system was iatromechanical; that is, it viewed disease as the physical disruption or malfunction of the human machine. Cotton Mather, writing early in the eighteenth century, combined religious and iatromechanical theories. Assuming there were disease entities distinct enough to require diverse treatments, he concentrated more on finding specific remedies than on treating an underlying condition. A Connecticut practitioner named John Walton, in spite of being a minister, left theology out of his disease theories. Unlike Mather, he emphasized the basic unity of fevers. He dismissed the search for specific remedies as the province of quacks and empirics. John Tennent, an eighteenth-century Virginia practitioner, wrote on a specific fever--pleurisy. His theory of the febrile process was close to Huxham's; however, he made it the basis for his promotion of rattle-snake root as an infallible pleurisy cure. Until more is learned about the practice of colonial medicine, estimating the actual influence of such writings remains difficult.[7]

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[6]Ibid., pp. 6, 12, 19-20, 21.

[7]Shryock, Medicine and Society, pp. 55-56; John Walton, Essay on Fevers, the Rattles, and Canker (Boston: T. Fleet, 1732) pp. 6, 7, 16; John Tennent, An Essay on the Pleurisy (Williamsburg: Wm. Parks, 1736) pp. 15-31. For a discussion of iatromechanism (iatrophysics), see Charles Singer and E. Ashworth Underwood, A Short History of Medicine (N.Y.: Oxford U.P., 1962) pp. 138-42, 250.

New London's Early Disease History

Three secondary sources provide information on New London's disease history before the time covered by Joshua Hempstead's diary. Frances M. Caulkins's History of New London is a detailed nineteenth-century local history by a descendant of one of the early settlers. As Richard Bushman points out, the antiquarian inclinations of local historians like Caulkins "compelled them to include sections on virtually everything that turned up in the ancient records."[8] The medical information, though sparse, adds a few strands to the total story. Charles-Edward A. Winslow's "Health Legislation in Colonial Connecticut,"[9] and Charles B. Graves's "Epidemic Disease in Early Connecticut Times"[10] both mention seventeenth-century New London epidemics. These sources have supplied some background for the discussion of disease in the eighteenth century.

According to Caulkins, the early settlers enjoyed long, healthful lives. In her introduction to obituaries of people born in the seventeenth century, she remarks, "The deaths that strew the way, are thinly scattered, showing that life and health were here as secure from disease, excepting only one or two seasons of epidemic sickness, as in the most favored portions of New England."[11] Taken at face value, this statement indicates that seventeenth-century New London, in spite of frequent contacts with other towns, resembled the inland farming town of Andover, Massachusetts in its favorable environment for population growth.

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[8] Bushman, Puritans to Yankees, p. 303.

[9] Bull. Soc. Med. Hist. of Chicago, 1924, 3:317-335.

[10] Proc. Conn. St. Med. Soc., 1920, 67-95.

[11] Caulkins, History of New London, p. 269.

Certainly King Philip's War in 1675 and 1676 created an ideal situation for an epidemic. New London was then a gathering place for soldiers--"a camp for the troops, a store-house for supplies, and a hospital for the sick--full of disturbance, discomfort and complaints."[12] Hence, it is surprising that none of the sources report general sickness at that time. A primary study is needed, to investigate the validity of Caulkins's observation.

There are records of several epidemics in the last two decades of the seventeenth century. The earliest one cited was in 1683, when the county court could not be held in September because of widespread illness. Winslow states that sickness was prevalent throughout that entire year, but his sources apparently failed to say what disease or diseases were involved.[13] In 1689, the court postponed its session because of a "distemper of sore throat and fever" in July and August. Caulkins reports that this epidemic, which affected almost every family, was fatal in more than twenty cases, only nine of them adults.[14] There is not enough evidence to determine this disease's identity, although diphtheria is a good possibility. Once more the court was adjourned in June, 1690 "on account of the contagious distemper in town."[15] There are several indications that this disease was smallpox. In the first place, smallpox

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[12]Ibid., p. 183.

[13]Winslow, "Health Legislation," p. 320.

[14]Ibid., p. 321; Caulkins, History of New London, pp. 198, 252. The estimated population of New London in 1678 was 520, so it was probably between 600 and 700 in 1689. (Estimated from tax list: 104 taxpayers multiplied by a conversion factor of 5 = 520.) Graves says that 25 people died during four summer months, nearly all of sore throats and fever. (Graves, "Epidemic Disease," p. 71.)

[15]Caulkins, History of New London, p. 253.

was one of the few diseases recognized at that time as contagious. Secondly, smallpox was prevalent in Massachusetts in 1689-90 and in New York during the spring and summer of 1690. There were also several smallpox deaths around this time at Stonington, a town about fifteen miles east of New London. Finally, Caulkins noted that a man and his wife both died of smallpox within three weeks of each other in May and June of 1690.[16] According to Graves, Connecticut was rife with smallpox in 1700. A Stonington diary told of several cases in that town between 1700-1702, with at least five deaths, but there is no direct evidence for New London. Connecticut Colony had a heavy incidence of disease in the 1680s and 90s, says Winslow, so New London citizens probably suffered their share.[17]

Disease Incidence in New London, 1711-1758

Ague and Fever

References to ague and fever pose a special problem of interpretation. English-speaking people commonly use the word "ague" to signify the intermittent fever of malaria, but the term was not always so limited in its use. Derived from the Latin febris acuta, it originally denoted any acute, but especially, any continued fever.[18] Erwin Ackerknecht

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[16]Blake, "Smallpox Inoculation," p. 108; John Duffy, A History of Public Health in New York City 1625-1966, 2 Vols. (N.Y.: Russell Sage Foundation, 1968) Vol. 1 (1625-1866) p. 35; Graves, "Epidemic Disease," p. 71; Caulkins, History of New London, p. 316.

[17]Graves, "Epidemic Disease," p. 71; Winslow, "Health Legislation," p. 321. King William's War started in 1690. Smallpox and rotten pork seriously reduced the Connecticut troops taking part in an attempted Canadian invasion that year. (Albert E. Van Dusen, Connecticut (N.Y.: Random House, 1961) pp. 96-97.)

[18]Boyd, Malariology, pp. 4-5.

observes that, in the nineteenth century at least, malaria was often confused with typhoid or yellow fever.[19] Hence, historical references to "ague" require a careful study of their contexts followed by cautious interpretation.

The Rutmans found that many references to ague and fever in the colonial Chesapeake indicated conditions other than malaria.[20] This was also true of Joshua Hempstead's diary. For example, Hempstead sometimes spoke of "ague" in his foot or leg that caused lameness.[21] He once reported that his cousin had "an Ague Sore" in his arm. This appears to have been a bad infection that had spread from a boil on the man's thumb.[22] Another time, referring to his daughter Molly's burns from hot milk, he wrote, "ye ague hath bin in itt (the burns) & She hath ye fever."[23] Twice when Hempstead spoke of having fever and ague,

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[19]Ackerknecht, Malaria in Upper Mississippi, pp. 6, 7.

[20]Rutman and Rutman, "Of Agues and Fevers," p. 43.

[21]Diary, pp. 40, 42, 132, 165, 215-17, 255, 266.

[22]Ibid., p. 224.

[23]Ibid., p. 120.

subsequent events indicated that contagious diseases were involved.[24] "Ague" obviously had multiple connotations.[25]

On the other hand, twenty-four incidents in the diary involving ague and fever resembled malarial attacks. In those cases, Hempstead referred to "fits" of ague and fever. Sometimes they were preceded by "feeling aguish" or an "aguish" pain in the bones and head. Such symptoms are also common to influenza,[26] but in the absence of evidence for the further development of "flu" symptoms, there is a high probability that they were caused by malaria. Several entries reveal regularly intermittent attacks, with periods of normalcy between.[27] At such times, people often displayed their familiarity with the intermittent pattern by staying home on alternate days waiting for their "fits." "I was not at meeting," Hempstead wrote on July 14, 1723, "it was my fitt day. I had almost

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[24]Ibid., pp. 71-72, 210. Both times, Hempstead was constantly ill for two months, with no "well" days between. Untreated vivax malaria subsides spontaneously in ten to thirty days (Merck, p. 161). One of the illnesses occurred during the winter months, at a time too cold for mosquito breeding. It is likely that "ague & fever" as used in these instances referred to chills and fever accompanying the onset of pneumonia or typhoid fever. Malarial paroxysms may also have occurred along with another disease. Both typhoid and dysentery, for example, can stimulate a latent malaria to become active. (J. D. Rolleston and G. W. Ronaldson, Acute Infectious Diseases: A Handbook for Practitioners and Students. 3rd ed. (St. Louis: C. V. Mosby Co., 1940)) p. 168; (Philip Manson-Bahr, The Dysenteric Disorders: The Diagnosis and Treatment of Dysentery, Sprue, Colitis and other Diarrhea in General Practice. 2nd ed. (Baltimore: Williams & Wilkins Co., 1943) p. 76).

[25]Considering "ague's" origin as a term for acute fever, Hempstead may have been using it as a name for the inflammatory symptom, heat. Several of the cases he mentioned obviously involved inflammation.

[26]Merck Manual, p. 160.

[27]A rigor occurs every forty-eight hours in uncomplicated vivax malaria, followed by fever of one to eight hours--then the patient feels well until the next rigor. (Ibid.) See Diary, pp. 132, 189, 552-53, 703-04, 226.

nothing of itt."[28] Vomiting and flux, symptoms common to malaria, occasionally attended the attacks.[29] It appears that, as a rule, the appearance of "ague & fever" in the diary without other qualifying evidence referred to malaria.

There is other circumstantial evidence for the malarial diagnosis. For example, all the ague and fever bouts referred to above, with one exception,[30] followed a seasonal pattern that is typical of malaria in temperate climates, where cold weather inhibits mosquito activity.[31] New London's numerous swamps and marshes were ideal breeding places for mosquitoes. Hempstead mentioned at least seven different swamps in the neighborhood, besides marshes and mill-ponds.[32] These "ponds and miry thickets" were scattered throughout the town, so that insects in these habitats would have had easy access to New London residents.[33] All these conditions are consonant with malarial prevalence.

The diary furnishes no suggestion of the extent of malarial prevalence in the community, as most references are to Hempstead, his

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[28] Diary, p. 132. See also pp. 189, 353, 553, 704.

[29] Rutman and Rutman, "Of Agues and Fevers," p. 34; Diary, pp. 189, 552-53. In one case the "flux" seems to have been a dysentery superimposed on malaria. (p. 615.)

[30] All of the seizures took place between April and October, except one in February, 1739, when the weather was warm for the season and thawing. That month Hempstead was sick with ague and fever every other day from the 13th through the 19th. (Diary, p. 346.)

[31] Rutman and Rutman, pp. 38-39.

[32] In 1711, the Connecticut General Assembly appointed commissioners to drain or flow swamps, but there is no evidence in Hempstead's record that this was done in New London. (Winslow, "Health Legislation," p. 319.)

[33] Caulkins, History of New London, p. 62.

children or his grandchildren. He mentioned ague and fever in people outside the family only three times, two of which gave no indication that the sickness was malaria. He designated the other case (two people) "intermitting fever," the only time he used this term.[34] Ague and fever, although it may have contributed to mortality, was never listed as a cause of death. The only signs of community incidence are indirect. Most of the Hempstead family suffered from periodic fits of ague and fever, even when living at some distance from each other; furthermore, several grandchildren were afflicted during early childhood. These facts, together with New London's hospitable environment for mosquitoes, lead to the inference that malaria was endemic there in the first half of the eighteenth century.

There is yet a third kind of diary reference to ague that tells of a puzzling sickness called the "burning ague." In 1725, Hempstead suffered with this illness for over a week, his son, John, for a month. Both had recurrences some years later--Hempstead in 1728, John in 1748. Two grandchildren had it, one in 1733 and the other in 1751. Only one death was ever attributed to this cause. Hempstead's failure to describe symptoms makes diagnosis impossible.[35]

Information on "burning ague" outside the diary is practically nonexistent. Duffy fails to mention it in his Epidemics. Noah Webster listed a 1723 epidemic of "burning ague" in Rhode Island, but did not say

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[34]Diary, pp. 23, 575, 615.

[35]Ibid., pp. 160-61, 203, 499, 264, 574, 588. Duration seems to have been between a week and a month. The man who died had been sick for about a week.

what the disease was.[36] Winslow cited Webster's reference as an illustration of the difficulties inherent in diagnosing colonial diseases:

> "It (the burning ague) did not prevail in a large town, but in villages, and perhaps the clearing of some neighboring swamps might have been one cause of the disease." Aha, you say, malaria. But "in proportion to its patients, no disease in America was ever so mortal." Which leaves us wholly at a loss.[37]

These remarks are all that could be found on "burning ague," apart from secondary sources that cite Webster without further comment.

One part of Hempstead's information fits Webster's observation, while another part vividly contradicts it. The diary's narrative of granddaughter Molly's burning ague in 1751 carried hints of the disease's intermittent or relapsing nature, in that she was better every other day. This would support the swamp-clearing theory. On the other hand, there was no evidence in the diary that the sickness was ever epidemic in New London; moreover, one death is at the opposite pole from the highest fatality rate in colonial America. Identification of "burning ague" remains a mystery.

Bloody Flux

"Bloody flux" was used extensively in eighteenth-century America as a synonym for dysentery. It appears frequently in Joshua Hempstead's diary. There are two kinds of bloody dysentery--amebic and bacillary. Since amebic dysentery is not common in temperate climates, the

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[36] Webster, Hist. Epi. Dis., pp. 228-229.

[37] Charles-Edward A. Winslow, "The Colonial Era and the First Years of the Republic (1607-1799)--The Pestilence that Walketh in Darkness," in Franklin H. Top, ed., The History of American Epidemiology (St. Louis: C. V. Mosby Co., 1952), p. 12.

assumption may be made that a prevalent bloody flux in colonial New England was usually a bacillary dysentery.[38] There are several different bacilli of the genus Shigella that can cause dysentery, but the symptoms they produce are much the same. Episodes may be mild or acute, regardless of the organism involved. Acute dysentery has three cardinal symptoms and signs: diarrhea, usually turning bloody in a few days; fever; and a pain that has often been described as "griping."[39] The diarrhea is violent, producing twelve or more stools in twenty-four hours, and often causing a tenesmus or ineffectual and painful straining. It usually lasts for about three weeks.[40] This infection frequently visited the American colonies, producing abundant distress.

The "bloody flux" accounted for the highest number of epidemics between 1711 and 1758, notwithstanding the fact that it was not mentioned before 1722. In July of that year, and again in October, several Hempstead family members suffered from bloody flux. Although a nine-year-old neighbor died with the disorder early in November, there was no evidence of a widespread epidemic. No other deaths were attributed to this cause; in fact, that year was one of the lowest in mortality. Apparently the cases were mild, the spread was limited, or both.[41] Seven years later, there was evidence for a bloody flux epidemic in September

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[38]Werner, Where There Is No Doctor, p. 145; Merck, p. 156.

[39]Merck, p. 92; Manson-Bahr, Dysenteric Disorders, pp. 59-61; Joseph Felsen, Bacillary Dysentery, Colitis and Enteritis (Philadelphia: W. B. Saunders Co., 1945) p. 91.

[40]Manson-Bahr, Dysenteric Disorders, p. 61; Dorland's Pocket Medical Dictionary, 21st ed. (Philadelphia: W. B. Saunders Co., 1968) p. 609.

[41]Diary, pp. 123, 125-26.

and October. Seven of the thirteen children and six of the twenty adults who died that year did so during those two months. Hempstead gave bloody flux as the cause of three of these, but his comment that "a Bloody flux . . . prevails much in the Town" indicates that some of the other deaths also followed the flux.[42] Five years passed before the next episode in September of 1734, when Hempstead again noted that bloody flux was prevalent. This time there were fewer deaths than in 1729.[43] Not until August and September of 1742 did bloody flux reappear. This time it was brought in by some sick men returning from Jamaica after a military expedition against Cuba.[44] The sickness affected many New London families severely, including the Hempsteads, especially in September. Hempstead described it as "violent," "very hard and bad," and accompanied by pain and vomiting.[45] Even so, mortality was lower than for some other epidemics: slightly over one-third of the year's total children's deaths and one-fourth of the adults' took place in these two months. The flux came back with force in 1747. It caused deaths from July through November, but especially in August and September. During these two months alone, fourteen children and four adults died, out of respective yearly totals of twenty and fifteen. Some of the cases involved "canker" (diphtheria) as well as bloody flux. This probably helps to account for the high proportion of deaths among children. Other nearby towns were

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[42]Ibid., pp. 212-14, 213.

[43]Ibid., pp. 278-79.

[44]Caulkins, History of New London, p. 388. The expedition failed, partly because of widely disseminated sickness.

[45]Diary, pp. 397-99. The symptoms fit the clinical picture for acute bacillary dysentery. (Merck, p. 93.)

also afflicted, as Hempstead reported cases among his grandchildren in Stonington, as well as two deaths in the neighboring community of Groton.[46] Six years passed before the next outbreak of bloody flux held the town from August through October, 1753. The heavy mortality from this epidemic elicited the following observation from Hempstead on August 16th: "3. funerals this day of those yt died yesterday & a very Sickly time in this Town. the Bloody flux prevails." Three days later he repeated, "a very Sickly time."[47] This was the only time he commented on the level of mortality other than the entry he made during the severe epidemic of 1725 (see p. 50). There does not seem to have been any other disease involved in the deaths this time; nevertheless, a high proportion of residents died during the epidemic months: thirty-four out of forty-seven children who died in the entire year (72%) and twenty-two of the year's adult mortality of thirty-nine (56%).[48] To summarize: there was a small, mild, limited epidemic of bloody flux in 1722. After this there were five widespread epidemics at intervals of from five to eight years. The last one, in 1753, appears to have killed by far the greatest number of both children and adults.

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[46] Diary, pp. 483-88. Sore throat and bloody stools are sometimes symptoms of typhoid. However, sore throat is an initial symptom, while in this New London epidemic, sore throat developed later. Bloody stools began early, whereas intestinal hemorrhage is a complication occurring late in the course of typhoid. (Merck, p. 89.) Diphtheria was not infrequently associated with typhoid in the past. It most commonly developed during the second week of illness, though sometimes it began during convalescence. (Rolleston and Ronaldson, Acute Infectious Diseases, p. 167.)

[47] Ibid., p. 613.

[48] Ibid., pp. 612-18.

Respiratory Infections

Hempstead put respiratory illnesses mainly into two categories: colds and pleurisies. Colds obviously also included influenza, while "pleurisy" commonly meant pneumonia.

Early in November of 1717, Hempstead was ill with a severe cold. Two weeks later he was suddenly taken during the night with a "violent ague" together with lower back and abdominal pain. In a few hours he had a high fever. In the next two days, the pain was first over his entire back and in his chest, then localized in his side and the side of his chest. After a "very Ill turn about noon" of the fourth day, he remained "weak & Low" for about a week. At this time, he again wrote of having chest pain. After several days of this, he began a slow recuperation, until he finally recovered by the third week in January.[49] Son Robert Hempstead, then fifteen, was ill for two weeks in December. Although Hempstead first characterized this illness as "ague & fever," he described it a few days later as a bad constant fever.[50] At the same time, many other people were sick; furthermore, the mortality rate was high for this period. Whereas only four children and three adults had died prior to December, three children and eight adults succumbed in that month alone. Hempstead stated that two people who died had the same distemper that he had. Death came within a few days after the disease's onset. Mrs. Pemberton, for example, fell ill a few days after nursing both Joshua Hempstead and his brother-in-law. She died four or five days later.[51] The circumstantial evidence in this case points to pneumonia.

