12-2000

Coming Clean: The Health Revolution of 1890-1920 and Its Impact on Infant Mortality

April D.J. Garwin
University of Tennessee, Knoxville

To the Graduate Council:

I am submitting herewith a thesis written by April D.J. Garwin entitled "Coming Clean: The Health Revolution of 1890-1920 and Its Impact on Infant Mortality." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Anthropology.

Michael Logan, Major Professor

We have read this thesis and recommend its acceptance:

Benita J. Howell, Mariana Ferreira

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To The Graduate Council:

I am submitting herewith a thesis written by April D. J. Garwin entitled "Coming Clean: The Health Revolution of 1890-1920 and Its Impact on Infant Mortality." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in Anthropology.

Michael Logan, Major Professor

We have read this thesis
and recommend its acceptance:

Benita J. Howell

Mariana Neal Tewel

Accepted for the Council:

Interim Vice Provost and
Dean of The Graduate School

COMING CLEAN:
THE HEALTH REVOLUTION OF 1890-1920
AND ITS IMPACT ON INFANT MORTALITY

A Thesis
Presented for the
Master of Arts
Degree
The University of Tennessee, Knoxville

April D. J. Garwin
December 2000

DEDICATION

This thesis is dedicated to the memory of my father,

Charles Layfayette Johnsey

(1947-1990).

Tu ne cede malis sed contra audentior ito.

ACKNOWLEDGMENTS

The writer wishes to express her deepest gratitude to her Major Professor, Dr. Michael Logan for his direction, support, and unfailing guidance in the development of this thesis. It is a profound pleasure to extended appreciation and gratitude to Dr. Benita Howell and Dr. Mariana Ferreira for their encouragement and critical evaluation of materials used in this thesis.

I would also like to thank the Soap and Detergent Industry Association in the United Kingdom for granting me permission to use copyrighted materials from their pamphlet entitled "Health and Hygiene."

The Soap and Detergent Association in America also graciously granted permission to use copyrighted materials contained in their publication entitled "Cleanliness and the Health Revolution." I owe a large debt of gratitude to Dr. V. W. Greene, author of the above-mentioned publication. Dr. Greene's research provides a firm foundation for much of this thesis.

It is indeed a pleasure to express appreciation to Darrel Lynch and Dèsirée Plaisance for their support. Their encouragement and professionalism proved invaluable in the development of this thesis.

Gratitude is also extended to Marcie Hackney and Danette Welch, periodicals room staff of Lawson McGhee Library, for their remarkable skills in locating obscure advertisements. Their cheerful enthusiasm made the hours spent leafing through delicate magazines enjoyable.

The author also expresses gratitude beyond measure to David M. L. Garwin for his invaluable help in obtaining obscure references and to Marcia L. Johnsey for her encouragement and editorial skills.

ABSTRACT

The purpose of this thesis is to document the change in attitudes and behaviors pertaining to public and personal hygiene habits at the turn of the nineteenth century. Public utilities, such as municipal water supplies, sanitary sewage systems, and refuse disposal reduced the incidence of communicable diseases. Access to potable water and sewage disposal encouraged a Health Revolution in the United States and the United Kingdom during the era 1890-1920.

Advertisers began (in 1890 and continuing into the 1920s) to employ the fear of contagious diseases, as well as the virtue of beauty, to target consumers and to promote the sale of products. Soap advertisements, specifically, used these persuasive tactics. The newly emerging national magazines, in particular, were the preferred vehicles through which these advertisements changed the consumers' perception of personal cleanliness. Bathing was no longer an activity reserved for the eclectic and very wealthy. Within a few decades, personal cleanliness was normative.

During the quarter decade 1890-1915, infant mortality rates declined significantly. This is particularly true for gastroenteritis. It can be demonstrated that the shift in opinions about hygiene was responsible for saving countless infant lives from diarrhea.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

Introduction

The purpose of this thesis is to discuss the change in hygienic practices during the era 1890-1920; to explore the effect of advertising on the so-called "Health Revolution" (Greene 1984); and to illustrate the decline in infant mortality that occurred due to improved personal hygiene. During this era, personal cleanliness changed from being perceived as "inconvenient, religiously proscribed or just plain out of fashion" (Stuller 1992:127). Personal hygiene became so ubiquitous that "toilets, baths, soaps, detergents, [became] indispensable features of our lives" (Greene 1984:21). By the late 1890s, advertisements for soaps became integral parts of magazines. The promotion of both products and the idea of cleanliness are clearly reflected in advertisements of this day (Vinikas 1992:116). In addition, during this era, infant mortality drops significantly. Infant mortality rates were approximately 150 per 1000 live births during the mid-1800s. By the 1950s, infant mortality declined tenfold (Soap and Detergent Industry Association 1996:3). In 1900, in

"some U.S. cities, up to 30% of infants died before reaching their first birthday" (Centers for Disease Control 1999b:850). In 1900, one in five children "died during the first five years of life" (Centers for Disease Control 1999a:1074).

Hygiene and Sanitation Innovations

Innovations in hygiene, including bathing, cleaning urban streets, chlorinating municipal water supplies, and the implementation of large scale sewage systems, all contributed to the control of infectious diseases (Centers for Disease Control 1999d:622). Such change in hygienic practices is a complex cultural phenomenon. Many factors, which played a role in the reduction of mortality and the increase of longevity, occurred simultaneously (Centers for Disease Control 1999b:850).

A variety of innovations implemented during the Health Revolution directly contributed to the resulting decline in infant mortality. Some of these were deliberate innovations. Some of these deliberate innovations are well-represented in historical data. For example:

> Sewage disposal systems inhibited the relentless cycle of cholera epidemics. Proper disposal of household rubbish helped control the insects and rodents. A concurrent development in the vaccination against infectious disease, ... water treatment systems and chemical germicides all helped western civilisation [sic] get infectious disease under control (Soap and Detergent Industry Association 1996:4).

Sanitation of urban environments and an improvement in personal hygiene contributed to lowering the rates of infant, childhood, and adult mortality. The shift in population from rural to urban settings led to overcrowding in "poor housing served by inadequate or nonexistent public water supplies and waste disposal systems" (Centers for Disease Control 1999d:622) which, in turn, led to vicious, repeated occurrences of cholera, typhoid, dysentery, tuberculosis, influenza, yellow fever, and malaria.

Innovations such as modern plumbing and indoor bathrooms, also helped spur general hygienic practices (Vinikas 1992:xi). From the 1930s until the 1950s, state and local agencies in the United States made "substantial progress in disease prevention activities, including sewage disposal, water treatment, food safety, [and] organized solid waste disposal" (Centers for Disease Control 1999d:622). Sewer systems in London were completed by 1871 and drained an area over one hundred square miles (Burke 1996:138). Sewer systems for Memphis, TN were designed and construction began in 1879 (Hoy 1995:66). Although Central Park in New York had a drainage system in 1861, the Civil War delayed the large-scale implementation of sanitary sewers in the United States (Hoy 1995:67).