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[49] Ibid., pp. 70-72.

[50] Ibid., p. 71.

[51] Ibid., pp. 71-72.

Hempstead, and probably others, had been predisposed by the "violent cold." Malaria must also have contributed to their susceptibility. The sudden onset, high fever, and the kinds of pains Hempstead described are all common to bacterial pneumonias.[52]

Hempstead first used the word "pleurisy" in 1731. From the latter end of April into July of that year, several people died within a week after having become ill. Hempstead gave the cause of one as "pleuritick fevar," of another as "pleurisy."[53] In July, John Daniels, Jr. died of "Plurisee"--after having recovered sufficiently to go visiting neighbors, he "was again taken with a Shortness of breath which Increased 5 or 6 days & then he Died."[54] From this time on, Hempstead occasionally listed pleurisy as a cause of death.

Bad colds were prevalent in 1732. Hempstead and a visiting relative were afflicted in October. The entry for Sunday the 22nd reads: "I am Still bad with the Cold. it prevails much here. it is generally in the County."[55] Hempstead's brother-in-law, John Plumb, died the following

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[52] Merck, pp. 609-10; Harvey and McKusick, Osler's Textbook, pp. 83-85. Charles B. Graves, president of the Connecticut Medical Society in 1920, theorized that this "distemper" may have been the malarial disease Hempstead had all his life; however, there are several arguments against this diagnosis. First, there is no evidence of intermittent paroxysms; second, the epidemic took place in December, when the weather was too cold for mosquitoes; third, the disease appears to have spread directly from person to person; fourth, people died from it in a few days. (Graves, "Epidemic Disease," p. 72.) This disease had probably been brought to New London from Boston. On November 11, a sloop arrived from that town with news that "it is Sickly there Especially with ye Aged." (Diary, p. 70.)

[53] Diary, pp. 234-35.

[54] Ibid., p. 237.

[55] Ibid., p. 253. Noah Webster reported that in October, 1732 "a severe universal catarrh" appeared in America. He called it a precursor of the century's most pestilential period. (Brief History, p. 232.)

week with "a Violent Cold" that he had taken suddenly nine days earlier. The months of October and November accounted for just over one-half the year's mortality. Out of a total of ten children and twenty-one adults who died that year, six children and ten adults expired during this period. Hempstead gave a cause for only one of these deaths besides Plumb's--that of a nineteen-year-old black slave, with "Plurise." After two months in which the sickness dropped off, there were several deaths from late February through early April, with pleurisy mentioned as the cause of one New London and one Groton death.[56] Considering the severity of these "colds," the season, and the associated mortality, the disease was probably influenza, complicated by pneumonia in a number of cases.[57]

In the spring and early summer of 1748, a "very great cold" was again "a universal Destemper." In contrast with the 1732 epidemic, this one produced either low mortality or none at all. Since the record showed only two deaths each for May and June, with none in July, the cause of sickness may have been an uncomplicated common cold.[58]

Respiratory diseases again came to the fore in late winter and early spring of 1754. About the middle of February, Hempstead had "a very great Cold." In March and April he reported that some people had died with "the plurisie" about a week after they first took it. This was the diary's last respiratory disease epidemic, as well as its last reference to pleurisy.[59]

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[56] Ibid., pp. 252-58.

[57] Merck, p. 36.

[58] Diary, pp. 500-02.

[59] Ibid., pp. 624-27.

Throat Distemper or Canker

Ernest Caulfield discussed in detail the problem of identifying references to "throat distemper" and "canker."[60] He showed that "throat distemper" was applied both to scarlet fever and diphtheria. "Canker," though occasionally used to denote laryngeal obstruction, generally meant an exudate or membrane in the throat. In eighteenth-century America, "canker" came to mean diphtheria, while "canker rash" was often applied to scarlet fever. "Quinsey" was a seventeenth-century term used for any laryngeal or pharyngeal condition. Hempstead used all these terms except "canker rash."

As early as July, 1726, the diary reported the death of a young child "with a distemper in the throat,"[61] but this was an isolated incident. There was another dissociated case in June of 1731, when a boy died of "a Choaking distemper most like the Quinsey."[62] Since no other deaths were recorded at these times, and Hempstead said nothing about others who may have been ill, it must be assumed that these outbreaks were limited.

May of 1736 saw the beginning of the first widespread throat distemper epidemic. This was a part of the larger epidemic involving most of the Connecticut shore towns that year. It eventually coalesced with the epidemic that had originated in New Hampshire in 1735.[63] By the end

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[60] Caulfield, "History of the Throat Distemper," and "An Essay on the Rattles," J. Pediat., 1936, 8:226-33.

[61] Diary, p. 172.

[62] Ibid., p. 236.

[63] Caulfield, "Throat Distemper," pp. 307, 332. When the first child was buried in the New London epidemic, Hempstead said that several other children in the family were sick, as well as the mother and some other people. (Diary, p. 303.)

of December, Hempstead had listed the deaths of nine children and three adults from throat distemper. Several other deaths were probably from the same cause, since there was an increase in mortality. Two of the children were the second in their families to die within a short time.[64] There were probably around eighteen deaths altogether, fourteen of which were children.

It is difficult to determine whether this epidemic was scarlet fever, diphtheria, or both. Hempstead never mentioned a rash, but he sometimes failed to note other signs now considered important; for instance, cough in pneumonia. Caulfield thought it possible that scarlet fever alone or in combination with diphtheria was responsible for the epidemics in a few Connecticut towns, but that diphtheria alone was probably involved in most of them.[65] As evidence, he cited the frequency of multiple deaths in almost all towns, and exceptionally high mortality in some towns. There were no instances of multiple deaths reported in the diary--only two families had two deaths each, and none had more than this. Neither was the mortality as high in New London as in some of the other towns, although high enough that the sickness could have been diphtheria. Hempstead provided only one clue to the nature of the disease. In writing of a twenty-year-old neighbor's death, he revealed that she had become ill six days earlier, and had been considerably better the day before, but got worse during the night and had a convulsion. While convulsions sometimes occur in both scarlet fever and diphtheria, scarlet fever seizures are limited primarily to young children.[66]

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[64] Diary, pp. 303-13.

[65] Caulfield, "Throat Distemper," p. 314.

[66] Merck, pp. 104, 106, 79.

Throat distemper was present in the population in 1743-44, although there was no real epidemic. Only one death from this cause had been registered in the diary since 1736. Then in October, 1743, four children perished with the disease, two of them in the same family. There was no further throat distemper mortality until December 25, when two more young children died. "Canker" claimed two children in February--the last until the end of July, when Hempstead told of two children who had been buried, one with a sore throat and the other with "ye Throat Destemper." Two children died of unstated causes late in October, followed by a pair in November with "Sore Throat" and "Rattles or Throat Destemper."[67] In sum, there were at least ten throat distemper fatalities in fourteen months, all of them children. Again, there was no clue to the identity of the disease. There were a few more scattered throat distemper deaths throughout the years 1746-1750 (some in combination with bloody flux) before the sickness flared into epidemic form again in July, 1751. Fifty-two children died before the end of December--more than twice the number for the whole year of 1750. No adults seem to have died in this epidemic. This time many families lost several children within a short period of time. These multiple deaths and the high mortality are signs the disease was diphtheria.[68] Although no more major outbreaks took place before Hempstead's death, canker continued to claim a few lives almost every year.

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[67] Diary, pp. 416, 418-19, 421, 428-29, 433-34. Before 1743, Hempstead invariably referred to "throat distemper." Beginning with these years (1743-44), he began to use "canker" interchangeably with "throat distemper." Very rarely he referred to quinsey or rattles.

[68] Ibid., pp. 466, 487, 489, 492, 499, 520, 554, 572-81.

Consumption

Consumption was formerly used to denote a progressive wasting away of the body. Usually it applied to pulmonary tuberculosis, but it undoubtedly included such other conditions as lung cancer. In Hempstead's diary, the criteria for a diagnosis of consumption were apparently the extended period of illness and the wasting nature of the disease. When Hempstead's sister Patience died of consumption in 1725, he remarked that she had had it for almost two years. Ezekiel Butler, who died between meetings on a Sunday in June, 1734, had been "a grt while Sick." Robert Eams was ill from December, 1745 until his death the following September, while Mr. Newport's illness lasted for seven months, from November, 1753 to June, 1754. Benjamin Harris, who had come down with consumption in the fall or early winter of 1757, expired in June, 1758.[69] Some of the lingering illnesses of which Hempstead spoke from time to time may have been tuberculosis. In June, 1736, a boy died "with a Consumption or other Long & Lingering Sickness held him one year & ( ) month."[70] In January, 1753, Hempstead noted an atypical case--that of Captain John Braddock who had just died with "the galluping Consumption Some Call itt. Sick but a few weeks."[71] His entry for January 10, 1735, suggests he was aware of other categories of wasting sicknesses: Jonathn Hamiltons wife buried Died yesterday of a pining Illness like a Consumption."[72] Since Hempstead did not describe the symptoms of consumption, it is impossible to know exactly what he meant by the term in any given instance.

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[69] Ibid., pp. 160, 275, 407, 631, 704.

[70] Ibid., p. 304.

[71] Ibid., p. 601.

[72] Ibid., p. 284.

There were never many deaths from consumption listed for a single year. Prior to 1730, there were only six: one each in 1720, 1721, and 1724, and three in 1725. Beginning in 1730, one to four cases were reported for each year except 1748, 1749 and 1751, when there were none. Nevertheless, the total number of deaths reported in the diary from this cause over the years was third highest after throat distemper and accidents. Although they may not all have been from pulmonary tuberculosis, most of them probably were.

Smallpox

Connecticut Colony enacted quarantine legislation as early as 1663. In 1666, maritime quarantine was entrusted to local authorities, who acted on an ad hoc basis to exclude smallpox infection from their towns. It was not until 1702, when smallpox was prevalent throughout Connecticut, that the General Assembly passed the first comprehensive, broadly-drawn act for maritime quarantine of contagious infection. This law punished violators by fines. It was followed in 1711 by legislation to isolate sick persons within towns. Under this law, any two justices of the peace could make out a warrant for enforcement. Except for indigents, whose towns of residence were liable for expenses, the quarantined persons paid the charges. A 1715 law gave the towns' selectmen the responsibility of isolating the sick and providing nurses. Anyone refusing to accept nursing duties could be fined. In 1721, the year of Boston's most fatal smallpox epidemic, Connecticut Colony acted to curtail the spread of smallpox from town to town by prohibiting the peddler trade. Subsequent legislation in 1728 increased the penalty for refusing or neglecting to care or guard those ill with a contagion. Henceforward,

such delinquents were to be jailed. A 1732 act ordered all dogs to be killed in an epidemic and required the posting of a white flag as a sign of quarantine. Amendments followed in 1752 and 1756--the first required the airing of goods from infected places, while the second made it mandatory that shipmasters coming from infected ports report immediately to the authorities before being allowed to land. Thus, contagion legislation in Connecticut evolved gradually from emergency measures to detailed permanent statutes.[73]

These measures were extremely effective in New London for many years. In 1719 a ship arrived from the West Indies with smallpox on board. One of the men died, but the infection did not spread to the town. In 1730, a sloop came from Boston carrying men who were ill with smallpox. Later the same month a man on board a brig in the harbor broke out with the disease. On June 27, Hempstead held a court with his brother-in-law, Justice Plumb, about the smallpox concerns. Evidently they were successful in preventing the spread of the contagion, for no more cases were reported.[74] Hempstead was again responsible for keeping smallpox out of the town in November of 1732, when a schooner returning from Ireland threatened the community. Five of the fifteen men on board had died of smallpox in passage. "I was in Town," wrote Hempstead, "to

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[73]Winslow, "Health Legislation," pp. 320, 321, 323, 327, 330-32; Connecticut Colony. Acts and Laws (New London: T. Green, 1715). According to Bushman, political-economic motives entered into the legislation against peddlers. Larger merchants who resented the competition from these itinerant traders used political influence to obtain legal restrictions on their activities both in 1717 and in 1721. (Bushman, Puritans to Yankees, p. 113.)

[74]Diary, pp. 87-88, 222-23. Some of the highways were fenced to prevent passage.

take care tht they did not come a Shore."[75] The next day he sent a post to the governor at Hartford, informing him of the smallpox. In three days he received an order of council, but did not note the contents of this in his diary. At any rate, there were no further cases. The following summer Hempstead quarantined a sloop arriving from the West Indies, so that no smallpox appeared in town. Throughout these years, conscientious enforcement of Connecticut's quarantine laws kept the town relatively free of smallpox.[76]

The one notable exception occurred in 1721. John Rogers, founder of the Rogerene sect, deliberately exposed himself to smallpox in Boston in order to demonstrate his immunity to all infections (only the wicked were susceptible). On his return to New London, he and his family continually broke out of quarantine, causing the governor and council to spend twelve sessions in the fall and winter of 1721-22 dealing with the situation. Subsequently, John Rogers, his grandson and daughter-in-law all died, but no other deaths were reported.[77]

After this, there were no more smallpox deaths until 1752. On November 4th of that year, Hempstead "was with the Selectmen att the Harbour's mouth taking Care of Capt. Thomas Eames & Crew in a Brigg from New York. Divers of his men & himself Sick with the Small pox."[78] By

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[75] Ibid., p. 253.

[76] Ibid., pp. 253, 261.

[77] Ibid., pp. 114-15; Caulkins, History of New London, p. 220; Winslow, "Health Legislation," pp. 327-28. The Rogerenes' faith was "a concoction of deviant doctrines common in Rhode Island," mainly Quakerism and Seventh-day Baptist beliefs. (Bushman, Puritan to Yankeees, p. 164.) According to Caulkins, "They use no means for the recovery of health, except care, kindness and attention, considering all resort to drugs, medicines and physicians, as sinful." (History of New London, p. 205.)

[78] Diary, p. 597.

the end of the month, Captain Eames and two of his crew were dead. When a woman in the town broke out with smallpox in December, the selectmen immediately impressed a small farmhouse for her isolation, drafted a widow to nurse her, and fenced off the highway near the house. Although this woman died, she was the last in this outbreak.[79] New York was a focus of smallpox infection again in 1757. At this time, many New London men were coming and going from Camp Fort Edward in Albany. In July, Hempstead mentioned that a family in the town had smallpox. At the end of the month, he got word that one of his grandsons at the fort (Nat Miner) had taken the disease on the 17th. On September 10, the captain of a ship returning from New York died of smallpox after a one-week illness. Then in the latter part of October, Hempstead's daughter Elizabeth's family (the Starrs) broke out with it, and had to be isolated. Instead of the selectmen taking over a farmhouse this time, however, they removed the group to a special "pest house" at the harbor's mouth. Two other people were also quarantined there a little later. All of these patients survived, but four people died of smallpox in nearby Groton. One additional death, of a person who came in sick on shipboard, occurred in 1758. With the growing population and the constant upheaval associated with military activities, the task of controlling smallpox infection was obviously becoming increasingly difficult.[80]

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[79] Ibid., pp. 597-600. After the woman's death, her nurse and a man (who had probably had smallpox) buried her in a pasture. "they drew the Coffin with long Ropes on the ground &c." (p. 600.)

[80] Ibid., pp. 688-89, 691, 693-96, 708. Hempstead never mentioned smallpox inoculation. The first legislation dealing with this issue was not passed until March, 1760. Under this law, no one could be inoculated without a certificate obtained from the civil authority and the selectmen. (Winslow, "Health Legislation," pp. 332-33.)

Long Fever and Nervous Fever

"Long fever" and "nervous fever" are two eighteenth-century names for typhoid fever. The first term was derived from the duration of the fever--about three weeks to a month, in most cases. This constant high fever is the chief distinguishing characteristic of typhoid. Tremors frequently accompanied the disease, hence it was also a "nervous" fever. Such tremors were also characteristic of another disease--typhus. Because of this and other symptoms similar to typhoid, the two diseases were clinically confused until William W. Gerhardt of Philadelphia distinguished between them in 1837. Eighteenth-century references to "long fever" and especially to "nervous fever" could mean either disease. Since typhoid, however, was the most common continued fever of temperate climates until improved public health measures brought it under control in the nineteenth century, the majority of cases in eighteenth-century New England were probably in this category.[81]

The Hempstead family may have had typhoid fever in 1729. The justice himself was the first to fall ill with "Something of the fever & Ague" on May 9th and 10th. Sunday the 11th he was home sick all day, then did not write in the diary again until June 7th, when he wrote that he was beginning to sit up for about an hour a day in fifteen-minute segments. By this time, son Thomas was not feeling well. Within the next few days, his illness became serious, terminating in his death almost a

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[81] Duffy, Epidemics, p. 223. Other names for typhoid were: slow fever, continued fever, burning fever. Huxham used the term "slow nervous fever." (Huxham, Essay on Fevers, pp. 16-17); Commemoration Volume Chicago: AMA, 1915) pp. 42, 74; Shryock, Medicine and Society, p. 129; A. McGehee Harvey and Victor A. McKusick, Osler's Textbook Revisited (N.Y.: Meredith Publishing Co., 1967) pp. 47, 105.

month later. Around the time Thomas's sickness turned severe, Molly, Nathaniel, and Hempstead's slave Adam all came down with the disorder, followed a few weeks later by Stephen and Abigail. All recovered but Nathaniel, who died after an illness of almost a month. On June 21st, Hempstead told of being seized by a pain in his side so bad he was unable to lie down day or night. This continued for almost three weeks, after which Hempstead still complained of not feeling well for another nine days. It had been well over two months since his first sick day.[82]

There are several events related to this illness that suggest typhoid fever. The most obvious one is its extended time span. Since no one who had it was sick less than a month, this definitely was a "long fever." The second circumstance is Hempstead's failure to write in his diary for almost a month. He nearly always made daily entries, even when being harassed by the bloody flux, or when "very weak & low" during his severe illness in 1717. Few things could have prevented this habitual performance. One of them may have been the delirium of typhoid. The third bit of evidence is the pain Hempstead developed in his side during convalescence. Taken alone, it means nothing, but it is consonant with the other facts. Both pneumonia and cholecystitis, which can cause pain in the side, are complications of typhoid.[83]

The year following this illness, Hempstead first listed "long fever" as a cause of death. From this time on, he recorded sporadic deaths from

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[82] Diary, p. 210.

[83] Commemoration Volume, p. 42; Rolleston and Ronaldson, Acute Infectious Diseases, pp. 169-70; Harvey and McKusick, Osler's Textbook, p. 84. Rupture of the small bowel, a complication of typhoid, could also have caused lateral pain, but it would undoubtedly have been fatal. (Merck, p. 89.)

this fever--one or two in some years, but more often none at all. However, since typhoid fever symptomatology is extremely complex and variable, many cases could have gone unrecognized.[84] It is also possible that some of the deaths Hempstead attributed only to long illnesses may have been typhoid.