According to Greene (quoted without citation in Stuller [1992:127]), personal hygiene is the unsung hero in the drop in infant deaths due to

diarrhea. Personal and domestic hygiene, "including bathing, showering, laundering, dishwashing and housecleaning played an essential (but taken for granted) role in this revolution whose most dramatic impact was its influence on the mortality of infants and children" (Soap and Detergent Industry Association1996:3).

"The greatest cause of infant diarrhea," according to Greene (quoted without citation in Stuller [1992:133]), "came from mothers who went to the toilet, didn't wash their hands and passed along intestinal bacteria to their babies." The risk of transmission of bacteria to an infant from the mother during breastfeeding could have disastrous effects on the infant's health (The Soap and Detergent Industry Association 1996:8). Handwashing and personal hygiene "helped most—in 1915—to displace diarrhea as the leading cause of infant death in the United States" (Stuller 1992:133).

By the 1920s, "it was becoming not merely fashionable but also normative for Americans to brush their teeth, wash their hands, bathe frequently, apply deodorants, gargle with mouthwash, and generally consume large quantities of toiletries" (Vinikas 1992:xi). It becomes increasingly clear that the use of soap and the increased public awareness of basic personal hygiene, as illustrated by Vinikas (1992), did much to influence the infant mortality rates of the early twentieth century.

Advertising

The history of advertising in American magazines was influenced by the Industrial Revolution. The emergence of "new industries and the expansion of old ones" helped "to swell the volume of magazine advertising in the last years of the nineteenth century and the first of the twentieth" century (Peterson 1964:19). Another factor in the growth of popularity in magazines rests firmly in the economic advantages of selling advertising space; advertising revenue allowed magazines to be sold inexpensively (Peterson 1964:27).

Advertising as a medium for influencing both purchasing behaviors, as well as influencing the perception of hygiene practices, is a complex issue. However, as Logan points out, advertising played a direct role in convincing Americans that "certain products were the only avenues through which individuals could succeed in the tasks of locating and securing a mate, raising a healthy family, and acquiring greater social and economic mobility" (Logan1993:504).

Advertising "took on the functions of an agency of socialization as the [twentieth] century progressed" (Vinikas 1992:vii). Advertising evolved from merely informing the public about the availability of goods and services to an entity which "attempted to define wants and fashion needs, what had been a simple convention of business enterprises became an agency of socialization" (Vinikas 1992:xi). From Boston to

Boise, advertising told people that Ivory Soap was 99.44/100ths % pure and that "It Floats!"

One important method for influencing the public into buying products is to appeal to issues of conformity, as well as appealing to basic emotions. Logan discusses advertising in terms of "somatic and reproductive success" (Logan 1993:504). Advertising not only informed the consumer, now largely the role of the woman (e.g. Garvey 1996:135-137), of new products, but also in some cases actually generated a need for the products in the ads. Promoting soap as a social necessity also served to reduce the mortality of children and infants.

Magazines are particularly suited to advertising. Parlin (1931) gives information on how long magazines are kept within a household, as exemplified by questionnaire results for readers of *The Saturday Evening Post*. The majority of individuals (66.79 percent) kept their copy for "periods of one month to one year or more" (Parlin 1931:37). Further, the questionnaire results indicate that there were "3.84 readers per copy of *The Saturday Evening Post*" (Parlin 1931:39). Thus, it is likely that magazines were generally read by more than one person.

Infant Mortality

The Health Revolution can be defined as a change in hygiene habits and cleanliness beliefs during 1890-1920. The resulting impact

such change had on the health and longevity of people living in rural and urban areas in both America and the United Kingdom is quite clear.

According to Greene, for example, in England, during the late 1830s, the average age at death for rural inhabitants ranged from thirty-eight for the poor to fifty-two for the wealthy. The urban poor in the United Kingdom had a life expectancy of less than twenty, and wealthy urbanites might do well to live until their mid forties (Greene 1984:6). Immigrant workers in London between 1831 and 1866 lived in "unspeakable conditions of filth" and "one in two children died before the age of five, and only one in six adults made it to the age of fifty" (Burke 1996:138).

Woodbury presents data on the causes of infant mortality in the early quarter of the twentieth century in The United States. By 1915, the infant mortality rate approached 111.2 per thousand live births (Woodbury 1926:38). Nearly four-fifths of these deaths were attributable to three causes.

The first cause, termed "causes peculiar to early infancy," accounts for roughly one-third of infant deaths. This category includes premature birth, congenital debility, and injuries at birth. The second cause is "gastric and intestinal disease" which accounts for 32.4 percent of the mortality. The third category covers a wide range of "respiratory diseases" and accounts for 19.6 percent of the mortality

(Woodbury1926:39).

From 1915 through 1997, infant mortality rates declined over 90 percent from approximately 100 per thousand to 7.2 per thousand live births (Centers for Disease Control 1999b:849). Moreover, American mortality attributable to infectious disease during the twentieth century declined. This decline "contributed to a sharp drop in infant and child mortality and to the 29.2-year increase in life expectancy. In 1900, 30.4% of all deaths occurred among children aged <5 years; in 1997, that percentage was only 1.4%" (Centers for Disease Control 1999d:621).

Problem Statement

The period of 1890-1920 demonstrates a profound change in bathing and domestic and urban hygiene practices in both the United States and the United Kingdom. It is proposed that these behavioral changes were a significant factor in the control of pathogens directly responsible for infant mortality. It is further proposed that advertising played a role in changing the normative behaviors associated with cleanliness during this time.

Time Frame and Data Sources

The "sanitary movement" or the "public health campaign" emerged in the middle of the 1880s (Soap and Detergent Industry Association 1996:4). Prolific advertisements of soap and other hygiene products appear in American magazines during the 1890s; these advertisements reached a zenith in the 1920s and 1930s (Vinikas 1988:618).

Reliable data on infant mortality have been kept in the United Kingdom since 1800 (Soap and Detergent Industry Association 1996:2). During 1878-1902, the United States Congress authorized collection of morbidity reports on infectious diseases including cholera, smallpox, plague, and yellow fever (Centers for Disease Control 1999c:1143). Data on infant mortality rates and causes were published for the United States in 1915 (Woodbury 1926).

Data employed in this research are taken from secondary historical sources that touch on bathing habits and soap consumption. Secondary sources will also document the general change in beliefs pertaining to cleanliness and hygiene, as well as disease theories. Sources for infant mortality figures include secondary historical sources.

High infant mortality, hygiene reform, rural-to-urban migration, tenements, epidemics, supplying districts with clean water and sewage systems, and many other factors in the decline of infectious disease are

very similar for the United Kingdom and the United States. Similar categories of data for both countries during the period of 1890-1920 are readily available for comparison.

Analysis will be performed on advertisements promoting hygiene products from three major American magazines. These magazines are: *Good Housekeeping*, *Ladies' Home Journal*, and *The Saturday Evening Post*, specifically during the period of 1890-1920.

Methods

Although these three factors of hygiene, advertising, and declines in infant mortality rates are interrelated, it is not enough to show association among these factors. Historical data may show strong associations between bathing, soap consumption, and the reduction of infant mortality. However, association does not prove causation. In order to strengthen the argument that hygienic practices played a role in reducing infant mortality, I will follow the methodology outlined by Greene (1984). I will summarize the facts outlined in this thesis, and I will base my conclusions on evidence presented. I will strengthen the hypothesis by employing accepted epidemiological criteria. These are: biological plausibility, time dependence, specificity of the association, consistency of the association, and strength of the association.

Cross Cultural Comparison

There are two major goals of cross-cultural studies. These goals are to describe the range and distribution of cultural phenomena and to test theories and hypotheses to explain the observed variation (Ember 1996:261). The cross-cultural data selected for this thesis will show the range and distribution of high infant mortality rates and poor hygiene standards.

Afghanistan, Ethiopia, Haiti, Nicaragua, and Zaire (from the 1960s through the 1970s) all shared significant traits such as a high infant mortality rate, poor personal hygiene, and lack of sanitary sewer systems and potable water. The inclusion of generalized data from these five nations will provide a comparison of infant mortality rates, causes of infant death, as well as standards of hygiene. These data sets will be compared to the United States and the United Kingdom. The results will then be used to demonstrate association and strengthen causal plausibility.

Relevance

Had "turn-of-the-century infant death rates continued, then an estimated 500,000 live-born infants during 1997 would have died before age 1 year; instead, 28,045 infants died" in the United States (Centers for

Disease Control 1999b:850). This decline in infant mortality is "unparalleled by other mortality reduction this century" (Centers for Disease Control 1999b:850). While Americans and Britons may feel secure in their control of infectious diseases, the Soap and Detergent Industry Association (1996) and Greene (1984) warn that the Health Revolution continues. The pathogens that cause infectious disease, unlike smallpox, have not been eradicated; rather, hygiene and education merely keep them at bay.

Infant mortality is still very high in developing nations; some rates are as high as 111 to 180 per thousand live births. Afghanistan, Ethiopia, Haiti, Nicaragua, and Zaire had dismal infant mortality rates. These nations' infants were dying from diarrhea associated with enteric infections, pneumonia, and malnutrition. These nations (in the late 1960s through the 1970s) also lacked potable water, sanitary sewage disposal, were overcrowded, and maintained negligible hygiene standards. If it can be shown that basic sanitation and hygiene practices can effectively reduce infant mortality, then this study suggests that significant loss of infant life due to "gastric and intestinal disease" (Woodbury 1926:39) can be curtailed.

Theoretical Perspective

It is possible to view advertisements through a variety of theoretical perspectives. Advertisements of hygiene products in America during the 1920s and 1930s appealed directly to "somatic and reproductive success" (Logan 1993:504). Evolutionary concepts such as "modes of trait transmission, directional and stabilizing selection, strategizing for access to mates, psychological design elements, conformity, differential fitness, etc." may be discerned in hygiene product advertisements (Logan 1993:504). Logan and Qirko state that:

> differing behaviors within a given group will carry differential rewards with respect to fitness. Irons (1991, p 76), for example, suggests that 'individuals will behave in ways that best suit their reproductive interests,' and 'people will try to influence the society rules and other aspects of their culture in such a way as to promote their reproductive interests.' Additionally, 'whatever is defined as worth striving for, in a particular society, should be a resource for reproductive success in that society' (Logan and Qirko 1996:615).

Vinikas (1992) provides a wealth of data on advertising in American magazines during the 1900s through the 1930s. These advertisements appeal to the readers in terms of access to mates, as well as increased fitness (Logan 1993:504-505). This thesis will focus on Darwinian evolutionary theory. Personal hygiene is an adaptive behavior. Irons states that adaptive behaviors "revolve around aiding relatives, choosing

mates, seeking wealth and status, and parenting strategies" (Irons 1996:3). Reproductive success or benefit and fitness refers to the "individual's relative genetic contribution to future generations" (Logan and Qirko 1996:616). The reproductive benefit of the Health Revolution and the resulting lowered infant mortality rates can be clearly seen in advertisements from the 1890s to the 1920s. Advertisements from the 1890s through the 1920s are particularly rich in appeals to reproductive success, as will be shown in Chapter III.

Findings

This thesis will show that sanitary engineering played a major role in the reduction of environmental stressors, such as filth-laden streets, open sewers, and contaminated water supplies, which contributed to the spread of infectious diseases. In addition, disease theories expanded to include the notion of disease prevention. Personal hygiene practices, such as bathing and handwashing, became normative behaviors during the quarter century 1890-1915. Bathing facilities were dependent upon water supplies and sewers. Advertising played an obscure but important role in changing attitudes about cleanliness. The consequence of these factors led to a profound reduction in infant mortality.

CHAPTER II

THE HEALTH REVOLUTION

Introduction

The Health Revolution refers to the profound changes in sanitation that took place during the period of the 1890s until the 1920s. During this time, both the United States and the United Kingdom literally "cleaned up their acts." Municipal water supplies and sewers were placed first in the urban areas, and later in rural settings. Streets were stripped of filth (c.f. Winslow 1923). Flood-prone areas were drained. Attitudes concerning personal hygiene changed as well. Eventually, "daily bathing had become a cardinal virtue" (Eberlein 1978:340).

The discovery of the microbe led to a revolution in the concept of both causative agents of disease, as well as allowing the population to take preventative steps against contracting infectious disease. Soap and disinfectants became the sword and shield wielded against the dreaded twin dragons of cholera and typhoid. Tubs, showers, hot water on tap, and sanitary toilets became common household items. These technological innovations and normative behaviors changed the course of health during

this time.

Not only did the technological breakthroughs of this era produce a change in personal hygiene; social forces molded the ways in which people viewed their place in society as a whole. Magazines, in particular, as well as newspapers and catalogs, influenced the manner in which people viewed their social roles. Women became managers of their family's health, and in a much larger sense, the health of their neighbors.

Veritable armies of white-aproned social workers descended upon tenement houses, schools, rural meeting halls, and other public institutions to spread the teachings of hygiene and cleanliness (Hoy 1995:100). In Chicago, settlement workers, armed with soap and hot water, pamphlets and proverbs, education and explanations, strove to banish the specter of death and disease (Hoy 1995:103). Women organized and led cities such as Chicago (Hoy 1995:76) and New York (Hoy 1995: 79) in street sweeping. As women were increasingly exposed to the gospel of hygiene, they were at the same time exposed to exhortations to keep the home clean and their children safe.

Since 1900, human longevity in the United States has increased by more than 29 years (Centers for Disease Control 1999d:621). Infant mortality rates have dropped to a level once thought unattainable. In 1900, infant mortality claimed the lives of "approximately 100 infants [out of

1000] before age 1 year. From 1915 through 1997, the infant mortality rate declined <90% to 7.2 per 1000 live births" (Centers for Disease Control 1999b:849).