Two of Hempstead's grandchildren may have had typhoid in 1747. Nattee Hempstead was very ill for almost a month. On September 16, he had been able to walk with a staff for three or four days, so his sister Molly, who had been nursing him, went home to Stonington. Two weeks later, Molly came down with "the Long fever." After visiting her on October 3rd, Hempstead wrote that her illness seemed to be moderate. He arranged for a nurse to take care of her, and did not mention her sickness again. The bloody flux was epidemic at this time, but flux was never mentioned in Nattee and Molly's cases. It is more probable that these were typhoid.[85]

Hempstead listed "nervous fever" only twice as a cause of mortality, both times in 1738. He gave additional information for only one of these--the death of Captain Rosewell Saltonstall. Captain Saltonstall had come down with the illness the first day he arrived in New London to visit his brother. The disease began moderately, but gradually increased in intensity for twelve days before his death. The brief course of this disease is more characteristic of typhus than of typhoid, but the evidence is inconclusive.[86]

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[84] Harvey and McKusick, Osler's Textbook, pp. 57, 90.

[85] Diary, pp. 485-89.

[86] Ibid., pp. 338, 340.

There are some indications that two Hempstead sons had typhus in 1729. Less than a month after the deaths of Thomas and Nathaniel, Hempstead received word that John, who was staying with his married brother Robert on Long Island, was very sick. When Hempstead went over, he found that Robert had been ill, but was much better. John, on the other hand, had

> a high fever & much in his nerves Twitching & Trembling in his limbs & his Tongue Swelld or numbed that he could Speake plain Scarcely at all. . . . on Monday August 4th his fever began to abate & he Continued to mend from that time. on Tuesd ye 12th his Tongue Cleared at once wch was Covered over with a Thick hard Scurff & as black as a Shoe well nigh. he Still hath a fever Every day tho less & Less.[87]

The relatively short duration of this illness, the nervous symptoms, and the dry, brown tongue all point to typhus.[88]

Measles

Hempstead seldom mentioned measles. It received the most attention in 1714 when Jeremy Wilson, arriving by sloop from New York in December, announced that he and his son had been exposed to smallpox. Although they were promptly quarantined, Jeremy broke out of the house and visited his family, causing great consternation among the authorities. On December 6th, they appointed someone to guard the house, but Hempstead noted in his diary that day that the disease the Wilsons had was "only ye Measles." However benign this may have appeared to Hempstead, it was the beginning of an epidemic that took several lives. By January 1st, Jeremy Wilson's one-year-old child had succumbed to the disease. During the next two months, the diary listed measles as the cause of five more

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[87] Ibid., p. 211.

[88] Commemoration Volume, p. 74.

deaths, including one adult. There were undoubtedly other deaths from the same cause, since ten of the fifteen juvenile deaths for this year were in January and February. Some whose causes of deaths were not recorded were from families that had lost others to measles within a short time. During March and April, most of Hempstead's family came down with the infection, but none died. After this, there were isolated measles deaths, one each in 1716, 1729 and 1739. In January of 1740 some of Hempstead's Long Island relatives had measles, then in November, one child and one adult died of it in New London. The same month, measles was fatal to an adult in Norwich. The infection was prevalent on Long Island again in September, 1747 where it claimed the youngest child of Hempstead's son Robert. Robert's sister-in-law in Groton had died of measles the previous March after the birth of her tenth child.[89] There were no more entries about measles after 1747. Measles may have been prevalent at times, but was not mentioned in the diary because it produced no mortality.

Streptococcal Infections

The diary contains several instances of illness suggestive of streptococcal infections. For example, Hempstead's wife became seriously ill on August 4, 1716, the sixth day following the birth of her ninth child. Four days following her death on the 5th, Joshua Hempstead, Jr. was

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[89] Ibid., pp. 40-45, 53, 207, 353, 360, 369-70, 486, 477. Caulfield found that measles was epidemic in much of New England 1713-16, but apparently New London's 1715 epidemic stemmed from J. Wilson's trip to New York. At the time of New London's 1739-40 epidemic, there were also epidemics at Yale University, at New Haven, and at Hartford. ("Early Measles Epidemics," pp. 534, 539.) At the time one person died of measles in New London in 1729, measles was prevalent throughout the colonies. (Webster, Brief History.)

suffering from a severe sore throat and fever. The juxtaposition of these two events implies that both deaths were caused by "strep" infections--puerperal fever in Mrs. Hempstead's case, a severe "strep" throat in the case of her son.[90] There is scattered evidence of streptococcal prevalence in both 1748 and 1749. In January, 1748, Hempstead's grandson Joshua was "very Ill with a Sore Throat or Rather under his Tongue. Dr. Palmes Calls it a frog."[91] Another man had recently had the same ailment. Although Josh improved, he became very bad with a sore throat again in March. On the 17th Hempstead wrote, "Joshua was Exceeding bad last night. no Rest. I was up with him the Latter part of the night & ye Swelling broke before Sunrise & afterwards 2 places in his Throat & Tongue wch gave him Ease."[92] These swellings were evidently pharyngeal abscesses, which suggest streptococcal involvement.[93] The next February, following the funeral of a forty-five-year-old man, Hempstead made this entry: "he was taken with what was called the Rhumatism near about 3 Weeks ago & had lost the use of his Limbs at ye first but Seemed to be growing better dayly until about a Quarter of an hour before his Death."[94] Six months later, Hempstead came down with a similar complaint.[95] Beginning with weak knees, the symptoms progressed in two days to stiff joints, swollen hands, and severe knee and shoulder pain that kept the man from walking upright. A doctor who saw him the next day told him "tis the Same Distemper that hath of late prevailed among

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[90] Diary, p. 58. Puerperal fever typically reaches a crisis about the sixth postpartum day. (Werner, Where There Is No Doctor, p. 27.)

[91] Ibid., p. 495.

[92] Ibid., p. 498.

[93] Merck, p. 80.

[94] Diary, p. 513.

[95] Ibid., pp. 533-34.

Children."[96] (my italics) From the 20th through the 24th, Hempstead could hardly lie down on his bed because of the pain. He once sat up a great part of the night; however, on two other nights he was able to sleep on the floor in front of the fire. Apparently he recovered after the 14th, since he reported no more trouble. These cases have several characteristics of rheumatic fever: loss of limb function, joint stiffness, swollen hands, and severe joint pain. Sudden death, like that of the man who had the disease in February, can result from cardiac complications. Prevalence among children is also a clue to the disease's nature, since rheumatic fever is most common in persons under eighteen.[97]

Unidentified Epidemic

In 1725, the people of New London experienced the most highly fatal epidemic in the period covered by the diary. Unfortunately, Hempstead failed to provide one clue as to the disease involved. It may have begun in the middle of January, when Stephen Hempstead became sick on the 15th, with profuse vomiting. The following day he had a pain in his right breast. Besides bleeding him, the medical practitioner who was called applied to his chest an ointment of marsh mallows.[98] This was an herb used, among other things, to relieve chest diseases.[99] If the epidemic

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[96] Ibid., p. 534.

[97] Merck, pp. 83-84; Harvey and McKusick, Osler's Textbook, pp. 221-25.

[98] Diary, p. 152.

[99] Hilda, (Mrs. C. F.) Leyel, ed., A Modern Herbal: The Medicinal, Culinary, Cosmetic and Economic Properties, Cultivation and Folk-Lore of Herbs, Grasses, Fungi, Shrubs and Trees With All Their Modern Scientific Uses. 2 Vols. Vol. 2. (London: Jonathan Cape, Ltd., 1931) p. 508.

sickness was the same disease Stephen had, it may have been a virulent pneumonia. Stephen apparently recovered, but three adults and three children had died by the end of the month. These were followed by three deaths in early February. When Hempstead returned on February 12th from a three-day trip to Saybrook, he found his daughter Molly sick and three other people dead. From then on, he was busy attending funerals and recording deaths in his diary. On March 5th he lamented, "fair warm & pleasant wether over head. but the Most Sorrowful time yt Ever was seen in N. London. for Mortality their Lyes now this morning. 6 persons dead and 1 negro Woman of Gortons."[100] By the end of June, 70 people had died compared with totals of fifteen, ten and fourteen for the three previous entire years. Death came anywhere from one to nine days after onset, an indication of an acute, fulminating disease. It may have been the "species of putrid pleurisy" that, according to Webster, periodically took a heavy toll of lives in America.[101]

Other Infectious Diseases

In addition to the communicable diseases already described, Hempstead gave brief mention to three others: whooping cough, mumps and yellow fever. Only three deaths were reported from whooping cough, all children. In August of 1738, when an infant died of the disease, Hempstead remarked that whooping cough was very common in the town, having

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[100] Diary, pp. 152-154, p. 154.

[101] Ibid., p. 154; Webster, A Brief History, p. 223. Around the time of the New London epidemic, Hartford suffered from a "distressing sickness" that claimed fifty-five lives in three-and-one-half months. E. Burlesson, A Lamentation in Memory of the Distressing Sickness in Hartford (New London: 1725 (?).)

been in the western part of the township all summer. A two-year-old died in August, 1746. The child who died in March of 1753 had whooping cough first, then canker. The only time Hempstead wrote about mumps was in 1748, when he visited a woman who had taken it nine days earlier. He told of two cases of yellow fever. The first was a Norwich man who had come home sick from New York and died in August, 1745. The other man took the disease near Jamaica, returning home to his death in August of 1747.[102]

Although Hempstead did not tell of any other yellow fever cases, the disease seems to have spread in 1746. Webster recorded an epidemic for that year among the Mohegan Indians, whose reservation lay between New London and Norwich. Symptoms of this sickness were: severe head and back pain followed by fever, skin turning yellow in three or four days, vomiting of black matter, bleeding from the nose and mouth. About 100 Mohegans died with it. Dr. Elisha Tracy of Norwich, who treated them, fell ill but survived.[103] New London's first recorded yellow fever epidemic did not take place until 1798.[104]

Summary

Drawing up an undistorted evaluation of disease prevalence is difficult. It is easiest for those diseases that produced high mortality rates, provided a diagnosis can be established with some degree of accuracy. The incidence of non-fatal disease is far more susceptible to

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[102] Diary, pp. 338, 465, 604, 499, 447, 486.

[103] Graves, "Epidemic Disease," p. 75.

[104] Caulkins, History of New London, p. 583.

error, even today, because of failure to report mild cases. Hempstead's diary undoubtedly erred in this direction. Unless people died from a disease, many people were seriously ill, or someone close to him had it, it is unlikely that he reported it. Prevalence is thus only the incidence of this kind of disease.[105]

Of these diseases, malaria and consumption were the most constantly prevalent throughout the diary. This may in part depend on the natures of the diseases. Epidemics like measles or influenza flared up quickly when a large part of the population was susceptible, then died out when this proportion reached a low level. On the other hand, malaria could not only recur following a single infection, but the parasite had an alternate host in which to continue its life cycle. Consumption (assuming that most references were to pulmonary tuberculosis) was a much slower-paced disease than the epidemic contagions. Since the tubercle bacillus multiplies slowly and has a high survival rate, the disease could be maintained steadily from year to year in susceptible individuals.[106]

Throat distemper and bloody flux were next most prevalent, in the sense of seriously affecting large numbers of people. Interpretation of throat distemper incidence is hampered by lack of knowledge as to whether one or two diseases were involved. The first epidemic, in 1736, may have been less severe than in some other towns either because it was scarlet fever instead of diphtheria, or because New London citizens had some

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[105]Sir MacFarlane Burnet and David O. White, Natural History of Infectious Disease, 4th ed., pp. 90-91.

[106]Ibid., pp. 127-31, 233-34, 213.

degree of immunity to diphtheria. It is entirely possible that both diseases played a part. The only certainty is that a disease or diseases called throat distemper or canker became increasingly prevalent from that time on, especially after 1750. It was given as a cause of death more frequently than any other illness. Bloody flux presents a different situation. Although various strains of bacteria may have been responsible for it at different times, the diagnosis of bacillary dysentery is fairly certain. The disease had a definite seasonal incidence, never occurring earlier than July or later than November. The shortest time between epidemics was five years, the longest eight years. Since the organisms responsible for dysentery are disseminated by fecal contamination, epidemics of this disease depended on a number of environmental variables. The size of the fly population in a given year was, for example, one such crucial condition. Both throat distemper and bloody flux were fatal for large numbers of children.

The time of greatest concentration for serious respiratory diseases was the early 1730s--after this they become more sporadic and part of the background. Even in this time of prevalence, there were no big epidemics. Too little is known about the diseases involved for more than speculation. If the assumption is made that the unnamed epidemics in 1717 and 1725 were pneumonia attacks on a susceptible population, the milder prevalence of "pleurisy" in the '30s could represent a period of transition to endemicity. After this, the disease would have been milder and more widespread over time; therefore, it would not have received so much attention as before.

These five classes of "fever"--ague and fever, consumption, throat distemper, bloody flux, and pleurisy--have emerged as the infectious

diseases having the highest incidence over significant segments of time. They will be discussed further in relation to mortality in Chapter Two.

CHAPTER II

SICKNESS AND DEATH IN AN EIGHTEENTH-CENTURY CONNECTICUT SEAPORT

New London's Population

New London's population history is sketchy and uneven. The few existing records indicate that the 1646 harbor settlement of thirty-six families[1] grew rapidly until the second or third decade of the eighteenth century. The number of inhabitants tripled during the town's first thirty-two years. By 1708 the town of Groton had separated from New London, and the original community had 2-1/2 times more inhabitants than thirty years earlier.[2] The proliferation of military companies was a sign of growth. In 1683 the town had only one company, but by 1714 there were four in New London alone.[3] Population evidence from this time until the first reliable census in 1756 is sparse, indirect and circumstantial.

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[1]Caulkins, History of New London, p. 59.

[2]Based on estimates made by converting families and taxpayers to total population. The number used as a converter can, as Edward Cook observes, "be a topic of endless dispute." Cook used a multiplier of 4.5 for taxpayers because it gave close approximations to real population when late eighteenth-century estimates were compared with census figures. While Greene and Harrington suggest a factor of 4, Greven holds that a multiplier of 5 seems more appropriate during the early period. (Cook, Fathers, p. 193; Greene and Harrington, American Population, p. xxiii; Greven, Four Generations, p. 104f.) I have used 5, because it is in line with information on family size presented by Greven and John Demos.

[3]Caulkins, History of New London, pp. 382, 414.

Nevertheless, available facts imply that New London's growth rate declined or stagnated for roughly the next twenty-five to thirty years. One nineteenth-century source lists the 1730 and 1742 population figures as 600 and 1,000.[4] If these are accurate, there was a substantial drop from the 1708 estimate of 1,245. Other evidence, however, indicates the population remained steady or increased slightly during this time. For example, the town added a fourth militia group six years after this date and a fifth in 1737. It is highly improbable these new companies would have been formed if the 1730 census had declined to one-half that of 1708. Other developments between 1720 and 1745 included: formation of a new parish in the 20s; addition of two more selectmen in 1723; admission of thirty new freeman in 1733.[5] These events suggest growth rather than decline.

If New London was growing between 1708 and 1745, it was at a much slower rate than that of the earlier period. In a 1744 petition to the king, New London authorities stated that the town had "upward of 300 fighting men."[6] Using a figure of 350 and a militia conversion factor of 5.5 gives a population estimate of 1,925--less than double the 1708 total. Also, whereas in the twenty-one years between 1683 and 1714 the town of Groton split off from New London and the latter added three military companies, the twenty-three-year period from 1714 to 1735 saw the formation of only one more company, that of the new parish. This static

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[4]Greene and Harrington, American Population, p. 59f.

[5]Diary, p. 326; Caulkins, History of New London, pp. 424-35; Diary, pp. 138, 259.

[6]Caulkins, History of New London, p. 390.

picture changed abruptly in the 40s and 50s, so that by 1756 the town's white population had reached 3,171.[7]

Graph 1 depicts a hypothetical population growth curve for the years 1708-1756, based on estimates from tax lists and military companies and on the 1756 census. Although it is a crude estimation, it provides a basis for systemically making "good guesses" about the significance of mortality figures.[8]

An analysis of variables affecting New London's population growth is beyond the scope of this paper; however, some economic parallels are evident. From the time of New London's settlement, it was destined by virtue of its excellent harbor to be a trading and shipping center. Thus, although it was too small and undiversified to be an urban center, it was never primarily a subsistence farming community. During the seventeenth and early eighteenth centuries it acquired several characteristics (market enterprises, customs house and court house) of a major county town.[9] Early in the eighteenth century, however, New London's status began to change relative to that of Norwich, twenty miles to the north. Although Norwich had not been established until fourteen years

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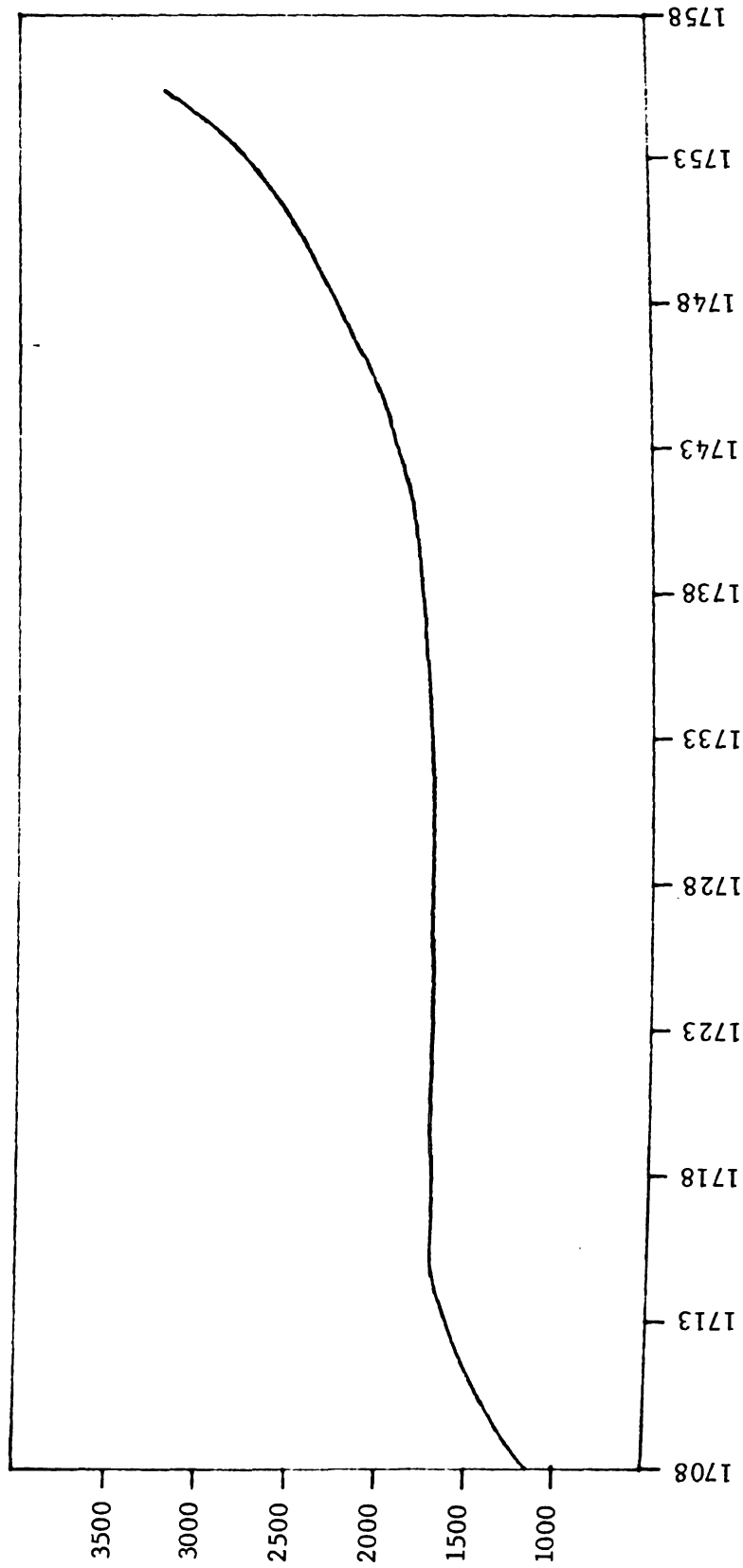
[7]Greene and Harrington, American Population, p. 59. I found no census of black or Indian population before 1774. The 1740s and 50s were decades of exceptionally rapid growth for Connecticut Colony as a whole. See J. Potter, "The Growth of Population in America, 1700-1860," in Population in History: Essays in Historical Demography, ed. by D. V. Glass and D. E. C. Eversley (London: Edward Arnold, Ltd., 1965) pp. 638, 649.