In short, the Health Revolution was a complex set of changes pertaining to perspectives on heath, not only from a scientific and technological level, but on a personal level as well. The period of 1890 until 1920 marks the turning of the tides in the control of infectious disease in the United States. Particular attention will be paid to these decades.

Changing Hygiene Standards of 1860-1930: An Historical Overview

The standards of hygiene in the period of 1860-1890 in the United States and England have been called "unspeakable," "appalling and horrifying" (Burke 1985:223-224), and "notoriously filthy" (Duffy 1990:178). In the1850s and 1860s, soap was a rarity, water was a scarcity, clean linens and clothing a luxury (Hoy 1995:8). Full sized tubs were a novelty (Wright 1967:158). Personal hygiene standards for the majority of people, urban and rural, wealthy and poor alike, chiefly consisted of employing basins of various designs and hand-hauled water of dubious purity either used cold or heated using costly fuel. Soap was either time-consuming to

make, of uncertain strength and liable to damage the skin, or simply unavailable (Greene 1984:35). It was not considered especially desirable to bathe.

As early as the 1840s some toilets were already being used in very wealthy homes in the United Kingdom (Wright 1967:149). Wastes from these were generally deposited in cellar cesspits. Some of the sewage from these new water closets was discharged directly onto streets (McLaughlin 1971:110). In London, privies and cellar cesspits overflowed. Rats and other vermin were exceedingly common. Finding rats in homes generally indicated that area sewers were blocked and needed cleaning (Wright 1967:155).

In large cities and towns, such as London (Burke 1985:233-234), New York (Lambton 1995:68), and Chicago (Hoy1995:78), the streets served as sewers and middens, especially for tenement dwellers and those who lived in these cities' slums. Kitchen garbage and the contents of bedside urinals and chamber pots were routinely dumped outside onto the streets.

Personal Hygiene and Public Baths

By 1889, the importance of keeping the body clean was advocated by Dr. Simon Baruch, who recommended showers be constructed in schools, asylums, and in poorer areas of cities to protect against the spread of

communicable diseases. To be sure, bathhouses and other public bathing facilities were not especially glamorous. They were described as being dank and dark, dreary and unpleasant, but they did provide the means by which a body could get clean (Greene 1984:37).

The bathhouses and public showers were not an overwhelming success. One should not dismiss their significance, however. Greene states "[the public baths] did influence to a lesser or greater extent the sanitary lifestyle of hundreds of thousands, perhaps millions, who would not otherwise have bathed," (Greene 1984:38). In the United Kingdom, the first of several Public Baths and Wash Houses Acts passed in 1846. By 1865, twenty-five boroughs had bathing houses open to the public. By 1908, the city of London had approximately one bath for every two thousand persons (Wright 1967:151).

London's Sewers

The older sewers in England during the mid-1800s were either blocked or ineffective (Wright 1967:145-147, 151). In the summer of 1858, the sewage crisis in London reached a zenith. The combination of drought and high temperatures effectively reduced the water level in the Thames. Sewage pipes, previously underwater, were now seen to discharge their wastes. The riverbed was exposed during all phases of the tides. The stink

was phenomenal, "even for Victorian times" (McLaughlin 1971:148). It was so bad that all work at the Houses of Parliament had to be suspended. Legislation was hurriedly enacted to "renew and develop the entire London sewerage system" (Burke 1985:234).

Construction of the new London sewage system was completed in 1865 (Wright 1967:756). In all, "318 million bricks were used to build 1,300 miles of sewers which carried 420 million gallons of effluent a day" (Burke 1985:234). After London's sewage was removed downstream from the city, the cholera epidemics, which had killed over 14,000 in London alone during the 1848-1849 epidemic (McLaughlin 1971:148) and 10,000 in 1854 and 5,000 in 1866 (Wright 1967:153), never returned (Burke 1985:234).

Municipal Water Supplies

The ready availability of water was one of the main differences between country and city dwellings. In urban environments without municipal water supplies, water was obtained from wells or rain barrels. Those families who had running water inside their homes were considered especially fortunate. Most large cities in the United States had either built or expanded municipal water supplies during the 1840s and 1850s. Only 5 percent of Americans had running water by the close of the Civil War. By

1930, the vast majority of urban residents had access to water in their dwellings, but not until 1945 would rural Americans have complete access to running water (Hoy 1995:13-15).

The figures provided by Greene (1984:38) in Table 2.1, on the following page, illustrate the availability of water to urban dwellers between 1880 and 1920. These figures represent a significant increase in the number of people having access to plumbed water: 0.2 percent to 37 percent, a jump from 30 thousand in 1880 to more than 20 million in 1920. Between 1880 and 1920, the population of the United States more than tripled from 50 million to 160 million. Urban expansion almost quadrupled from 14 million to 54 million people.

The availability of municipal water supplies made the task of bathing much simpler. Water no longer had to be carried distances by hand. Advances in technology also made possible the heating of quantities of water that could be piped within the household. Although water-heaters were certainly in use before 1880, these were often dangerous. Fuel sources for these heaters either consisted of wood, coal, or gas, none of which were wholly adequate. Often, these heating devices were bolted either on the side or underneath the tub. By the 1880s and 1890s, however, water-heaters were more reliable and safer (Wright 1967:191-198). Tubs were becoming increasingly available. Heavy cast iron tubs gave way

Table 2.1: Availability of Municipal Water in the United States, 1880-1920.

Date	US Population (Millions)		Municipally Distributed Filtered Water	
	Total	Urban	Numbers Served (Thousands)	% of Urban Population
1890	62	22	310	1.4
1900	76	30	1,860	6.3
1910	92	42	10,800	25.7
1920	106	54	>20,000	>37.0

Source:
Greene, V. W. 1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association; page 38.

to lighter enameled tubs, greatly reducing the shipping and transportation costs (Wright 1967:237-238). Further, with rapid growth in urban areas, houses were built that had access to municipal water supplies and sewage systems (Greene 1984:39). These newly built homes also had internal bathing facilities. Stuller states, however, that in the United States, it was "not until World War I did reliable heating devices, good plumbing, and built-in tubs and sinks put convenient bathing within reach of the ordinary citizen" (Stuller 1992:133).

Sewers in Memphis

The "flamboyant" Colonel George E. Waring, Jr. (Cassedy 1978) had been very successful in implementing municipal sewage systems in New York state and Massachusetts. The National Board of Health was created in 1878. Waring was sent by the National Board of Health to Memphis in 1879 to implement sewers and drain areas particularly prone to stagnant pools from the annual floods of the Mississippi River (Duffy 1990:145). Residents along the Mississippi River Valley suffered from yellow fever because the vector for this disease, the *Aedes* mosquito, found an ideal habitat in the standing water left from annual floods. Memphis and New Orleans were both particularly susceptible because large areas of these cities were badly drained and unclean (Hoy 1995:63).