[8]This procedure is more studied than Ernest Caulfield's method of equating town and colony growth. He assumed that when Connecticut's population was one-half its 1756 census, New London's was also one-half its 1756 total. Caulfield, "Early Measles Epidemics in America," Yale J. Biol. Med., 1943, 15:531-36; "Throat Distemper," p. 312.

[9]Cook, Fathers, pp. 174-77.



Graph 1. Hypothetical population growth curve, New London, 1708-1756

after New London, by 1708 it already had a greater property valuation, and almost as large a population. When the Assembly decreed in 1735 that the courts, which had heretofore convened solely in New London, would now be held alternately in the two towns, resentment and bitter rivalry developed. By 1742, Norwich headed Connecticut's forty-seven towns on the tax assessment list. It now boasted four parishes to New London's one. The latter town had deteriorated to a secondary center, both economically and politically.[10]

New London people attempted to improve their economic situation in a variety of ways during this period, but were frustrated in all of them. Moreover, controversy over ownership of the town's common lands prevented their transfer throughout this time.[11] Young men who had no prospects for trade or land ownership probably left town for the more prosperous Norwich area or for new towns, so it is not surprising to find a demographic stagnation paralleling the economic one.

It was war that finally changed New London's fortunes for the better. The town had always, as a troop mustering and embarkation point, prospered in times of conflict. After 1739 military expeditions constantly passed through New London on the way to and from battles with the Spanish and French. In addition to the profit from military supply

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[10]Caulkins, History of New London, p. 384; Bushman, Puritan to Yankee, pp. 122-23, 293. Bushman showed that the phenomenal growth of new towns in eastern Connecticut after 1690 directly benefited Norwich, as it became the trade center for the newly settled region.

[11]For example, the New London Society for Trade and Commerce wanted to pool capital in order to trade directly with England. They also tried to stimulate the economy by issuing paper money. A combination of political opposition and bad luck put them out of business in 1735. (Bushman, Puritan to Yankee, pp. 50, 124-125; Diary, pp. 256-57, 262, 284, 288; Caulkins, History of New London, p. 263.)

contracts, the community enjoyed wealth brought in by privateers.[12] Throughout the 40s and 50s, New London's economy and population both soared.

Patterns of Mortality

Table 1 shows annual death totals from the diary, annual crude death rates (deaths per 1,000 people), five-year mortality totals, and five-year average crude rates. Since the population figures did not include blacks or Indians, only white mortality data are used. Graph 2 depicts total mortality for each year.

The average death rate was strikingly consistent from one five-year period to another. Only the period 1752-1756 varied from the others by more than five per 1,000. Whether the bloody flux, pleurisy or throat distemper prevailed, people died at much the same rate during each five-year segment up to the 1750s.

The second remarkable mortality characteristic is its relatively low level. Whereas Boston never had a five-year average death rate below thirty-two in the entire eighteenth century,[13] New London's five-year rates between 1712 and 1756 ranged from a low of twelve to a high of nineteen, with an average of fifteen. Although Greven did not calculate crude rates for Andover, inspection of his data indicates the town's five-year average rates were comparable to New London's except for two periods.[14] The earliest of these, 1735-39, which included two "terrible

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[12] Caulkins, History of New London, p. 470; Van Dusen, Connecticut, pp. 100-104.

[13] Blake, Public Health in Boston, pp. 247-49.

[14] Greven, Four Generations, pp. 179, 182, 294.

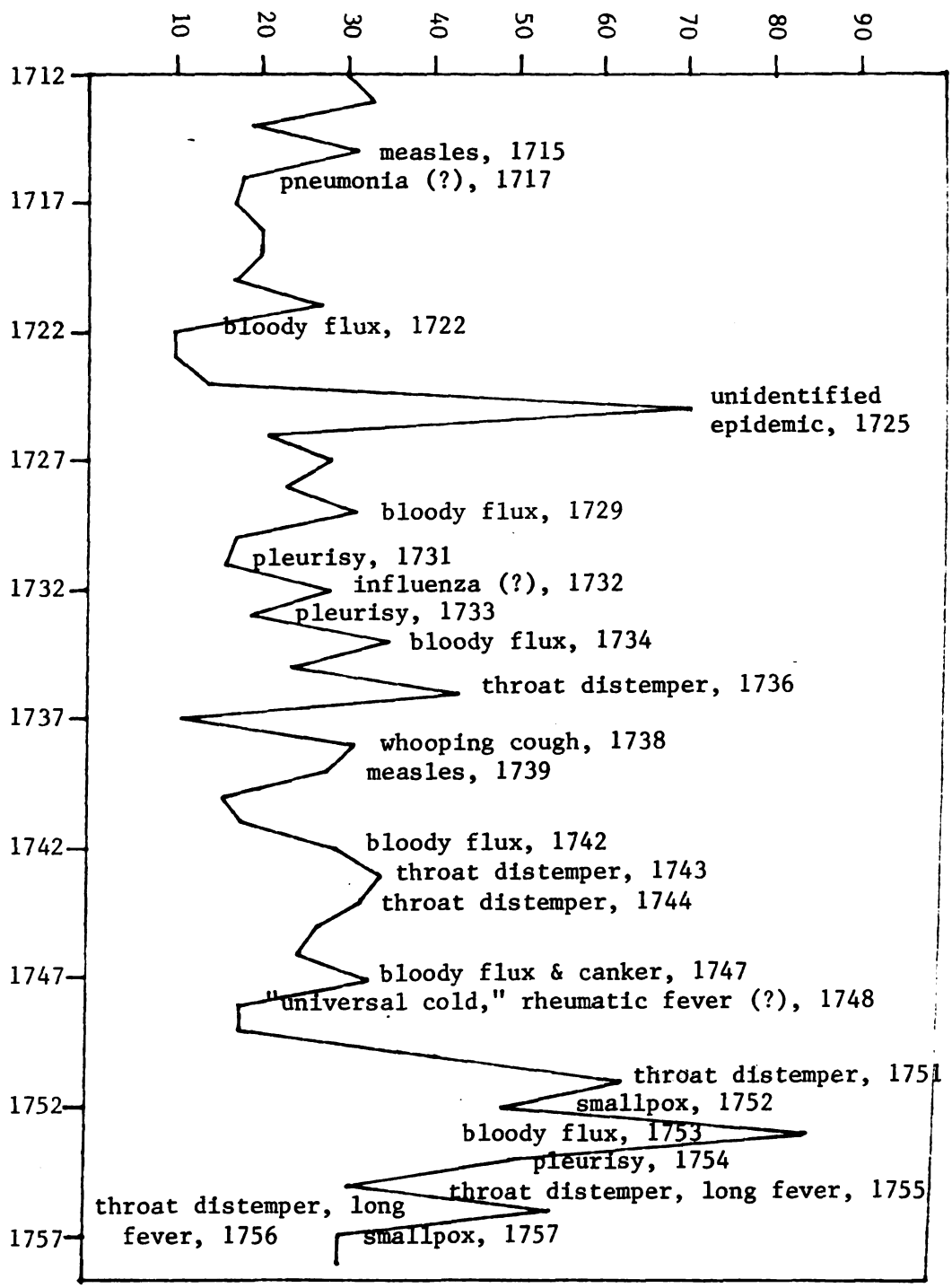
TABLE 1

NEW LONDON MORTALITY
1712-1756
(WHITE POPULATION)

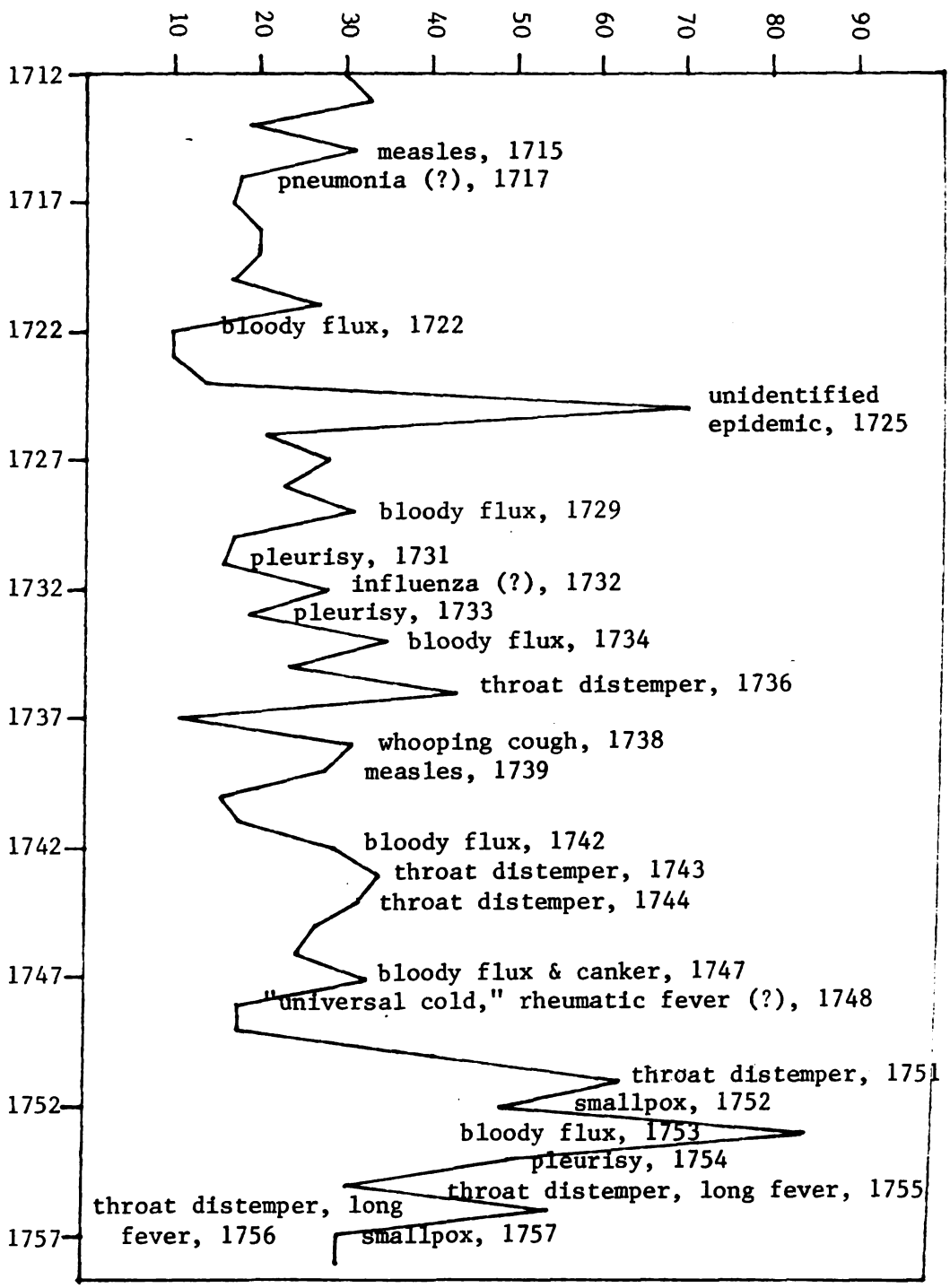
Year	Estimated Population	Deaths	Rate/1,000	Five-Year Total	Five-Year Average Rate
1712	1,530	30	20		
1713	1,590	33	21		
1714	1,650	19	12	131	17
1715	1,670	31	19		
1716	1,680	18	11		
1717	1,695	17	10		
1718	1,695	20	12		
1719	1,700	20	12	101	12
1720	1,700	17	10		
1721	1,700	27	16		
1722	1,700	10	6		
1723	1,700	10	6		
1724	1,700	14	8	125	15
1725	1,700	70	41		
1726	1,700	21	12		
1727	1,700	28	17		
1728	1,700	23	14		
1729	1,700	31	18	115	14
1730	1,700	17	10		
1731	1,710	16	9		
1732	1,725	28	16		
1733	1,730	19	11		
1734	1,740	35	20	149	17
1735	1,750	24	14		
1736	1,760	43	24		
1737	1,780	11	6		
1738	1,790	31	17		
1739	1,800	28	16	104	12
1740	1,810	16	9		
1741	1,820	18	10		
1742	1,845	29	16		
1743	1,875	34	18		
1744	1,925	32	17	147	15
1745	1,990	27	14		
1746	2,060	25	12		

TABLE 1 (continued)

Year	Estimated Population	Deaths	Rate/1,000	Five-Year Total	Five-Year Average Rate
1747	2,145	33	15		
1748	2,220	18	8		
1749	2,300	18	8	173	15
1750	2,400	41	17		
1751	2,490	63	25		
1752	2,615	49	19		
1753	2,750	85	31		
1754	2,910	50	17	270	19
1755	3,000	31	10		
1756	3,171	55	17		



Graph 2. Annual deaths in New London, 1712-1758 (white population)



Graph 2. Annual deaths in New London, 1712-1758 (white population)

throat distemper" epidemics, had a rate of roughly thirty. The figure was around twenty-two for the years 1745-49. Graph 3 shows the five-year "moving" average[15] for New London mortality rates. Here the rates are seen to fluctuate from a low of nine in 1722 to a peak of twenty-three in 1752. A similar graph for Ipswich shows a general conformity to New London's except for the years 1720-1740. During most of that time, Ipswich's rates were well above twenty and as high as sixty.[16] New London's rates were more even and consistent than either of the other two towns.[17]

Graph 3 also indicates that New London's death rate had a relatively regular, undulating form, with peaks and troughs occurring at roughly ten-year intervals. These intervals apparently represent the time involved in acquiring enough susceptible individuals to sustain a new cycle of infections. Earlier in the century, mortality peaks represented mostly discrete epidemics of single diseases, but in the late 40s and 50s, several diseases were prevalent at the same time, or closely followed one another. (See Graph 2.) Throat distemper was prevalent or

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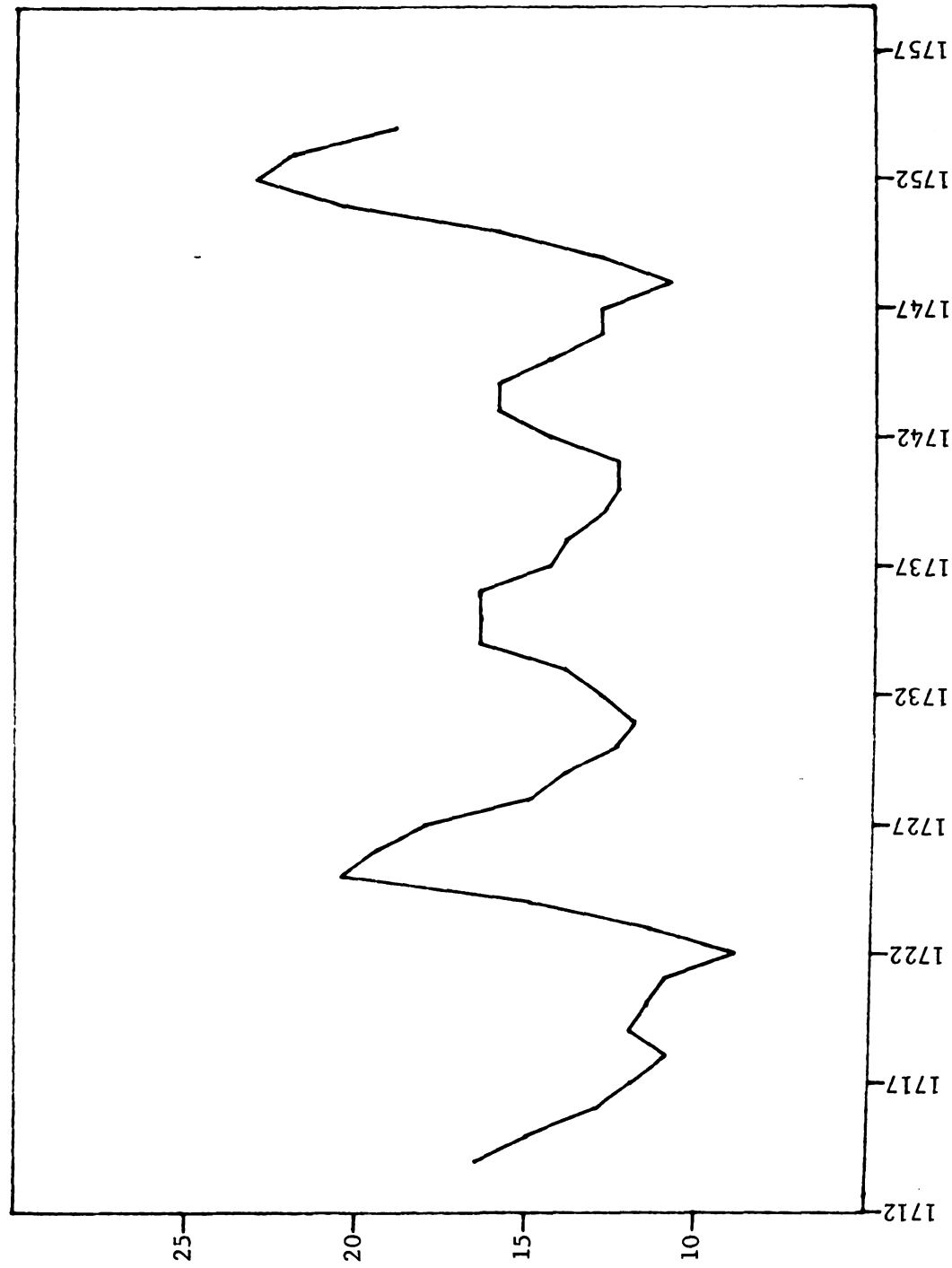
[15]This method brings out the general pattern over time. See Charles M. Dollar and Richard J. Jensen, Historian's Guide to Statistics (N.Y.: Holt, Rinehart & Winston, Inc., 1971) pp. 126-29.

[16]Norton, "Population Growth," p. 438.

[17]I do not have enough information to formally evaluate these differences. I speculate, however, that New London's lack of extreme rates stems in part from the relative absence of smallpox and the comparatively mild nature of throat distemper there. These are the diseases that appear to have boosted the rates above twenty in the Massachusetts towns. New London's average rate of fifteen per 1,000 for this entire period compares with early 1970s rates for Algeria (15.4) and Libya (14.7). The United States rate averaged around nine for these years. (The World Almanac and Book of Facts 1979 (N.Y.: Newspaper Enterprise Association, 1979) pp. 514, 556, 952.)



Graph 3. Deaths per thousand in New London's white population, 1712-1756
(Five-year weighted moving average)

epidemic frequently from 1743 through 1756, and from time to time bloody flux, pleurisy, smallpox and long fever were added. While the 1725 and 1752 peaks on Graph 3 are similar, the former represents mainly the unnamed 1725 epidemic, but the latter reflects a number of epidemics and prevalences of several diseases. Diseases were now becoming more endemic.

This change came about in part as a result of the rapid population growth in the 40s and 50s. The rising density increased the chances for successful exchanges of infections. A larger population also supplied more infecting sources and persons at risk.[18] Wartime conditions contributed to the changing patterns of disease and mortality, as troops carried organisms to and from the town. Families sometimes brought sick relatives home from camp to spread disease at home.[19] War and a growing populace produced the crowded conditions needed to perpetuate diseases in New London.

The proportion of child mortality also changed in the 40s and 50s. Children's deaths made up less than one-half the total mortality for every five-year period except 1742-46 and 1747-51, when they were 50% and 61% of the whole (Table 2). These figures reflect the prevalence of throat distemper. Infant deaths exceeded 30% of total children's deaths only from 1727 through 1741, when they were above 40%. Many of these years had a prevalence of either dysentery or respiratory infections, both of which are more fatal for babies than for older children.

Table 2 shows that people sixty and over constituted less than one-fifth the total mortality except for 1727-31 and 1752-56. The proportion

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[18] Ibid., p. 450.

[19] Diary, pp. 673, 674, 677, 689.

TABLE 2

FIVE-YEAR MORTALITY TOTALS
CHILDREN AND ELDERLY

Years	Under 20	Percent of Total Mortality	Infants	Percent of Child Mortality	60 & Over	Percent of Total Mortality
1712-16	51	39%	12	24%	2	2%
1717-21	47	47	16	34	12	12
1722-26	54	43	16	30	6	5
1727-31	48	42	20	42	23	20
1732-36	64	43	27	42	28	19
1737-41	44	42	20	46	18	17
1742-46	73	50	16	22	27	18
1747-51	105	61	24	23	17	10
1752-56	90	33	14	33	68	25

was almost one-fifth in 1731-36. Again, respiratory diseases and bloody flux were probably responsible, since the very old are susceptible along with the very young. Old people made up 25% of the deaths in 1752-56. The 1753 dysentery epidemic followed by a pleurisy prevalence in 1754 probably accounted for most of these.

Throughout the entire period, more males than females died in both adult age groups except for 1747-51 (Table 3). This is somewhat surprising in view of the traditional belief that female deaths predominated during childbearing years. The Hempstead records actually show a slightly lower percentage (45%) of women in the younger age bracket than in the older (48%). These data are in agreement with Norton's and Greven's findings. Male mortality was consistently higher than female at all adult ages in both Ipswich and Andover.[20] "Then as now, women proved to be sturdier and longer-lived than men, folklore to the contrary notwithstanding."[21]

The reason for the increase in female deaths in 1747-51 is unclear. Hempstead did not report any more childbirth-related deaths during this time than he had earlier. Since female deaths also exceeded male in the younger group in 1752-56, it is possible that these figures are falsely inflated because some younger men who died away from home during the war years were not counted.

There was no discernible pattern in childbirth-related deaths. Between 1712 and 1758 Hempstead recorded twenty-eight infant and nineteen

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[20]Norton, "Population Growth," p. 440; Greven, Four Generations, pp. 194-196.

[21]Greven, Four Generations, p. 196.

TABLE 3

COMPARATIVE MALE-FEMALE MORTALITY
BY FIVE-YEAR PERIODS

	Males			Females		
Years	Under 20	60 & Over	Total	Under 20	60 & Over	Total
1712-16	41	0	41	37	2	39
1717-21	22	6	28	18	5	23
1722-26	43	4	47	18	2	20
1727-31	27	7	34	15	15	30
1732-36	30	17	47	26	11	37
1737-41	24	10	34	19	6	25
1742-46	26	13	39	23	11	34
1747-51	23	7	30	25	11	36
1752-56	51	37	88	56	30	86
Totals	287 (55%)	101 (52%)	388 (54%)	237 (45%)	93 (48%)	330 (46%)

maternal deaths (white). Stillborn and newborn deaths varied from one to seven in a five-year period, while zero to seven women per five-year period died during or soon after delivery. Childbed mortality probably has the greatest error in Hempstead's diary. Since birth was exclusively a female province,[22] Hempstead may not always have known when deaths were birth-related.

While women were in danger from childbirth, New London men were at a greater risk from accidents. The greatest number of accidental deaths in the diary were drownings. Most of these were of men who were shipwrecked or fell overboard. Males also died frequently in falls from scaffolds and ships' riggings, from accidental gunshot wounds, and (especially in the 40s and 50s) in camp or ship epidemics and in battle.

To summarize, New London's mortality curve indicates that bouts of infectious diseases raised the death rate above fifteen per 1,000 about every ten years. When these subsided, the rate stayed between ten and fifteen. This is far lower than Boston's eighteenth-century average of thirty-seven per 1,000. It is more in line with values found for Andover, a farming community of about the same size, and Ipswich, a slightly larger seaport. New London's mortality, however, did not show peaks as extreme as those of Ipswich between 1720 and 1740 and of Andover in the 30s. The difference from Andover appears to be that this town had severe throat distemper epidemics in the 1730s,[23] while New London's were milder. Ipswich's high mortality may have been from smallpox, although

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[22]Richard W. Wertz and Dorothy W. Wertz, Lying-In: A History of Childbirth in America (N.Y.: The Free Press, 1977) pp. 2-5.

[23]Greven, Four Generations, p. 187.

Norton lacked confirming evidence for this.[24] New London's low population density and control over smallpox sources kept this disease from becoming epidemic until the 50s. Throat distemper in this town before 1750 may have been scarlet fever. Even the 1751 epidemic, which was most likely diphtheria, was not as fatal as were many of the other New England sieges. This indicates that, as Caulfield suggests, the disease was not new to the area.[25]

The fact that Ipswich and New London, although seaport towns, had average death rates well below Boston's, stresses the relationship of population size and density to mortality. Boston's population was five or six times greater than New London's and four to five times larger than Ipswich's throughout this period. New London's disease history adds to the growing body of information showing that Boston's health conditions were not typical of colonial New England.

Changes in New London's disease pattern came about in the 40s and 50s, along with wartime conditions and an abrupt rise in population. Epidemics became more frequent, and changed from clear-cut attacks by single diseases to mixed epidemics of two or more diseases. The mortality peak for this period rose higher than in any previous time since 1712, approaching the nineteenth-century level.[26] Child mortality increased proportionately after 1740, reflecting the prevalence of throat

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[24]Norton, "Population Growth," p. 448.

[25]Caulfield, "History of the Throat Distemper," pp. 325-28.

[26]The average death rate for 1752-56 was nineteen. Frances Caulkins reported that after 1800, New London's annual rate averaged one in fifty (twenty per 1,000). Caulkins, History of New London, p. 666.

distemper. Whether this represented one or two disease entities, it primarily affected children.

These data, though crude and tentative, form patterns that in some ways resemble two other New England towns, but in other respects are unique to New London. Some knowledge of the town's own history was necessary in order to interpret the incidence of disease and mortality. New London's location, economy, population growth rate, manner of dealing with smallpox, and participation in the French-Indian wars were variables influencing these patterns over time.

Causes of Death Given in the Diary

Hempstead named causes for 426 of the 1,558 deaths he recorded.[27] These names no doubt represented commonly known disease categories, rather than a true incidence of disease. During the first few years, Hempstead rarely listed causes. For example, of eighty-two deaths in the years 1712-14, only two were given causes. Of the 131 deaths between 1713 and 1716, only one-tenth were identified. The frequency of reporting increased gradually, until by the end of the period, causes were given for between one-fourth and one-third of the deaths.

Deaths from non-disease causes led the list. These were obvious, so reporting cause was no problem. They included primarily accidents, then suicide, murder or manslaughter, and executions. Throat distemper was reported most frequently of the disease causes--sixty-nine times, most of them after 1736. The broad category of childbirth-related deaths ranked third. It included twenty-three infant and twenty-nine maternal deaths.

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[27]These figures include whites, blacks and Indians. For a complete breakdown, see Appendix A.

Consumption accounted for forty-seven deaths, spread out over the whole period. Thirty-one deaths were attributed to bloody flux. Next came a cardiovascular-neurological category including sudden violent chest or head pain, loss of speech, fits and convulsions, apoplexy and numb palsy. These were named for thirty people. Respiratory diseases (pleurisy, colds and asthma) were listed twenty-six times. Dropsy or "stoppage of water" were named in twenty-three cases,[28] long or nervous fever in nineteen. There were sixteen listings for measles and thirteen for smallpox, followed by a miscellany of other causes which were named five or fewer times. This listing gives a distorted view of mortality from different diseases, but it shows the conditions most familiar to Hempstead.

The Hempstead Family

When Joshua Hempstead began his diary in September, 1711, New London was a town of about 1,500 white inhabitants, with a sprinkling of Indians and blacks. The Hempstead family consisted of Joshua, 33, his wife Abigail, 35, and six sons ranging in age from two to thirteen years. In January, 1712, Abigail would give birth to a daughter, followed by two more in 1714 and 1716.

In 1711, the ninth year of Queen Anne's war between England and France, New London's mortality rate was approaching one of its periodic peaks. It is evident from the diary that a communicable disease was making its rounds that winter, although Hempstead advanced no clues as to

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[28]"Dropsy" apparently could include cases of scurvy. For instance, Hempstead wrote on January 21, 1744: "William Rogers . . . aged above fifty died with a Dropsie & Scurvey or Something like it. he Sweld Much." (Diary, p. 420.)

its nature. Those who died from it succumbed within a week. At least two families lost two members within a short time.[29] Hempstead lost an aunt and a cousin at this time. He also visited others who were sick, helped lay out some of the dead, and built several caskets. He did not become ill himself, but must have carried the infection home, as his two youngest sons fell ill around New Year's. They, however, recovered after a few days, and there is no sign anyone else in the family was affected.[30]

This episode was characteristic of the majority of family illnesses described in the diary. Fifty-seven percent of the 176 cases reported were mild to moderate afflictions of two to three days duration, ending in recovery. There were, however, seventy-six illnesses that lasted longer than a few days and, in most cases, were more severe. The family's resilience under these conditions is impressive. All but one of the nine children lived beyond age twenty, and at least four (perhaps six) survived beyond age sixty. At the time of Hempstead's death in 1758, his children had produced a total of fifty-seven offspring. Seventy percent of these were still living, ten having died in infancy, six more before they reached twenty, and one twenty-two-year-old having been lost at sea. In spite of having malaria most of their lives, the Hempsteads resisted most infections. Death was the exception rather than the rule.

Malaria seems to have been a relatively minor problem. Most of the time, people stoically endured their fits of ague and fever. Hempstead mentioned occasional home treatments, taking "sweats" for the ague, but

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[29] Diary, pp. 4-8.

[30] Ibid., p. 6.

never indicated that practitioners were consulted for this condition. There was no evidence of familiarity with cinchona bark.[31] There was no support for the traditional concept of malaria as the great debilitator that produces listlessness and torpor in its victims.[32] Hempstead and his family engaged in a vigorous enterprising Yankee life--farming, trading, sailing, participating in town affairs--in which ague and fever interfered only minimally. It may be that malaria in Connecticut was less severe than the disease Rutman described for the Chesapeake. If, for example, Plasmodium vivax were endemic in Connecticut, while Plasmodium falciparum prevailed in the Chesapeake, this would help to explain differences not only in behavior, but in mortality levels as well.[33] Falciparum is a more virulent and fatal species than vivax. The milder nature of the Hempsteads' ague and fever indicates it was probably vivax.[34] Levels of endemicity could also make a difference. The milder climate of the Chesapeake would have allowed for a longer malaria season

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[31]Several herbs terminated the cold fit of ague by provoking a sweat. Masterwort and Pellitory of Spain were both drunk in wine for this purpose. (Ann Leighton, Early American Gardens "for Meate or Medicine" (Boston: Houghton-Mifflin, 1970) pp. 340, 361.) Cinchona bark, a specific for malaria, was introduced to the English colonies around the 1720s. (Shryock, Medicine and Society, p. 48.)

[32]Rutman and Rutman, "Of Agues and Fevers," pp. 40-58. Erwin Ackerknecht describes apathetic malaria victims in Malaria in the Upper Mississippi Valley 1760-1900 (Baltimore: The Johns Hopkins U.P., 1945).

[33]Rutman and Rutman found higher mortality levels for the Chesapeake than prevailed in eighteenth-century New England. They also discovered that women during the child-bearing years died at a higher rate than men of the same age--supporting evidence for their malarial hypothesis. ("Of Agues and Fevers," pp. 48-53.)

[34]Merck, pp. 159-161; Rutman and Rutman, "Of Agues and Fevers," p. 34.

than in the north, a situation that would contribute to a higher level of endemic disease in the community.

Hempstead's ague and fever pattern, with its relapses and periods of apparent immunity, suggests vivax malaria. After suffering attacks in 1711, 1712 and 1713, Hempstead remained free from fits until 1723, when they occurred regularly every day from July 6 to 14. After this, he occasionally reported ague and fever or feeling "aguish," but it is not clear that these episodes were malaria. The next obvious malarial attack was in September and October of 1727. Because of the length and severity of this sickness, it must have been a fresh infection. After this, he did not mention intermittent attacks again until February, 1739, on the 13th, 15th, 17th and 19th. He seems to have once more become immune until 1750, when he suffered fits on alternate days July 17-23. He experienced his last attacks every other day from June 7th through the 13th, 1758.[35]

Other family members had periodic bouts of ague and fever. As early as 1720, Hempstead's daughter Molly had this ailment when she was almost four years old. Since it was mentioned on only one day, it is not clear whether this was malaria. However, six years later Hempstead stayed home from meeting to look after her while she was having her second fit (presumably in a series). In September, 1738, when Molly and her husband came on a visit from Stonington, their one-year-old child had ague and fever. The following July they had been having fits when Hempstead visited them, but had "missed their fits" that day. Hempstead's widowed daughter-in-law and six-year-old grandson, Josh, had ague and fever for

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[35] Diary, pp. 2, 13, 26, 132, 188-90, 346, 552-53, 703-04.

almost two weeks in August-September, 1730. Hers were every other day, while the child's were daily. In August, 1731, Hempstead's children John (22) and Betty (17) had ague and fever, but there is no confirming evidence for malaria. In July, 1750, his daughter Abigail Miner and several of her family at Stonington had paroxysms of the illness. Several other times he mentioned grandchildren being ill with ague and fever, but since this was the only information given, it is impossible to say these were malarial episodes. From the evidence given, it appears that malaria, although common, was not highly endemic in New London; thus it had relatively mild effects.[36]

In recording family illness, Hempstead often just reported someone as "sick" or "not well," especially for short episodes. Colds and flux were prominent among the sicknesses that were named. Flux often was not characterized as bloody. Some of these cases could have been malarial symptoms, while others were undoubtedly diarrhea caused by diet, virus infections, or allergies.[37] The longer, more severe illnesses included measles, influenza, pneumonia, typhoid, dysentery, typhus, smallpox, throat distemper (probably diphtheria) and burning ague. Except for dysentery and respiratory infections, these diseases rarely occurred in the family. The Hempsteads escaped one prevalent community disease. None of them had consumption, although a few close relatives died from it.

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[36]Ibid., pp. 98, 174, 340, 353, 225-26, 238, 552, 379, 533, 573, 611.

[37]Werner, No Doctor, p. 153.

Joshua (1678-1758)

Apart from his bouts of malaria, Hempstead had relatively few illnesses from the beginning of the diary until he reached his sixties. He had an illness resembling pneumonia in 1717-18 when he was thirty-nine. While in his forties he suffered from bloody flux, burning ague and his worst reported malarial infection. Between the ages of fifty and sixty he reported three "bad colds," one with a sore throat, and one followed by a "stoppage in his water." At least one of these illnesses sems to have been influenza. (See Chapter 1, Respiratory Infections.) He also had what appears to have been typhoid during these years. In 1742, the sixty-four-year-old suffered from bloody flux. The following year brought two illnesses: a bad cold in February, accompanied by a lame knee, and a "violent cold" and flux in September. Starting in 1747, when Hempstead was sixty-nine, he was ill for a week or more at a time at least twice a year until his death. Except for his rheumatic disease in 1749, most of these were called bad colds. No doubt some of the "colds" were influenza, since they caused pain in Hempstead's head and bones. The rest of his sicknesses were attacks of flux.[38] Between these more extended illnesses, the diary is dotted with the complaints of a sick old man: July 21, 1754--"kept house all day much Indisposed, was taken last night with a violent purging & Something of a fever. it abated by noon & I grew better by Evening."[39] February 15, 1755: "I had an Ill turn last

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[38] Diary, pp. 70-72, 123, 161, 188-90, 210, 228-29, 252-53, 295-96, 398-401, 406, 414-15, 485, 488, 492, 494, 501-02, 510, 516, 533-34, 545-46, 550, 568-69, 585, 587, 603, 611, 613-14, 620, 624, 627, 631, 636-37, 646, 653, 663, 664, 671-73, 674, 676, 679, 688, 696, 703-04, 711.

[39] Ibid., p. 633.

night & ys morn. flux very Smart."[40] August 11, 1757--"I was about home all day, not well. troubled with a purging."[41] The year 1756 was especially bad for him, as he was ill six times for three days or longer. Hempstead's history illustrates the way in which the bodily degeneration of old age is associated with a decreasing resistance to non-specific respiratory and gastrointestinal infections.[42] He died in December, 1758 at the age of eighty.

Abigail (1676-1716)

Since Hempstead's wife, Abigail, lived only five years after the diary was started, there is little information about her medical history. In January, 1712, she gave birth to a daughter. She must have had trouble nursing the baby, for another woman came to do it. In May that year she had "ague." A second daughter was born in April, 1714 without incident. In March, 1715, Abigail had measles along with the rest of her family. That September her husband wrote that he had taken her to Killingworth, a town about thirty miles distant, to see a woman there for her sore _____ (here there is a gap in the record). This possibly involved another problem with her breast. In July, 1716, a few days after the birth of her third daughter, she became very ill and died. Since nothing had been amiss at the time of birth, she must have succumbed to a postpartum infection. She was then about forty years old, and the mother of nine children.[43]

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[40] Ibid., p. 644.