In addition, Waring implemented large-scale removal of street filth and educated the population via newspaper and journal articles on the need to increase domestic and municipal cleanliness (Tomes 1998:73). By 1890, Memphis had been transformed from one of the United States' dirtiest cities to one of its cleanest. Further, Waring's success in Memphis "was a dramatic demonstration of modern sanitary engineering in the service of the sanitary idea. It provided a powerful impetus to the launching of sewer construction projects in all sizes of communities across the United States" (Cassedy 1978:308).

Streets

In New York City, in1884, The Ladies' Health Protective Association was founded by a small group of women with the express purpose of improving urban hygiene. It was the first such organization founded solely by women. These fifteen women took the owner of a huge manure heap to court to force its removal from their neighborhood. Later, these same women addressed New York City Mayor Abram S. Hewitt and made specific recommendations for removing the vast amount of filth that had accumulated in the city streets. In 1890, other organizations were founded: the Sanitary Protective League, the Street Cleaning Aid Society, and the Women's Health Association of Brooklyn (Hoy 1995:74-77). Abram's

successor, Mayor William L. Strong, appointed Colonel Waring as Street Cleaning Commissioner in 1894. At the end of Waring's commission, New York City had been transformed to one of the cleanest cities in the world (Cassedy 1978:309).

In urban environments as recently as 1895, it was not uncommon to see streets, for example, those in New York, literally covered up to a depth of two or three feet with animal and human excrement, as well as rotting garbage and household refuse (Greene 1984:23). For an illustration, please see Figure 2.1 on the following page. Flies, cockroaches, ants, ticks, bedbugs, and other insects were unavoidable (Hoy 1995:10). Dead animals were frequently left on the streets to rot or were swept into the sewer systems. In the 1890s, "the offal contractors removed an average of eight thousand dead horses a year from the streets of New York" (Duffy 1990:176).

In Chicago during the early 1890s, women who wanted to rid the city of accumulated filth and garbage established the Municipal Order League, which was modeled after The Ladies' Health Protective Association in New York City. Hosting the 1893 World's Fair, the ladies of Chicago united to promote the sweeping of city streets and alleys. Fearing that the city would appear unattractive to visitors, however, was not the only reason given for sweeping the streets. It was also to help prevent the outbreaks of cholera

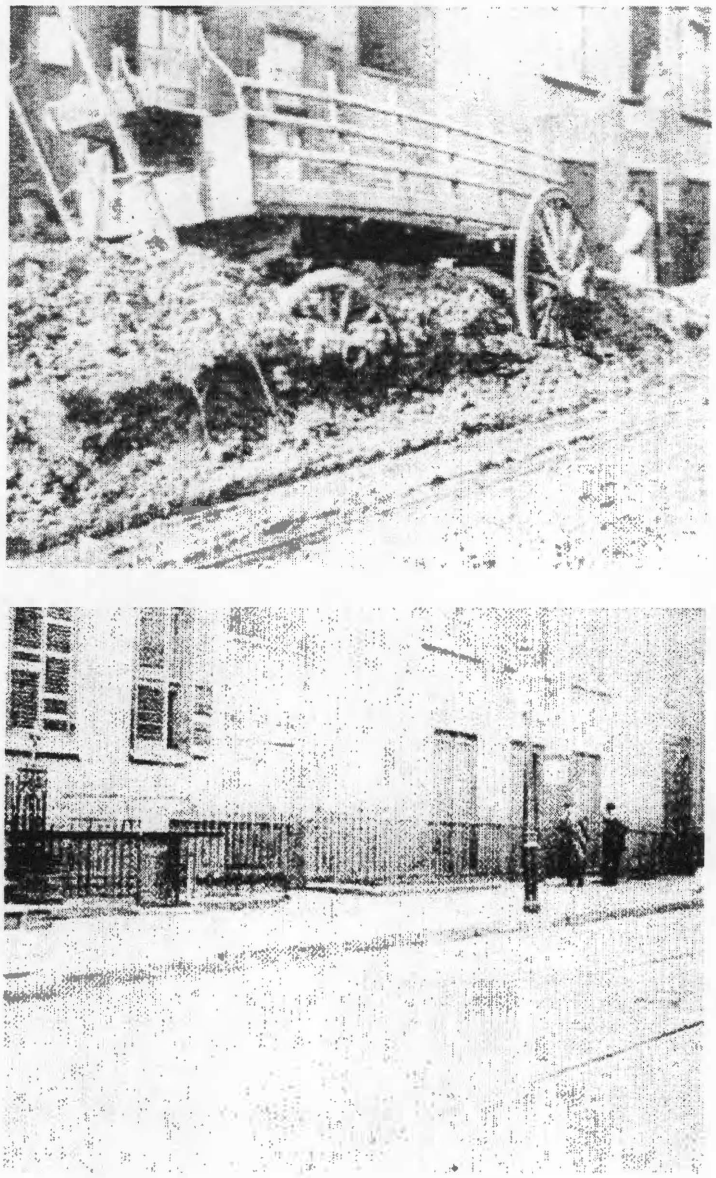

Figure 2.1: The Streets of New York—Before and After Street Cleaning.

Note: Journalist Jacob Riis took these photographs. City Street Commissioner George Waring brought about this change in New York City in 1895. Both pictures show the block in front of 212 Sullivan Street.

Source:

Leavitt and Numbers, eds.

1978 Sickness and Health in America: Readings in the History of Medicine and Public Health. Madison, WI: University of Wisconsin Press; page 256.

or typhoid among these visitors during the hot summer months.

On July 15, 1892, the legislators of Chicago established the Department of Street Cleaning. Municipal incinerators were built to cremate the sweepings. These reforms in Chicago were partly successful. Only the downtown streets were cleared; the outlying districts remained neglected (Hoy 1995:74-77). Clearly, women played a prominent role in the shaping of urban environments. It was certainly a step in the right direction.

Tenements

Tenement houses in large cities were particularly noxious as most lacked running water and drains, and the death rates for infants, children, and adults alike were frankly dismal (Burke 1985:222-223). In American cities, the annual death rate was as high as 30.2 per thousand (Greene 1984:4).

By the late nineteenth century and the early twentieth century, cities recognized the health threat posed by the overcrowded conditions in slums and tenement houses. In Chicago, for example, Jane Addams and the Hull-House Women's Club instituted a neighborhood program in Chicago's Nineteenth Ward. It was designed to remove garbage from the streets and alleyways. Addams and her team sought to educate the immigrant women

on why cleanliness and hygiene were so important: "[a]s wives, mothers, and municipal housekeepers, they acted to 'prevent the breeding of so called "filth diseases"' that endangered their families' health and lives" (Hoy 1995:103).

In 1911, a Senate investigation of immigrant housing in New York, Chicago, Philadelphia, Cleveland, Boston, Buffalo, and Milwaukee revealed that plumbing and sanitation were substandard. A common source of water was a communal faucet. If a building did have faucets, these were restricted to the kitchen. Only one-third of the households in these cities had indoor, private toilet facilities. Residents in about half the households had to share toilet facilities with other families. Many tenement houses still relied on outdoor privies (Hoy 1995:97).