[41] Ibid., p. 690.

[42] See Burnet and White, Infectious Disease, p. 101.

[43] Diary, pp. 6, 10, 34, 44, 49, 57, 58.

Joshua (1698-1716)

Even less is known about Hempstead's oldest son, Joshua. In 1712, Joshua survived accidentally shooting himself in the hand. In this he was more fortunate than a cousin who, in a similar accident a year later, lost his forefinger and nearly severed the next one. This boy died eleven days later. Presumably, Joshua had measles when the other Hempsteads had it in 1715. The only other information on him relates to his death "like a Lamb" of sore throat and fever five days after his mother died. He was eighteen years old. (See Chapter 1, Strep Infections.)[44]

Nathaniel (1700-1729)

Hempstead specifically mentioned that Nathaniel had measles in 1715 at the age of fifteen. In September, 1717, Nat had a bad fever for at least ten days, but there is no way to identify it. In his next illness of consequence, he endured the 1722 bloody flux epidemic along with other family members. He died in July, 1729, age twenty-nine, after a month's sickness with typhoid fever. (See Chapter 1, Long Fever.)[45]

Robert (1702-1779)

Robert Hempstead had a bad ten-day fever in September, 1717 at the same time Nathaniel was sick. In December that year he was laid up for about ten days again with a severe constant fever. This was the time of a pneumonia epidemic. His father had it at that time, so it is likely that Robert had the same disease. Robert, then fifteen, recovered much more quickly than his thirty-nine-year-old father. In 1725 Robert married and moved to Southold, Long Island, so knowledge of his sicknesses

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[44] Ibid., pp. 14, 30, 58.

[45] Ibid., pp. 44, 68, 126, 210.

is scanty after this time. In August, 1729, his younger brother John, who was then living with him, had typhus. Robert had also been ill with a fever which may or may not have been the same disease. In 1746, his seven-year-old son died very suddenly, and the following year, he lost a daughter to measles, although the rest of the family recovered. Robert survived to the age of seventy-seven.[46]

Stephen (1705-1775)

Stephen probably had measles with the rest of his family in 1715, although he was not specifically mentioned. The first illness his father recorded for him was the bloody flux in 1722, when Stephen was seventeen. Less than three years later, he became very ill with vomiting and chest pain. This may have been the disease that became New London's worst epidemic during this period, probably a virulent pneumonia. (See Chapter 1.) In 1727 Stephen embarked on a sailing career. This did not, however, save him from the typhoid fever that hit his family in 1729, since he was between voyages at that time. Toward the end of January, 1735, Stephen was taken sick on board a ship and had to be carried ashore. The nature of the illness is unknown. When Hempstead went to see his son, he found him sick, but not as bad as he had feared. By February 8th, the young man had recovered. On February 9, 1737, Hempstead made the first entry about a chronic illness that Stephen developed: "Stephen was taken very Sick yesterday morn. it proves the Dry bellyach. hath had a very bad turn & Continues in great pain. No passage but what is forced & vomits up all." On April 1, he was sick again with the same complaint.

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[46]Ibid., pp. 68, 71, 158, 211, 466, 487, 711.

Hempstead mentioned the problem again in March, 1757: "Stephen hath been drooping 2 or 3 days & now is Exceed Ill of the dry belly ach or Bilieras Chollick as they call itt." One year later Stephen had a bad attack of this colic, being very sick for more than a month. Biliary colic is caused by spasm or obstruction of the biliary tract, most commonly the result of gallstones. Stephen's illnesses may have been a residual effect of his typhoid fever, since cholelithiasis (gallstones) is an important sequel to typhoid. Stephen married in 1737. His first child, a son born ten months later, "was a very Large & Lusty Child" until he was about 9-1/2 months old. Then he became ill. Excessive vomiting led to convulsions, then death after a six-week sickness. A few years later, another son died in 1749 at the age of seven. He was dangerously ill for six to seven weeks in April and May, then got better, but suffered a relapse in July and died after a few days. He was jaundiced both times, but in the absence of other symptoms, it is impossible to say what killed him. At the time of his death, most of his family were having fits of ague and fever. Stephen lived to about seventy years of age, when he died after a nine-week illness "with Dropsy or Something like it."[47]

Thomas (1708-1729)

Hempstead's fourth son, Thomas, died of typhoid in 1729 a few days before his brother Nathaniel. He was then twenty-one years old. The

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[47]Ibid., pp. 126, 152, 155, 210, 284-85, 315, 683, 699, 700; Dorland's Medical Dictionary, p. 143; Merck, pp. 880-82; Rolleston and Ronaldson, Acute Infectious Diseases, pp. 169-70; Diary, pp. 351, 519, 533, 711. After Joshua Hempstead's death, his son John made a few entries in the diary, including the dates some of his brothers and sisters died.

only illnesses of consequence he had had before this were (probably) measles in 1715 and bloody flux in the 1722 epidemic.[48]

John (1709-1779)

John Hempstead was around six years old when his family had measles, so he may have contracted it then. He was also one of the six Hempsteads who suffered from bloody flux in the summer of 1722. In 1725 John became ill with burning ague while at the Hempstead's Stonington farm, remaining sick for about a month. Four years later, when he was staying on Long Island with Robert, he was very sick with typhus. (See Chapter 1.) With the help of his father's nursing, he recovered. After this, the diary referred four times to John's illnesses. These included brief ague and fever in August, 1731, a bad cold the following December, a bloody flux (affecting John, his wife and their maid) in 1742, and a return of burning ague in 1748. John, who married in 1731, lost more children than anyone else in the family. Of the nine children born to his wife, two were stillborn, and five others died before the age of twenty. The second stillborn child had been dead over two weeks. At the birth of their first child in 1733, Hannah's labor had been very difficult, lasting two nights and one day. The baby boy died two weeks later. In 1738, they lost a two-year-old daughter after a three-week siege of vomiting and flux. A three-month-old daughter died in 1744 after being sick for some time. A third daughter succumbed three years later at the age of eleven months to "canker" following flux and fever. In 1751, a seventeen-year-old girl died. Circumstantial evidence favors a diagnosis of diphtheria,

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[48] Diary, pp. 210, 123.

since it was then highly epidemic. Hempstead indicated that she was lucid, but unable to speak the day she died. These circumstances would fit diphtheria. There were no further entries on illness in John's family. He died of smallpox in 1779 at the age of seventy.[49]

Abigail (1712-?)

Hempstead's daughter Abigail was three years old when measles hit her family. She was more severely affected than the others. On May 17 her father wrote: "Abigail begins to go alone 34 days Since ye measels broke out on her." Shortly after her mother and oldest brother died in 1716, Abigail was seriously ill for a few days with a fever and bad cold. Her next reported illness of more than a day or two was typhoid, which she took in 1729, and seems to have had moderately. In 1731, Abigail married Clement Miner and went to live at Stonington, about sixteen miles from New London. Joshua Hempstead made frequent trips to his 200-acre farm there, so he kept in close touch with the Miners, with whom he often stayed for a night or two. The Miners were fortunate in losing only one child, a stillbirth, out of twelve. In September, 1738, several of the children were sick, one severely, but they recovered. They may have had whooping cough, since it was prevalent that summer. In 1743, Hempstead reported Abigail had been "exceedingly ill" all day with a colic. This problem was to plague her on and off for several years. In July, 1744 she was in extreme pain for over a week, then had another sharp attack in May, 1745. When Hempstead went to Stonington January 31, 1746, he found that Abigail had been in great pain for many days, but was now better.

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[49]Ibid., pp. 123, 160-61, 211, 238, 243, 450, 579, 263, 339, 398, 427, 489, 576, 711.

On February 13, her father sent to Newport for some cordial drops to relieve her pain. After this, there was no more mention of the problem. It is difficult to say what caused it, but the abrupt disappearance of the illness makes it likely that it was a case of gallstones or kidney stones, which were passed or dissolved. Ovarian cysts or appendicitis would probably have persisted. During these years other illnesses also beset the family. The children were sick in February, 1747, especially the two-year-old girl, who had a high fever for several days. In October of that year some of the family suffered from fever and bloody flux. In July of 1750 the family were sick with ague and fever. Abigail was very ill. Since she was pregnant at the time, this illness may have contributed to the stillbirth of her tenth child in December. Abigail herself almost died during the three days of difficult labor, "but through Gods goodness She was Spared . . ." Malaria may have been disappearing from New England by 1750, but its effects were still evident in the New London area. She was again very ill with the birth of her eleventh child in 1751, but both survived. In March, 1754, three of the children had canker, one of them dangerously ill, but they survived. Apart from two sons' illnesses when they were in the army in 1756 and 1757 (see Chapter 1), this concludes the information on the Miner family. Abigail apparently lived to a good old age, since when John Hempstead died in 1779, he had not listed her death. She would have been sixty-seven at that time.[50]

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[50]Ibid., pp. 45, 58, 210, 339, 413, 427, 443, 455, 475, 489, 552, 561, 578-79, 626, 673-74, 689, 694. Indirect evidence from studies of pregnant women with malaria indicates that pregnancy tends to cancel immunities. The subsequent increase in parasites, morbidity and anemia consequently produce risks of abortion, premature labor, and maternal and

Elizabeth (1714-1776)

Elizabeth Hempstead, who was not quite one year old when the family came down with measles, may or may not have had the disease, as she was not mentioned specifically. After her mother died the following year, Elizabeth went to live with an aunt and uncle on Long Island. When Hempsteads had bloody flux in 1722, one entry noted that Betty had taken it. In December, Betty was lame with a sprained ankle. The Diary's index lists these references as Joshua's daughter, but this does not tally with the June 16, 1731 notation: "aftern at Groton . . . to fetch my Daughter Eliz who is come . . . from Easthampton. She hath never been over Since Shee was Caryed about 6 weeks after her mother died 15 yr. ( )." The Betty mentioned in 1722 may have been Hempstead's cousin, Elizabeth Cornish, who was then keeping his house. Eighteen months after her 1731 visit, Betty Hempstead came back to live in New London. In August, 1731, her father had mentioned she had ague and fever. In November, 1735, she married Daniel Starr of New London. The union produced nine children, six of whom were living when Joshua Hempstead died. The first two died in infancy. For the first, a girl who died at three months, no other information was given. When the second child died in 1738, his grandfather wrote that he had never been healthy since his birth two months earlier. The next four children were apparently delivered without incident, but in August, 1749, Elizabeth bore a dead child, after having been

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infant mortality. (Rutman and Rutman, "Of Agues and Fevers," p. 52.) Duffy states that New England was free of malaria after mid-century. (Epidemics, p. 213.) However, according to Ackerknecht, the disease was decreasing before 1750, and disappeared from an increasing number of places thereafter. It remained mildly endemic in places, occasionally becoming locally epidemic. (Malaria in the Upper Mississippi, p. 55.)

dangerously ill for three days. Fourteen months later, she delivered a healthy child after twelve hours of labor, but was in poor condition herself. For about three weeks after the birth, she was troubled with pelvic pain, numbness below the hips, and swollen legs. Her ninth and final delivery seems to have taken place without complications. On October 24, 1757, Hempstead announced in his diary "Little Danll Starr is very Thick broke out all over & Sd to be the Small Pox. Divers yt have had itt & have Seen him do all agree in the affirmative." Subsequently, most of the Starr family and their apprentice, Jason Chester, took smallpox and were sequestered in a special building near the lighthouse for over a month. There were no fatalities. This was the last Starr family illness in the diary, except for John Hempstead's inscription on November 23, 1776: "Sister Elizabeth Starr Departed this Life about one O clock afternoon with the Burning age." (sic) She had lived more than sixty-two years.[51]

Mary (1716-?)

Shortly after Mary Hempstead's life began, her mother died. She was nursed by neighbor women for about two months, until her father took her to Southold, Long Island to be cared for by an aunt. She remained there

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[51] Diary, pp. 59, 126, 128, 236, 99, 254, 238, 296, 316, 333, 534, 557-58, 693-96. The practice of using recovered smallpox patients as diagnostic authorities was also described in a sermon by Reverend Samuel Hall of New Cheshire, Connecticut. The people of this small inland village near Wallingford were unfamiliar with smallpox. During a 1732 outbreak, the former patients who were sent for declared this disease was not smallpox. By the time someone else summoned a Dr. Harpin who diagnosed the infection correctly, it had spread to several families. (Samuel Hall, Bitter Afflictions Remembered and Improved, In a Sermon Occasion'd by the Raging of the Smallpox in New-Cheshire. New London, 1733.)

until April 21, 1718, when Hempstead brought her home. He remarked in his diary that the little girl, now almost twenty-one months old, had gained 11-1/4 pounds in the seventeen months she had been gone. Molly had several short-term illnesses while young, including the ubiquitous fits of ague and fever. She seems to have missed the bloody flux when the rest of the family had it in 1722, but she was the only other Hempstead beside Stephen to be sick in the severe epidemic of 1725. When she was thirteen, she had typhoid with the other Hempsteads. Mary wed Thomas Pierrepoint of Boston in 1736. They lived in Stonington until 1747, when they moved more than forty miles away to Middletown. Of Mary's seven children, only one had died prior to Hempstead's demise. This six-week-old infant died in 1750. The diary gave no cause or circumstances. The only other references to Pierrepoints' illnesses were about fits of ague and fever in 1738 and 1739. Mary Hempstead may have lived beyond sixty-three, as John had not listed her death when he died in 1779.[52]

Joshua, Son of Nathaniel (Born 1724)

In addition to his own children, Joshua Hempstead raised two grandsons. When Nathaniel Hempstead died in 1729, he left two sons. An hour after his funeral his widow delivered a daughter. As the children continued to live with their mother in an addition to the original family home, Hempstead became their substitute father. When his daughter-in-law remarried in 1733, the boys, "Josh" and "Natee," remained with him as his legal wards. The girl, "Molly," went with her mother.[53]

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[52]Diary, pp. 58, 61, 75, 98, 174, 154, 210, 304, 491, 556-57, 340, 353.

[53]Ibid., pp. 210, 257-58.

Josh experienced paroxysms of ague and fever as early as 1730, when he was six years old. In September, 1733, he was sick with burning ague, but seems to have made a rapid recovery. Other than several colds, minor illnesses and accidents, these were the only sicknesses reported during his childhood. Between the ages of twenty and twenty-four, Josh suffered several times from severe sore throats. First he became extremely ill for a few days in July, 1740. In addition to the sore throat, he had pain in his ear and tooth. Next he came down with a sore throat and fever in January, 1744. Although throat distemper was prevalent in New London throughout 1743 and 1744, it is impossible without further information to connect it with Josh's sickness. Four years later he was severely ill again, this time with the added symptom of a swelling under his tongue. He recovered for a short time, only to succumb in March to an even worse infection with abscesses under the tongue and in the throat. This improved only after these abscesses had drained. These episodes most clearly resemble streptococcal pharyngitis. (See Chapter 1, Strep Infections.) Josh seems to have been susceptible to "strep" infections during this period. He may, as a young adult, have been overwhelmed by his own body's overly vigorous reactions to general infections. Josh also had trouble with gastrointestinal infections in the late 40s--bloody flux in 1747, followed in 1749 by colic, flux and fever. His symptoms in August, 1752, of ague and vomiting followed by a high fever, are suggestive of malaria, although they could also be present in other diseases. Josh's most serious illness was a "pleurisy" that held him for at least two weeks in the summer of 1755, when he was thirty-one. Josh had been married in 1743. He lived in New London until 1751, when he moved his family to the Hempstead farm in Stonington. Of the seven

children his wife had borne in 1758, only one had died. This girl was healthy immediately after birth in 1752, but expired in less than a month. Josh's wife, Lydia, was extremely ill from an unnamed cause for several weeks in 1757. This was the last disease listed for Josh's family.[54]

Nathaniel, Son of Nathaniel (Born 1727)

Josh's younger brother, Nattee, was first mentioned in September, 1736 as having more than a cold. Nattee's sore throat was probably the throat distemper then epidemic in New London. No one else in the family seems to have had sore throats then. Nattee's illness must have been mild, since Hempstead wrote about it for only three days. The boy's next recorded sickness in August and September of 1747 had a duration and intensity suggestive of typhoid fever. In August, 1751, he was sick with ague and fever for a few days. Abdominal problems plagued him in February, 1757 and March, 1758: the first a week of constipation and lower abdominal pain, the second a violent colic attack lasting for at least three days. This information is too sketchy to allow speculation on the etiology of the illnesses. Nattee, who had married in 1749, stayed in New London as a ropemaker. All four of the children born to this couple by 1758 were living when Hempstead died.[55]

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[54]Ibid., pp. 225-26, 264, 367, 420, 495, 498, 485, 520, 593, 651, 595-96, 690. For a discussion of susceptibility and resistance to disease at different life stages, see Burnet and White, Infectious Diseases, pp. 100-01.

[55]Diary, pp. 308, 485-88, 573, 681, 700, 519.

Mary, Daughter of Nathaniel (Born 1729)

In 1733, four-year-old Molly went to live with her mother and new stepfather. Since her grandfather was not in close touch with her for some years, there were few diary references to her before adolescence. Hempstead first mentioned her health in 1747, when she was eighteen. She was then living with relatives in Stonington, but had been caring for her sick brother Nattee in New London for three weeks. After returning home, she came down with long fever, or typhoid. The infection undoubtedly came from Nattee or from the environmental source of his disease. In 1749, Molly married Christopher Eldredge of Stonington. The following February she was ill for at least a week from an unknown cause. In September, 1751 Hempstead wrote Molly was "in a poor way" from burning ague for several days. Despite these problems, the three sons she had borne by 1758 all survived.[56]

Summary of Hempstead Illnesses

Sickness was obviously a significant part of the family's life. Beyond the numerous one-or-two-day illnesses, most family members suffered from several serious conditions during the time covered by Hempstead's diary. In 1716, the writer lost his wife and oldest son within a week. A similar tragedy occurred when his second and fourth sons died during the same week in 1729. Of the surviving children, at least two developed chronic abdominal pain. One adopted grandson had a similar

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[56]Ibid., pp. 489, 544, 574. It was a Puritan tradition for teenage girls to live in other homes for a time, just as boys lived with other families while learning a trade. Edmund S. Morgan suggests that Puritan parents were afraid of spoiling their own children. (The Puritan Family, N.Y.: Harper & Row, 1966, pp. 75-77.)

problem. Two of the three Hempstead daughters had been dangerously ill in childbirth one or more times by 1758. These sicknesses were superimposed on a background of recurrent ague and fever attacks. Hempstead himself was almost constantly "indisposed" or worse for about the last twenty years of his life. Although none of the six surviving children seems to have died before age sixty, they probably "lived sick" for a great part of their later years. Despite New London's relatively low mortality rates, disease was prominent in everyday life.