In 1900, new building laws for tenement housing required the installation of sanitary toilets in every apartment. Bathtubs were generally installed in the new apartments. In most cities, however, years would pass before tenement residents fully benefited from plumbing because landlords resisted adding facilities to existing apartments (Hoy 1995:116).

Rural Health and Hygiene of 1860-1900

It may seem paradoxical, but in the 1850's and 1860's in both the United States and England, rural environments were considerably cleaner and healthier than urban environments (Wright 1967:144). Although four-fifths of Americans lived in "pre-industrial, hygienically primitive situations on small farms or in country villages" (Hoy 1995:3), the rates of mortality from epidemics were lower in rural areas than in urban areas. This was due to a lower population density in rural environments (Hoy 1995:5).

After the cities were plumbed and streets keep clean, urban areas in the United States were considerably cleaner and safer places to live. Woodbury (1926) provides details on the survivability of infants in urban and rural settings. Between 1915 and 1921, urban areas showed an actual, as well as a relative, decrease in infant mortality. Rates were lower in urban areas, particularly from gastric and intestinal diseases, but rates for respiratory diseases and malformations increased in both rural and urban settings (Woodbury 1926:14-18). Further, for communicable diseases "notably diphtheria, erysipelas, tuberculosis, and syphilis, the rates were higher in cities than in rural districts. On the other hand, whooping cough appeared to be more prevalent in the rural areas" (Woodbury 1926:18).

Epidemics

Epidemics periodically ravaged cities in the United States. Figure 2.2, on the following page, illustrates the major epidemics in four major United States cities: New Orleans, Philadelphia, Chicago, and New York. The epidemics shown are yellow fever, cholera, smallpox, and typhoid. Cholera swept through most major cities. Cholera visited the United States only four times. There was an outbreak of cholera in 1832, again in 1849, and another epidemic in 1866. The last cholera epidemic occurred in 1873. It was the threat of cholera that struck fear into the hearts of "virtually every American throughout the 19th century" (Leavitt and Numbers 1978:229).

Yellow fever annually decimated Memphis and New Orleans. In 1878, over five thousand fatalities were recorded in Memphis from yellow fever. In 1879, effective water control programs plus improvements in local sanitation, in New Orleans, reduced the number of yellow fever fatalities, but six hundred died from this disease in Memphis during this time (Hoy 1995:63).

It can be said that the premier health problem in the nineteenth century was filth (Leavitt and Numbers, 1978:5). Filthy water, filthy streets, lack of sewers, lack of personal hygiene—these were the factors which

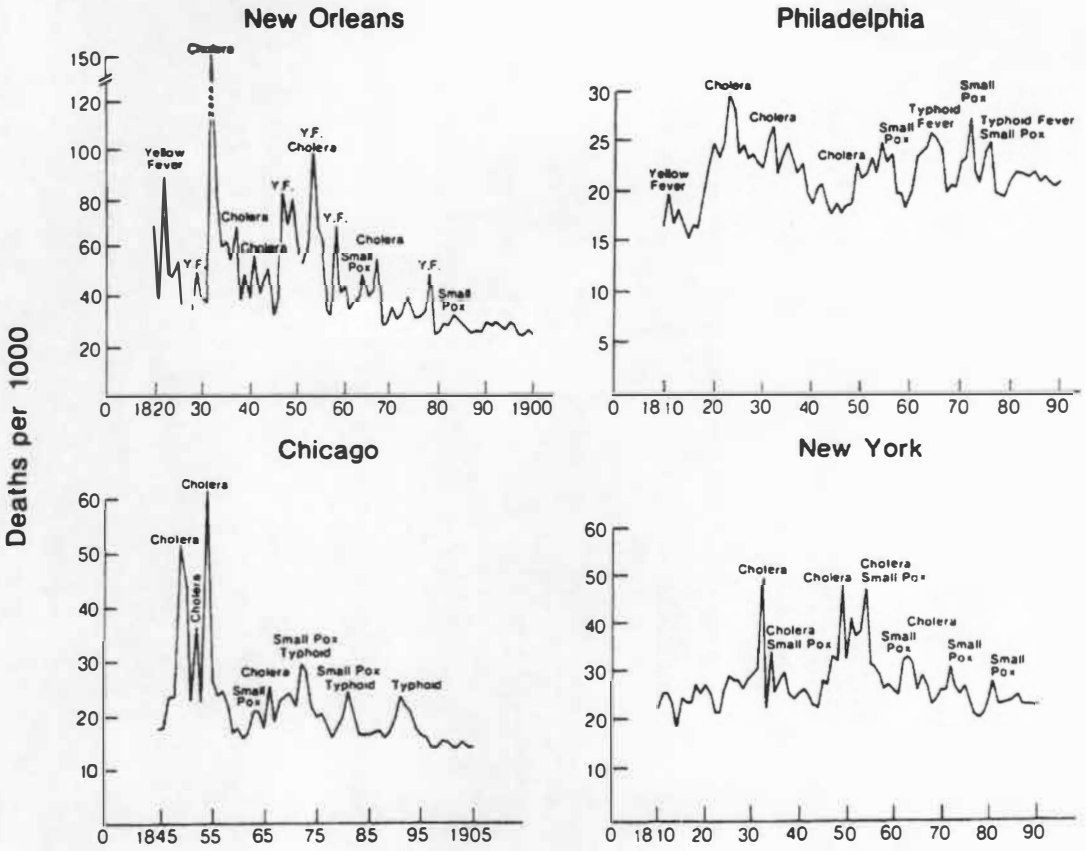

Figure 2.2: Major Epidemics in the 19th Century United States. Reproduced by permission of the Soap and Detergent Association.

Source:

Greene, V. W.

1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association; page 4.

played a significant role in maintaining high infant mortality rates, as well as causing a decrease in longevity experienced by Americans and Britons during the nineteenth century. These factors also play a significant role today in the high infant mortality rates seen in developing nations. Infant mortality and environmental problems plaguing developing nations will be explored more fully in Chapter V.

Mortality and Longevity

Table 2.2 provides information on age specific mortality in the United States and the United Kingdom in the nineteenth and twentieth centuries. The mortality figures listed in Table 2.2 require some explanation. These figures represent a general trend that illustrates that in every age group represented, mortality rates declined significantly over time. Mortality rates for children under five were fifty times lower in 1972 than in 1841. This change in mortality was at the very heart of the Health Revolution:

> By every criterion that we choose to measure community health status—infant mortality, general mortality, age adjusted mortality, life expectancy, epidemics or endemic disease incident—we can demonstrate the impact of the health revolution: a wide-sweeping, all-encompassing change in the health status of Americans, Englishmen, Frenchmen, Germans, and nearly every other society that kept health records (Greene 1984:10).

Table 2.2: Age Specific Mortality Rates (per 1000 living persons in that age group)

Age Group	England 1840	England 1972	United States 1900	United States 1976
Under 1	178.9	17	162.4	14.9
1-5	36.4	0.74	19.8	0.7
20-24	9.5	0.71	5.9	1.3
45-54	18.2	5.87	15.0	6.2
65-74	148.3	38.7	56.4	30.6
Crude Death Rate	22.4	12.1	17.2	8.8

Source:
Greene, V. W.
1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association; page 10.