Medical Treatment and Care

Eighteenth-century medical practitioners debated theoretical questions of specific versus general treatments. Patients, however, asked the same question their counterparts in all other ages have asked: "How can I be helped?" Joshua Hempstead's diary revealed ways in which he sought an answer to this query.

Unlike many other eighteenth-century documents, Hempstead's diary was surprisingly free from Puritan attitudes toward sickness and death. The writer seemingly took such events in stride without suggesting they were evidences of God's displeasure. While he credited God's goodness for the family's good health or when one of them was saved from death, he never explored the theological implications of unhappier outcomes. While Hempstead attended the Congregational "meeting" regularly, he did not join the church until he was forty-eight years old.[57] About a year later, he made the diary's only religious comment on a death. "Joshua Wheeler's wife," he wrote, "died Suddenly in a few minnits less than a

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[57] Diary, pp. 176-77.

Quarter of an hour. O what Need wee have to be prepared."[58] Despite this hint of an increasingly devout attitude, his outlook in general was more Yankee than Puritan; that is, more secular than religious, focusing on the facts of a situation rather than its cosmological import.[59] Thus, although Hempstead observed public worship, his personal record indicated no private dependence on God as a source of medical assistance.[60]

No treatments were mentioned for the majority of illnesses in the diary. They were probably treated with home remedies so common Hempstead thought it unnecessary to mention them. Occasionally he wrote of taking a "sweat" for a malarial attack or a cold.[61] The Hempsteads also commonly took "physick" or a "gentle purge." They treated several conditions in this way, including a bad cold with fever, pneumonia, burning ague, malaria, typhoid and dysentery.[62] Taking a physic that "worked stoutly" may have contributed to Thomas Hempstead's death, since cathartics are contraindicated in typhoid.[63] Three diary entries refer to the

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[58] Ibid., p. 484.

[59] According to Richard Dunn, the Puritan conscience had become secularized by the end of the seventeenth century. (Dunn, Puritans and Yankees.) Richard Bushman places the Puritan-Yankee transformation somewhere between 1690 and 1765. (Bushman, Puritan to Yankee.)

[60] In this respect, Hempstead's writing differs from such eighteenth-century colonial sources as those cited in Caulfield's throat distemper paper. A diary quoted by Philip Greven was dotted with appeals like the following: "Lord! help me to Sanctify they name under these affecting visitations." (Four Generations, p. 199.) The difference may lie partially in the fact that many of these documents were authored by clergymen, while Hempstead wrote as a layman.

[61] Diary, pp. 2, 83, 510.

[62] Ibid., pp. 58, 71, 189, 203, 210, 399, 485.

[63] Ibid., p. 210; Merck, p. 91.

Hempsteads' self-treatment for "the itch," or scabies. In 1713, the diarist said merely, "wee are in use of means for ye Itch." In 1730 and in 1739, Hempstead and Nattee applied a "brimstone" (sulfur) ointment for this condition.[64] The diary contains a few specific references to the use of herbs. In 1744 Hempstead and his daughter Mary gathered herbs for Abigail Miner's colic. Six years later the old man collected wintergreen for daughter Elizabeth Starr, whose legs were badly swollen following a traumatic birth. When Josh was suffering from his worst sore throat, a cousin dug sarsaparilla roots from a swamp so Hempstead could make the patient a drink.[65] One treatment stood out because it involved no medicines. This was Hempstead's handling of John's typhus fever in 1729. He brought the boy's fever down by giving him daily enemas and frequent small drinks of water.[66] Other home remedies mentioned only once included tar water, cordial and wine.[67] The domestic medicines described here comprised just over one-half the treatments named. The patients or other family members provided and administered them.

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[64] Diary, pp. 28, 226, 348. Sulfur mixed with lard or oil is still used for treating scabies in remote areas of the world. (Werner, No Doctor, p. 200.)

[65] Ibid., pp. 427, 558, 498. Wintergreen was used to treat symptoms of pelvic congestion. It is a diuretic and pain reliever. Sarsaparilla was valued for its tonic, alterative effects. (Leyel, Modern Herbal, pp. 489, 713-14; Hearts-Ease: Herbs for the Heart, Ductless Glands and the Nerves (London: Faber & Faber, Ltd., 1949) pp. 195, 134.)

[66] Diary, p. 211.

[67] Ibid., pp. 687, 690-91. Tar water, invented in Rhode Island by Bishop Berkeley of England, became popular in New England during the 1740s. (Francisco Guerra, American Medical Bibliography 1639-1783 (N.Y.: Lathrop & Harper, Inc., 1962) pp. 421-22.)

From time to time, the Hempsteads sought help for their illnesses outside the family. When the diary began, they were relying for such aid on male members of the Winthrop family and on local women. In January, 1712, Hempstead went to John Winthrop for "a portion of Physick" to treat his two-year-old son, John. This John Winthrop was the son of Major Wait Winthrop and the grandson of John Winthrop, Jr., founder of New London and Connecticut's first governor. The grandfather had been a renowned scientist and medical practitioner. Wait, who followed his father in medical practice, passed the tradition on to his son. The "physick" John Winthrop dispensed to Hempstead was probably his grandfather's secret remedy rubila, a red powder of niter and antimony.[68] Major Winthrop, who spent most of his time in Boston, happened to be in New London in 1712 when Joshua Hempstead, Jr. shot himself in the hand with "poison shot," so he was available to dress the wound. When Abigail Hempstead became ill following Mary's birth, John Winthrop came and "used means for her Relief."[69] A female practitioner, Goodwife Pember, came to nine-year-old Robert Hempstead's aid in 1712 to treat a bad swelling on his hand. According to Caulkins, Agnes Pember was famous early in the eighteenth century as a nurse and medical practitioner.[70] The Hempsteads again consulted a woman in 1715, when Joshua took his wife about thirty miles to Killingworth to see Mrs. Hull for a sore _____ (here the record is blank). It may be that Abigail sought out a female practitioner

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[68] Diary, p. 6; Joseph Sewall, The Character & Blessedness of the Upright (Boston: T. Crump, 1717) pp. 44-45; Dunn, Puritans and Yankees, p. 260.

[69] Diary, p. 14, 58.

[70] Ibid., p. 10; Caulkins, History of New London, p. 355.

because of a gynecological problem.[71] These were the only people consulted outside the family up to 1716.

Around 1711, a recent Yale graduate named Jeremiah Miller settled in New London. In 1714 he became principal of New London Grammar School.[72] On the same evening in 1716 that Mr. Winthrop came to help Abigail, Mr. Miller, who had studied medicine, let blood from her. When young Joshua was stricken a few days later with a virulent sore throat, his father "called Mr Jer Miller ye Schoolmaster & Physition who Readyly gat up Came to see him & tarryed al night using Such Means as he thought most proper."[73] Mr. Miller was from this time, with one exception, the only practitioner the Hempsteads used until 1740. In January, 1725 he treated Stephen's pneumonia by bleeding him and bathing his chest with an ointment made from marsh mallows. (See Chapter 1, Unknown Epidemic.) During the epidemic that followed, Mr. Miller treated Hempstead's cousin, Thomas Douglass. In August, 1730, he bled Hempstead for no apparent reason. Since, however, it was the season for dysentery and malaria, the bleeding may have been prophylactic. One day in November, 1736 Josh cut off two of his toes while chopping wood in the forest. Hempstead immediately bandaged his foot and sent his slave, Adam, to call Mr. Miller. The practitioner met them at the house and stopped Josh's bleeding with a medicine he had prepared. The following June while Hempstead was at

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[71] Diary, p. 49.

[72] Caulkins, History of New London, p. 399; Franklin B. Dexter, Biographical Sketches of Yale College, with Annals of the College History, 6 Vols. Vol. 1 (N.Y.: Henry Holt & Co., 1885) pp. 83-84.

[73] Diary, p. 52.

court, he suffered an attack of pain in his right arm and numbness in the right side of his head. Although Miller bled his right arm, Hempstead felt "Not much if anything better for it." However, he went about his duties the next day and did not refer again to the problem. The last time Hempstead mentioned calling Mr. Miller was in April, 1740, when his cousin Elizabeth Fox was very sick. Mr. Miller lived until 1756. Hempstead referred often to him in regard to other affairs, so it is not clear why the family never called on him again for medical help. Franklin Dexter says Miller held several public offices between 1732 and 1749. This, however, did not usually prevent a man from practicing medicine in the eighteenth century. At any rate, Jeremiah Miller was out of the picture after 1740 with regard to the Hempsteads' health problems.[74]

Between 1740 and 1757 a number of practitioners treated the Hempstead family. These were all males who were called "Doctor" instead of "Mister." As their names do not appear on any university's list of graduates, they must have learned medicine by apprenticeship, or "picked up" the art. Because the colonies lacked effective means of regulating practice, anyone in eighteenth-century America who wanted to could call himself a doctor.[75] Early in 1740 Hempstead returned from county court in Norwich, bringing with him Dr. Thomas Worden of that town to treat a wound on Stephen's leg that kept breaking open. This man had been

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[74]Ibid., pp. 152, 154, 225, 311, 321, 364, 665; Dexter, Biographical Sketches, p. 84. The one time during this period that Hempstead called another practitioner was when Adam, the slave, broke his leg in 1733. A Dr. Sweet, whom Hempstead had consulted the previous year about a lame mare, set the leg. (p. 257.)

[75]Shryock, Medicine and Society, p. 12.

practicing in Norwich since around 1729.[76] Hempstead introduced another doctor's name in 1742, when he treated his bloody flux by taking "a Potion of Dr. Palmes's Physick." There is little information on Guy Palmes, but he apparently was a son of Harvard graduate Andrew Palmes and a descendant of an early settler. Hempstead told of consulting him on three more occasions: once when his sister-in-law, Esther Edgecumbe, broke her arm in 1746, the second when the doctor bled Josh for one of his sore throats in 1748, and the last in connection with Hempstead's rheumatic disease in 1749.[77] Dr. Giles Goddard was also consulted about Sister Edgecumbe's arm. He and Dr. Palmes were both early members of New London's first Anglican church. Goddard came to New London from Groton around 1725. His grave marker described him as a skillful chirurgeon and New London's first known postmaster. Hempstead called him again in 1746 for John's high fever. His last consultation was in August, 1749, for Hempstead's rheumatic fever. He prescribed for this disease a strong tea made from sassafras bark and lignum vitae sawdust. Hempstead apparently was less than totally satisfied with the results, for a few days later he obtained "a Potion of Sena &c of Doctr Palmes," which "workt kindly in a few hours." Hempsteads consulted neither Palmes nor Goddard after this time.[78]

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[76] Diary, p. 361; Frances M. Caulkins, History of Norwich (Hartford: Published Privately, 1873) p. 364.

[77] Diary, p. 399; Caulkins, History of New London, p. 360; Diary, pp. 459, 495, 534.

[78] Caulkins, History of New London, pp. 440-41; Frances M. Caulkins, "Ancient Burial Ground at New London, Connecticut," N. E. Hist. & Geneal. Rec., 1857, 11:21-30, p. 28; Diary, pp. 461, 534. Sassafras was often combined with lignum vitae, or quaiacum, to treat chronic rheumatism, syphilis and skin diseases. Guaiacum, a mild laxative and diuretic, was

Esther Edgecumbe's broken arm illustrates the often tragic consequences of wound infection. On May 12, 1746, she was travelling to New London from her home in Norwich when she fell off her horse and broke her arm. Dr. Palmes went up and set her arm, then Stephen Hempstead brought her home with him the next day.[79] On the sixteenth Josh rode to Norwich to send another man to Wethersfield for Dr. Porter. Since Wethersfield was more than fifty miles from New London, the doctor did not arrive until noon the following day. He apparently had an excellent reputation, to be called from that distance.[80] By this time, however, Esther was "very Bad full of pain." A brother who came to see her left before daylight on the eighteenth to summon Dr. Worden from Norwich. On the nineteenth Hempstead wrote that she was in a dangerous condition. Two more doctors were now present: Dr. Goddard and Dr. Norman Morrison of Hartford, an Edinburgh-trained Scotsman who happened to be in town as

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also used for rheumatoid arthritis and gout. The dried leaflets of senna had a purgative action. Leyel, Modern Herbal, pp. 380, 716; Hearts-Ease: Herbs for the Heart, pp. 184, 169; Diary, p. 534; Webster's Collegiate Dictionary (Springfield, Mass.: G. & C. Merriam Co., 1960) p. 770.

[79] Diary, pp. 459-60.

[80] Dr. Ezekiel Porter of Wethersfield, who died at the age of 68 in 1775, was eulogized as "a very Eminent and Celebrated Surgeon." His wife was famous as a bone-setter. He was probably a member of the same family as two Drs. Porter of Farmington. One of these was a celebrated seventeenth-century bone-setter, the other an eighteenth-century surgeon of some renown. (Gurdon W. Russell, "An Account of Early Medicine & Early Medical Men in Connecticut," Proc. Conn. St. Medical Soc., 1892, pp. 167-68; George O. Sumner, "Early Physicians in Connecticut," Conn. St. Med. J., 1942, 6:459-475, p. 460; W. A. M. Wainwright, The Medical History of Hartford County, from the Memorial History of Hartford County, Conn., by permission of the Publishers, 1885, p. 4; Samuel C. Harvey, "Surgery of the Past in Connecticut," in Herbert Thoms., ed., The Heritage of Conn. Medicine (New Haven: Whaples-Bullis Co., 1942, pp. 172-187) pp. 173-74.

chief physician and surgeon for troops returning from Canada.[81] These experts all agreed the arm was too far gone with gangrene to save. Curiously, Hempstead said nothing about even the possibility of amputation. The poor woman "Continued very Ill & toward day was Dying & Speechless." She was gone by the morning of May 20th; dead in her fortieth year.[82]

Goddard and Palmes died within about a month of each other in 1757, aged fifty-three and forty-seven respectively. They had both been ill for some time. Dr. Thomas Coit then became the town's principal medical practitioner. Little is known about him except that he belonged to an old New London family. He first appeared in the diary when he gave Hempstead "a Potion of Physick" in 1756 for diarrhea, abdominal griping and vomiting. In February, 1757, he saw Nattee for constipation and abdominal pain, but Hempstead did not note the treatment. Nat had taken Mr. Winthrop's physic the day before. This failed to work, so perhaps Coit gave him a stronger cathartic. These were the only times Coit was mentioned; however, he practiced in New London until almost the end of the eighteenth century.[83]

Two other doctors treated members of the family. When Abigail Hempstead was having one of her colic attacks in 1744, Dr. Dudley Woodbridge of Stonington went to see her. Dr. Woodbridge also treated Josh

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[81] Diary, p. 460; Sumner, "Early Physicians," p. 467; Harvey, "Surgery of the Past," p. 177.

[82] Diary, p. 460.

[83] Diary, pp. 680, 683; Caulkins, History of New London, p. 476; Diary, pp. 671, 681.

for his pleurisy in 1755, bleeding him three times.[84] The Hempsteads by-passed local doctors in 1757 when grandson William Starr developed a bad swelling on his arm. The family fearing gangrene, Will's brother Joshua rode off to Norwich after midnight for a doctor. Dr. Jonathan Marsh arrived the next morning. Either the family had been overly alarmed, or Dr. Marsh's treatment was adequate, for Will recovered.[85]

To summarize, the Hempsteads relied primarily on their own remedies, except in the cases of bad injuries, swellings, broken bones, extreme pain, or when dangerously ill from a general infection. On these occasions they turned to people in the community who were reputed to possess more advanced medical skills. Prior to 1716, they called on Major Wait Winthrop or his son John, or on housewives. From 1716 to 1740, Jeremiah Miller, a schoolteacher-physician, attended their ailments. After 1740, the family sometimes consulted one of three New London doctors, Dr. Palmes, Dr. Goddard or Dr. Coit. In a few extreme cases, they sent to Norwich or even Wethersfield for more skilled practitioners. These all were obviously apprentice-trained doctors. All except Marsh (including Woodbridge of Stonington) were born between 1700 and 1710. This suggests that between 1720 and 1730, many young men were taking medical

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[84] Diary, pp. 427, 651.

[85] Ibid., pp. 682-83. Dr. Marsh accompanied the 1755 expedition against Crown Point. (Caulkins, History of Norwich, p. 635.) His tombstone in Wethersfield bears this epitaph: "Here lies Interrd ye Body of Dr. Jonathan Marsh Late of Norwich who died in this Place June ye 3d 1766 in ye 47th Year of his Age who had with Great Dexterity Success & Extent of Practice Served above 20 Years as Surgeon &c a very useful Man in Life his Death much & universally lamented." (Russell, "Early Medical Men," p. 169.)

apprenticeships of one kind or another, and beginning to replace the gentleman and housewife practitioners of the earlier period.

When a Hempstead needed nursing care, another family member usually provided it. Hempstead often personally took care of his dependents when they were sick. Between 1720 and 1740, for example, he stayed home at least twelve times to look after ailing children. He also went twice to nurse sons in other towns. Even after his offspring were married adults, he sometimes went to give them care or took one of them to look after a brother or sister. After Elizabeth Starr suffered the traumatic stillbirth in 1749, Hempstead went to Stonington for Abigail Miner. When Abigail was sick after childbirth two years later, her father brought Elizabeth to her. In June of 1755 Hempstead found Josh in extremity with pleurisy and "no man in the house." Riding to son-in-law Chris Eldredge's, he got the young man out of bed to call the doctor and stay the night with Josh. Widowed cousin Elizabeth Fox occasionally took care of someone in the family. It was she who, after Mrs. Pemberton had been called away, looked after Hempstead for a week in 1717 when he had pneumonia. She also nursed Nattee's sore throat during the 1736 throat distemper epidemic. The family shared its responsibilities for the sick.[86]

At times there was no relative available to care for someone, particularly in a long illness. In such cases the family and the community had a resource in widows. All the Hempstead's nurses from outside the family were female, and most were widows. The family did not directly reciprocate Elizabeth Fox's nursing care, but Hempstead assumed responsibility for finding people to help her. This obligation weighed heavily

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[86] Diary, pp. 534, 579, 651, 72, 308.

when Elizabeth lost contact with reality in 1723. Her family feared the widow of twelve years was "distracted for Love of Jno Richards although he protests he never toucht her lips but once." Hempstead spent most of one day finding a nurse. Eventually, two women each took the job for two weeks. A second day was later lost in trying to get money from the patient to pay these attendants. When Molly had long fever in 1747, Hempstead took Mary Pierrepoint to look after her the night of October 4, but the next day he hired Widow Mercy Chapman "to Stay till She is better hopefully." In this case the nurse received a pair of shoes as advance pay. In 1752 and in 1757 the townsmen recruited widows to nurse smallpox patients. These women provided a valuable service to individuals, families, and town.[87]

Childbirth in colonial America was the exclusive province of women until the late eighteenth century. It was a social ritual directed by midwives, but including other women from inside and outside the family. These women were not paid, rather, they assisted as a reciprocal social duty. Although Hempstead gave few details about childbirth, he mentioned several times that women in his family had called together other women for an approaching birth. When he returned home the evening of September 12, 1746 "they were Mustering the Weomen for Stephens wife & before 9. of ye Clock She was Safely DD of a Daughter." On November 6, 1751 he wrote, "they have mustered ye women for my Daughter Miner who is Ill." Nattee's wife began to send out after daylight on November 8, 1755. By 11 a.m., she had been "Safely DD of a Lusty Son." The Hempstead women usually lay in for about three weeks--a good time of rest from their constant

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[87]Ibid., pp. 135-36, 489, 599, 694.

child-care responsibilities. Assistance from other women provided moral support for childbirth, then made possible a respite from the mother's endless duties.[88]

There was another social duty related to nursing--"watching" with seriously ill or dying patients. Until 1748 Hempstead frequently performed this service for family, neighbors or friends. He often visited sick people after this time, but did not sit up with them. Since he was then sixty-eight years old and in declining health, he probably was physically unable to do it. If a patient died, the watcher sat up all night with the corpse, as Hempstead did with nine-year-old neighbor John Truman in 1722. The final entries of Hempstead's diary relate how Elizabeth Starr nursed him and watched with him for several days and nights.[89]

The family was its own chief provider of medical treatment and nursing care. However, just as the family extended into the community through its kinship ties, its medical functions also reached beyond family bounds. Community women, especially widows, supplemented the family's nursing care. They sometimes treated diseases as well. Extra-family medical treatments were as a rule, however, administered by men. The character of these practitioners changed between 1711 and 1758. In the first part of the period, local aristocrats and educators practiced medicine on the side. Later, several "doctors" took care of medical problems beyond the family's capabilities. Although they may have had other occupations, their main function was to treat disease. Thus,

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[88]Wertz and Wertz, "Lying-In," pp. 2-5; Scholten, "'On the Importance of the Obstetrick Art,'" p. 433.

[89]Diary, pp. 126, 711.

sources of medical care outside the family had become more specialized by 1758.

CONCLUSION

The Community

The town of New London passed through several phases in the first half of the eighteenth century. At the time Joshua Hempstead began his diary, the community was nearing the end of a war and of a growth period. Somewhere between 1715 and 1720, as local economic conditions deteriorated and commercial opportunities increased in other parts of the colony, population growth entered a period of relative stagnation. Around the time the French-Indian Wars started near the end of the third decade, growth once more accelerated and continued at a high rate until the end of the century. Exploring the demographic roots of these population shifts is beyond the scope of this paper.[1]

Changes in mortality patterns also occurred throughout the time covered by the diary. Crude mortality rates were cyclic, reaching high and low points about every ten years, as one group of susceptibles replaced another. Average rates were more consistent from one five-year period to another than those of Boston, Andover or Ipswich. New London's

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[1] It is interesting to note that Andover, founded the same year as New London, entered a period of population decline around 1720. (Greven, Four Generations, pp. 176-186.) New London's fourth generation, like Andover's, reached maturity in the second quarter of the 1700s. These similarities suggest the Connecticut town may have undergone the same kinds of land and family problems as the farming community. New London's trend was nevertheless reversed by mid-century, while Andover's growth rate became even slower.

average rate was less than one-half of Boston's. Even though New London was a seaport, it was much smaller than Boston; hence its population density was probably lower. New London also had a smaller number of ships arriving from fewer places than Boston had. The Connecticut town's sources of ship-borne infections were limited primarily to Boston, New York and the West Indies, while Boston received ships from the entire Atlantic seaboard and Europe. New London's death rate was essentially the same as Andover's and Ipswich's for the beginning and end of the period, but both Massachusetts towns had higher rates for part of this time. Andover suffered highly fatal throat distemper epidemics in the 1730s that boosted its average rate for that decade. The reasons for Ipswich's steeply elevated rate in the 20s and 30s are not clear. Since nearby Boston experienced frequent bouts of smallpox during these years, it is likely that Ipswich was also affected. Throat distemper probably helped elevate the Ipswich rate in the 30s. In contrast, New London's throat distemper epidemic of that decade was far less fatal; moreover, New London's distance from Boston and its strict enforcement of quarantine regulations kept the town virtually free from smallpox until after 1750. Child mortality increased proportionately in New London when throat distemper was prevalent between 1742 and 1751. During the 1750s, the overall mortality rose higher than at any previous time in the period covered by the diary. The dissemination of infectious disease by military troops in an increasingly compact populace significantly contributed to these changes.[2]

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[2]Blake, Public Health in Boston, pp. 74-82, 247-50; Greven, Four Generations, pp. 182, 187, 293; Norton, "Population Growth," pp. 438, 448; Caulfield, "Throat Distemper," pp. 280-81. As this paper

Disease prevalence and distribution underwent transformations between 1711 and 1758. Malaria and pulmonary tuberculosis were the most constantly prevalent throughout the entire period. Malaria does not appear to have directly caused any deaths, although it undoubtedly exerted a debilitating effect. Hempstead's pastor, for example, "was visited with ye fever & Ague & Last with the Bloody flux which Carryed him of." It may also have caused some maternal and neonatal morbidity and mortality, as illustrated by Abigail Miner's childbirth problems in 1750.[3] However, the endemic level of this disease was apparently too low to produce more than minor effects most of the time. Tuberculosis, on the other hand, claimed several lives almost every year. It was the disease named second most frequently in the diary as a cause of death. Throat distemper was listed most often. A few cases occurred prior to 1736, the year of the first recorded epidemic. The greatest prevalence was, however, between 1743 and 1756. Periodic epidemics and sporadic isolated cases were both reported for these years. The only epidemic clearly resembling diphtheria took place in 1751. Beginning in 1722, dysentery epidemics of varying severity plagued the community every five to eight years. "Bloody flux" was listed third most commonly as a disease cause of death. The worst attack came during British-French hostilities in 1753. Respiratory diseases, mainly influenza and pneumonia, accounted for the next highest number of infectious disease

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concentrates on diseases, I have related the increased proportion of child mortality to throat distemper. I recognize that the proportionate mortality also depends on the number of children in the population; hence, ultimately on birth rates. These data were not available for the present study.

[3] Diary, pp. 616, 552, 561.

deaths. Epidemics in 1717 and 1725 were followed by a general prevalence in the early 30s. Although Hempstead reported cases from this time on, there was no further large outbreak until 1754. The distribution of infectious diseases also changed over the forty-seven years. New London's early pattern was that of a small community having limited contact with sources of infection. Up to the late 1740s, diseases occurred in isolated epidemics separated by a few months or years. Beginning around 1747, infections increasingly followed each other more closely or were simultaneously epidemic. By the mid-1750s, the distribution was taking on characteristics of a denser population more frequently exposed to a variety of infectious organisms. The increase in respiratory infections after 1730 and the prevalence of typhoid in the 1750s were further evidence of this transformation from a rural settlement to an urban community.[4]

The Family

Disease played a prominent role in the Hempsteads' lives. If not sick themselves, they were often caring for or visiting someone who was. Daily life frequently included attending funerals. Sickness seems to have been an expected part of life.

Expectance led to a certain amount of acceptance. The Hempsteads took most of their ague fits, fevers and fluxes in stride, occasionally using "sweats" or "physick" to obtain relief. They did not, however,

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[4]The crowding of urbanization brings about an increase in respiratory diseases because it aids their mode of dissemination by droplet infection. (Taylor and Knowelden, p. 230.) A nineteenth-century epidemiologist asserted that as population increased in malarious districts, typhoid replaced malaria as the predominant fever. (R. Bartholow, quoted in Ackerknecht, Malaria in the Upper Mississippi, p. 8.)

accept extreme pain, serious injuries and swellings, or dangerously high fever. Neither did they rely on God to help them in such instances, but sent for the best available medical practitioners.

Family members as a rule gave nursing care to one another. Men sometimes nursed other men, women nursed both sexes, but men never cared for women. Molly Hempstead came from Stonington to nurse her brother through typhoid fever, but when she in turn came down with it, Hempstead hired a female nurse for her. It is clear that nursing was primarily a female occupation, for all the people hired to give such care were women. Most of these were designated as widows. Nursing may have been a needed source of income for such women. Hempstead told of several widows who came to work for him in exchange for a room and fire. Widows also, if their children were grown, could spare the time away from their homes to care for others. These nurses became substitute family members to their patients.

Sickness helped to unite the family. Although the Hempsteads were seldom all in one household at the same time after Abigail's death, they remained a family.[5] When Hempstead died, all but four had dispersed to Long Island, Stonington and Middletown. Since family members always went to help each other in times of illness, such occasions strengthened

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[5]One historian points out the frequent confusion of the terms "family" and "household." Studies of the family have often dealt with households, rather than with extended kinship groups. (Tamara K. Hareven, "The History of the Family as an Interdisciplinary Field," in Theodore K. Rabb and Robert I. Rotberg, eds., The Family in History: Interdisciplinary Essays (N.Y.: Harper & Row, 1971), p. 222.)

kinship bonds and counteracted the centrifugal forces tending to separate families in mid-eighteenth century New England.[6]

Joshua Hempstead served as coordinator of his family's medical care. Even after his children had their own families, he often took the responsibility of calling doctors and of securing nursing care. He facilitated his children's aid to one another, carrying Elizabeth Starr to help Abigail Miner, for example, or rousing his granddaughter's husband from sleep to sit up with Josh.[7] By taking ultimate responsibility for his offspring's health, Hempstead also assumed ultimate authority. At a time when patriarchal control was being challenged in New England,[8] family illnesses gave this father opportunities to exercise his prerogative by ordering and supervising care.

Although not as frequent as illness, death also played a significant role in the family's history. Abigail Hempstead left seven children under the age of sixteen when she died following Mary's birth. Since Joshua never remarried, he cared for the young ones with the help of housekeepers, except for Elizabeth, who lived with relatives until she was seventeen. Joshua, Jr.'s and Nathaniel's deaths changed the birth order. Since the oldest son shared the Hempstead house and apparently would inherit it, the loss of the two oldest sons mandated a rearrangement of the other boys' inheritances. When Nathaniel died, Robert had

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[6]These forces, involving population pressures on resources, lack of economic opportunities at home, and the growing autonomy of younger generations, have been analyzed by most of the demographic historians cited in my introduction.

[7]Diary, pp. 579, 651.

[8]See Greven, Four Generations, Chapter 8: "Independence and Dependence in Mid-Eighteenth-Century Families," pp. 222-58.

already settled on Long Island, so John lived in the family home. When he eventually moved into his own home with shop, Nathaniel's oldest son replaced him. Deaths in the family re-ordered survivors' lives.

Hempstead rarely expressed thoughts or feelings about death. However, he seems to have accepted children's deaths more readily than adults'. Epidemics claiming large numbers of children received no comments in the diary, in contrast to his expressions of concern over high adult mortality in the epidemics of 1725 and 1753.[9] He often stated that a deceased young adult had been a "hopeful" man or woman. He also frequently noted the number of young children a mother or father had left. Small children could apparently be replaced more readily than people who had survived to adulthood.[10]

There was no obvious direct relationship between the community's changing patterns of disease and mortality and the Hempstead family's experiences. The frequency of serious family illnesses increased after 1742, but many of these were Hempstead's old age problems. Since the whole family was now older, their susceptibility would have been different from that of their younger years; therefore, assessment of this aspect would require medical knowledge of the family from the seventeenth century for comparison.

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[9]March 5, 1725: "the Most Sorrowfull time yt Ever was Seen in N. London." August 16, 1753: "in the aftern I was visiting ye Sick. 3. funerals this day of those yt died yesterday & a very Sickly time in this Town." (Diary, pp. 154, 613.)

[10]This attitude contrasts with the concern expressed over children's deaths in many of the documents Caulfield cited. ("Throat Distemper.") Part of the difference may lie in the less extreme mortality of the New London throat distemper epidemics. Hempstead's attitude might also have been different if he had lost his own young children.

In summary, disease affected the Hempsteads' lives in a variety of ways. It influenced them both personally and as members of the community because it helped to shape their relations with one another and to preserve kinship ties.

APPENDIX A

CAUSES OF DEATH REPORTED IN THE DIARY (WHITE, INDIAN AND BLACK)

Non-Disease: 79
- Accidents: 67
- Suicide: 7
- Murder or manslaughter: 3
- Executions: 2

Throat Distemper: 69

Childbirth-related: 52
- Infants: 23
- Mothers: 29

Consumption: 47

Bloody Flux: 31

Cardiovascular-Neurological: 30
- Fits or convulsions: 12
- Apoplexy: 10
- Numb palsy: 5
- Head pain, loss of speech: 2
- Sudden violent chest pains: 1

Respiratory Diseases: 26
- Pleurisy: 23
- Colds: 2
- Asthma: 1

Urological (?): 23
- Dropsy: 21
- Anuria: 2

Long and Nervous Fevers: 19
- Long: 17
- Nervous: 2

Measles: 16

Smallpox: 13

Wound-related: 5
Gangrene: 4
Amputation: 1

Whooping Cough: 3

Yellow Fever: 3

Burning Ague, Bilious Colic, Rickets, Diabetes, "Imposthume" in the side: 1 each

APPENDIX B

HEMPSTEAD GENEALOGY

Robert Hempstead, original New London settler, m. Joanna Willie, d. June, 1655.

Children

Mary, b. March 26, 1647, m. Robert Douglass, d. December 26, 1711, age 64.
Joshua, b. June 16, 1649, m. Elizabeth Larrabee, d. 1687, age 38.
Hannah, b. April 11, 1652, m. Abel Moore and after his death Samuel Waller, d. April 26, 1729, age 77.

Joshua Hempstead and Elizabeth Larrabee

Children

Elizabeth, d. an infant, 2 months old.
Elizabeth, b. September 2, 1672, m. John Plumb, d. September 19, 1733, age 61.
Mary, b. January, 1674, m. Green Plumb, divorced September 30, 1724, d. October 6, 1751, age 77.
Lydia, b. June 7, 1676, m. _____ Salmon.
Joshua, writer of the Diary, b. September 1, 1678, m. Abigail Bailey around 1697, d. December 22, 1758, age 80.
Hannah, b. 1680, m. John Edgecumbe.
Phebe, "a poor idiot," d. September 13, 1725, age around 43.
Patience, m. Thomas Ross and after his death James Hodsell, d. August 9, 1725, age around 41.
Lucy, m. John Hartshorne

After Hempstead's death, Elizabeth Larrabee m. _____ Edgecumbe. She died December 4, 1727, age 75.

Joshua Hempstead and Abigail Bailey

Children

Joshua, b. July 20, 1698, d. August 10, 1716, age 18.
Nathaniel, b. January 6, 1700, m. Mary Hallam, d. July 9, 1729, age 29.
Robert, b. November 30, 1702, m. Mary, daughter of Judge Benjamin Youngs in 1725, d. March, 1779, age 77.
Stephen, b. December 1, 1705, m. Sarah Holt, d. 1775, age 70.
Thomas, b. April 14, 1708, d. July 4, 1729, age 21.
John, b. 1709, m. Hannah Salmon of Southold, d. June 2, 1779, age 70.
Abigail, b. January 14, 1712, m. Clement Miner.
Elizabeth, b. April 27, 1714, m. Daniel Starr, d. November 23, 1776, age 62.
Mary, b. July 29, 1716, m. Thomas Pierrepoint of Boston.

Abigail Bailey Hempstead was born in 1676, died August 5, 1716, age 40.

Nathaniel Hempstead and Mary Hallam

Children

Joshua, b. June 14, 1724, m. Lydia Burch.
Nathaniel ("Nattee"), baptized February 21, 1727.
Mary, b. July 10, 1729, m. Christopher Eldredge.

Robert Hempstead and Mary Youngs

Children

Benjamin, b. 1726 or 1727, d. 1750, age 23 or 24.
Abigail, b. 1728 or 1729?
Thomas, b. 1730 or 1731?
Joshua, b. 1733 or 1734.
Daughter, b. ca. 1736, d. 1747, around 11.
Robert, b. 1739, d. August, 1746, age 7.
Mary, b. 1741 or 1742.
Experience, b. 1743 or 1744.

Stephen Hempstead and Sarah Holt

Children

Thomas, b. July 4, 1738, d. June 17, 1739, 11 months old.
Thomas, b. February 3, 1740.
Stephen, b. June 12, 1742, d. July, 1749, age 7.
Patience, b. May 31, 1744.
Elizabeth, b. September 12, 1746.
William, baptized January 22, 1749.
Lucy, b. October 5, 1751.
Stephen, b. May 6, 1754.
Abigail, b. January 11, 1758.

John Hempstead and Hannah Salmon

Children

John, b. August 18, 1733, d. September 2, 1733, 2 weeks old.
Hannah, b. October 19, 1734, d. September 26, 1751, age almost 17.
Abigail, b. October 1, 1736, d. September 18, 1738, age almost 2.
Abigail, baptized November 5, 1738, m. James Smith.
John, baptized November 1, 1741.
Daughter, b. April, 1744, d. July 1, 1744, 3 months old.
Son, stillborn October 21, 1745.
Mary, b. October, 1746, d. September 27, 1747, 11 months old.
Child, stillborn November 20, 1751.

Abigail Hempstead and Clement Miner

Children

Clement, b. June ?, 1732.
Hempstead, b. January 14, 1734.
Nathaniel, b. around 1736.
William Roe, b. summer, 1738.
Abigail, b. April 3, 1740.
Joshua, b. June 15, 1742.
Mary, b. around 1744.
Daughter, b. September 4, 1746.
Daughter, b. December, 1748.
Son, stillborn December, 1750.
Phebe?, b. November 7, 1751.
Betty, baptized October 21, 1753.

Elizabeth Hempstead and Daniel Starr
Children

Daughter, b. November 12, 1736, d. February 28, 1737, age 3 months.
Benjamin, b. February 14, 1738, d. April 26, 1738, 2 months old.
Joshua, b. April 28, 1739.
Daniel, b. December 26, 1741.
Elizabeth, b. August 21, 1744.
William, baptized April 5, 1747.
Child, stillborn August 26, 1749.
Abigail, b. October 11, 1750.
Belle, b. 1752 or 1753?

Mary Hempstead and Thomas Pierrepoint
Children

Thomas, b. July, 1737.
Jonathan, b. October 28, 1738.
Abigail, b. 1740 or 1741.
Mary, b. September 8, 1743.
Joshua, b. June 12, 1745.
Elizabeth, b. July 30, 1748.
Daughter, b. August, 1750, d. October 4, 1750, 6 weeks old.

The Diary Writer's Grandchildren

Joshua Hempstead, son of Nathaniel, and Lydia Burch
Children

Joshua, b. June 11, 1744.
Edward ("Neddy"), b. July 5, 1745.
Robert, b. February 27, 1747.
Samuel, b. December 8, 1748.
Lucretia, b. September 30, 1752, d. October 25, 1752, less than 1 month old.
Benjamin, b. August, 1754.
Daughter, b. February 9, 1756.

Nathaniel Hempstead, son of Nathaniel, and ?
Children

Anna, b. September 6, 1750.
Nathaniel, b. February 7, 1753.
Samuel Booth, b. November 8, 1755.
Daniel, b. July 25, 1758.

Mary Hempstead, daughter of Nathaniel, and Christopher Eldredge
Children

Son, b. July 13, 1751.
Son, b. November 16, 1753.
Son, b. May 29, 1756.

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