Although advances in health care, such as vaccinations, were partly responsible for these declines, changes in disease theories, and the resulting improvements in personal and public hygiene which followed, were of paramount importance in causing mortality rates to drop significantly.

Disease Theories of 1890-1920

In the latter decades of the nineteenth century, two main disease theories competed for acceptance. The first and older of the theories was related to the odors of rotting matter. This odor theory, also called the "miasma theory," is causally linked to the observation that where rotting matter was allowed to accumulate disease and epidemics resulted and spread easily. Filth and the resulting noxious odors became largely blamed for the spread of infectious diseases (Hoy 1995:61). After the Civil War, disease theory expanded to focus on dirt and filth, as well as poorly drained soils. Miasma and filth, after all, were dependent upon each other; rotting filth created smells. The shift in focus prompted sanitarians to preach "cleanliness as the first element of health" (Hoy 1995:61). The decade 1890 marks the beginnings of the acceptance of what is now called germ theory. Many physicians and health officials, however, found the germ theory hard to accept at first.

Miasma Theory and Sewer Gas

A primary target of the miasma theory was sewer gas. Rising from leaky sewers and improperly vented drains, as well as from open sewers flowing through the cities, it was widely suspected that this gas was the cause of disease. Although sewers were designed to improve public health, illness was increasingly attributed to faulty drains and the stench of rotting sewage frequently found in systems that were improperly vented. By the 1890s, sewers and municipal water supplies became available to some urban dwellers, but the increasing volume of sewage produced by toilets overwhelmed existing cesspits and sewers. Municipal sewer lines did much to ameliorate the problem of sewage disposal, yet the lack of sufficient airtight water locks exposed the family to potentially harmful gasses given off by decaying fecal matter (Tomes 1998:51). Sewer gas was widely held to be deadly and insidious. Some thought the smell of sewage caused disease; others attributed sickness to odorless emanations from drains which caused headaches and debility, weakening the body and leaving it susceptible to illness (Hoy 1995:71). Cassedy states:

> Sewer gas thus became to many Americans, as well as to many Europeans and Englishmen of the late 19th century, what miasmata had been to the people of many previous centuries. It came to be regarded as the source of virtually every communicable disease with the notable exception of smallpox (Cassedy 1978:306).

Several methods were proposed for testing the presence of sewer

gasses in the home. Pouring peppermint oil into the toilet allowed the detection of ineffective plumbing which was thought to be responsible for introducing sewer gas and, in later thinking, germs into the building (Tomes 1998:59). In England, several items were marketed and advertised, promising to release clouds of dense smoke into drainpipes thereby allowing detection of potential sources of sewer gas (Wright 1967:214).

During much of the nineteenth century, the concept of disease causation rested firmly in the tenets that decaying matter produced chemical agents which could, under the correct atmospheric conditions, spontaneously generate disease. This belief was called the "zymotic theory." Zymotic and miasma theories were based on empirical observations. Infectious diseases were increasingly prevalent in areas of overcrowding and poor sanitation. Germ theory, on the other hand, was based on the observations and experiments conducted in laboratories (Tomes 1998:27).

Germ Theory

By 1884, typhoid was generally regarded by public health officials and the public to spread by faulty sewer systems, tainted air, and unclean water. Most physicians believed typhoid was caused by decaying fecal matter. The precise mechanism underlying the spread of typhoid was unclear, but in 1880, German physicians had isolated bacteria believed to

cause typhoid. Although the precise mechanisms of transmission remained controversial, the spread of typhoid was firmly attributed to unsanitary conditions, particularly fecal matter (Tomes 1998:24).

The cause of cholera was a subject of great debate. In the first half of the nineteenth century, cholera was thought to originate in atmospheric conditions. The atmosphere, when combined with local filth, was the source of the "cholera poison" (Rosenberg 1978:258). In the 1830s, cholera became linked to the doctrine of animalcular theory. Small unseen critters, thought to resemble gnats, carried cholera (Rosenberg 1978:259).

John Snow, an English physician (not to be confused with Edwin Miller Snow—a noted Sanitarian in America), began to suspect that cholera was transmitted on hands which had been contaminated with fecal matter or vomit of cholera patients. In 1854, in London, a previously clean well "killed six hundred local inhabitants" (Burke 1985:233). John Snow found that a cesspit under a house had overflowed into the well. After sealing the leak and filtering the water, cholera disappeared (Burke 1985:233). Although physicians may not have been entirely certain of the causative agent in cholera cases, the link to fecal contamination was widely accepted.

Germ theory might effectively describe the role of pathogens in the spreading of disease, but the sanitary revolution began before this scientific innovation. Because a basic empirical correlation linking filth and fecal

matter to the onset of epidemics had been made, periodic clean-ups of both homes and cities were mandated (Tomes 1998:49). It was during this time that the basic seeds of the Health Revolution began to germinate. Large-scale cleaning of city streets began. The voices of those who preached cleanliness were united into a general clarion for improved hygiene.

Conclusion

This focus on hygiene, as well as the later emergence of germ theory, had a major impact on explaining why everyone was at risk from infectious diseases; be they rich or poor, urban or rural. Perhaps the most important paradigmatic shift of this day was the heightened awareness that the individual could do much to control one's health. Diseases ceased to be viewed as external phenomena, something beyond the control of the individual. Rather, society and the individual could work jointly in an effort to maintain standards of personal cleanliness as a strategy to control the spread of disease. The prevention of disease became the responsibility of everyone. And hygiene was the critical key for the preventing infectious diseases.

CHAPTER III

ADVERTISING FROM 1890 THROUGH 1920

Introduction

While the "Sanitarians" (Duffy 1990) of the nineteenth century extolled the necessity of public hygiene and cleaner cities, advertisers targeted the private realm of improving personal hygiene. The question of whether the desire for cleanliness created new products, or conversely, new products generated an increasing desire for cleanliness, remains unanswered (Horsfield 1998:139). It is clear, however, that a profound shift in perspectives regarding hygiene occurred, "almost certainly in response to [a] better understanding of germs and disease" (Horsfield 1998:139). To meet the rising demand of manufacturers to sell soap, as well as to instill a heart-felt desire for cleanliness in the American public, the emerging magazines eagerly sold space for soap advertising. Soap has been called the "first and most revolutionary cleaning product to be mass-produced; the product whose history is so entwined with the history of advertising that the two can seem indistinguishable" (Horsfield 1998:139).

During the latter half of the eighteenth century and the early

nineteenth century, advertising in newspapers and fledgling magazines was not extremely popular (Wood 1949:225). Early American magazines themselves were "shaky ventures, low in income, low in advertising, low in circulation, [and] short in life span" (Peterson 1964:2). Nineteenth century magazines "were not interested in accepting advertising for their publications and their magazines were not especially attractive to advertisers as conveyers of their sales messages" (Ulanoff 1979:292).

By 1825, the introduction of the German-manufactured steam press created a chain of events that was to mark the turning point in American print advertising. Since this innovative press was capable of printing approximately 2,000 pages an hour, profits could only be realized if the presses ran at or near capacity (Ulanoff 1979:10). In 1881, a smooth coated paper was being produced which would allow halftone reproduction of illustrations (Reed 1997:28). Better inks and dyes made from coal tars (and incidentally, glycerin from the burgeoning soap industry), were being developed by the second half of the nineteenth century. In 1886, R. Hoe & Co. built a rotary press capable of producing an astonishing 24,000 copies an hour.

By 1900, mechanical typesetting had already emerged and was by this time being used in some printing applications (Reed 1997:42-43). Half-tone technology replaced the woodcuts as a method of obtaining illustrations for advertisements. The use of half-tone negated the simple

black and white illustrations typical of the earliest advertisements, as well as the expensive and detailed wood engravings seen in later ads. Further, half-tone allowed monochromatic variation or gray-scale. Half-tone was also relatively inexpensive. Illustrations could cost "up to $300 for a page-size woodcut" whereas a half-tone costs "less than $20" (Reed 1997:36). Clearly, technological advances in printing played a role in reducing the costs of production. However, the popularity of national magazines is neither limited nor entirely dependent upon papers, inks, and presses.

National Magazines

The popularity of national magazines rested on several additional factors. First, in 1879, Congress amended legislation allowing low-cost mailing privileges to magazines. The recognition that magazines could easily be distributed and used to spread news and information to all parts of the United States prompted this legislation (Wood 1949:99). In 1885, the second-class postage dropped from two cents per pound to one cent per pound and rural delivery became free (Reed 1997:19).

Second, in 1893, prices of magazines were reduced. During the Panic of 1893, editors were faced with the decision to reduce prices or to let their magazines fold (Vinikas 1992:6). Those editors who chose to

slash their subscription costs realized an increase in their magazine's circulation. Profits were recovered by selling advertising space. Large circulation figures attracted an increasing number of advertisers (Peterson 1964:7), thus a cycle of advertising and increasing circulation had begun.

Third, editors began to appeal to popular tastes in many articles selected for publication (Peterson 1964:1). The object was to "attract as many customers as possible from an undifferentiated mass of people by publishing 'something for everyone'" (Reed 1997:17). Other developments, such as "increasing literacy among the American people, release from long hours of burdensome work as mechanization of industry and agriculture progressed, a rapidly expanding economy, and changes in the formats of magazines—all were contributing factors" (Ulanoff 1979:294) to the increase of both the popularity of magazines and the effectiveness of advertising in reaching potential consumers.

Magazine Subscription Information

Since the advent of national magazines, advertisements were targeted to every person who could afford magazine subscriptions, from poor housewives to the elite literati. Importantly, advertisers almost exclusively targeted women (Woodward 1960:153). Subscription

information is crucial in determining the exposure to advertising to which the average American consumer was subjected.

Subscription information before 1900 is difficult to assess:

> Pressures were mounting on publishers to reveal their precise circulation figures and make them available to external auditors, such practices were not yet universal. This means that absolute reliance cannot be placed upon the available figures which are used to select the best-selling magazines of the periods [1890-1900] (Reed 1997:51).

Peterson (1964) also outlines the need for accurate subscription information. Because advertisers were now paying to place their ads in magazines based on subscription numbers, the need for accurate subscription information increased. Publishers were initially reluctant to offer these numbers. The practice of "padding" subscription numbers in order to increase the profit from selling advertising space was not unknown.

A lack of standardization in methods of bookkeeping resulted in a failure to account for subscription rates. In 1899, the Association of American Advertisers made the first attempt to verify subscription numbers. By posting accurate figures, the Audit Bureau of Circulation was giving advertisers some guarantee of accurate subscription rates. By 1913 the Audit Bureau of Circulation began to recruit the editors of magazines into membership with the requirement that editors fully disclose circulation figures (Peterson 1964:27-28). With this in mind,

subscription information prior to 1914 should be thought of as estimates.

Ladies' Home Journal was first published in 1883 and had 25,000 subscribers at the end of its first year. At the end of its second year, that figure quadrupled. After doubling the size of the magazine and raising the advertising rates, subscriptions climbed to 700,000 in 1889 (Wood 1949:105-106). When *Ladies' Home Journal* reached its fifteenth year, subscription was at 850,000 (Wood 1949:113). In 1899, *Ladies' Home Journal* was audited at 819,410 subscribers (Reed 1997:74). *Ladies' Home Journal* enjoyed a diverse readership; by rank, it was one of the top ten magazines in 1930 in every demographic category listed (Vinikas 1992:13). *Good Housekeeping* in 1901 had a readership greater than 500,000, and by 1920 had a readership of 682,823 per month (Reed 1997:120). Readership of *The Saturday Evening Post* in 1897 averaged 2,231. By 1902, the circulation average was 314,671. By 1922, the circulation was 2,187,024 (Peterson 1964:12).

Emotional Persuasion in Advertising from 1890 to 1920

The Association of American Soap and Glycerin Producers founded the Cleanliness Institute in 1927 (Horsfield 1998:142). The Cleanliness Institute played a role in re-establishing a need for soap in the

consciousness of the American public. The soap manufacturers in the United States formed a conglomerate entity whose sole purpose was the promotion of soap (Vinikas 1992:79). The Cleanliness Institute was formed in response to the threat of the newly-booming cosmetics industry whose sales could usurp the profits of the soap manufacturers. During the five years in which the Cleanliness Institute operated (1927 to 1932 [Hoy 1995:148]), promotions in the forms of magazine and radio advertisements, so-called "news releases" (Vinikas 1992:79), and even including classroom promotional materials (Stuller 1992:133), saturated the American media.

Although Vinikas (1992) provides a wealth of information regarding the Cleanliness Institute, it becomes clear that the tactics used to promote heavy sales of soap during the latter half of the 1920s and early 1930s did not play a role in the early soap advertisements. Indeed, the early soap advertisements from the 1890s until the mid 1920s promoted huge sales of soap. The early advertisements were primarily focused on the uses of soap as an aid for laundry, for bathing, for clearing the complexion, and for the use of soap as a shampoo, etc. Soap was promoted as a disinfectant. This product was advertised as a means by which a person could achieve beauty and happiness. The emotional appeals used in advertisements predate the tactics of the Cleanliness Institute. Ewen argues that "by appealing to emotions in its ads ...

industry hoped not merely to sell goods, but also to capitalize on and conscript the basic emotional structures of people" (Ewen 1976:99).

Advertising from the late 1890s and continuing into the 1920s tended to focus on persuasion and emotional appeals. In particular, these ads emphasized such emotional appeals as sexual desirability. They also promoted appeals to be fearful of microbes and disease. Vinikas argues that early advertisements sought to inform consumers simply that an item was available to the public. Beginning in the 1890s, however, and continuing through the 1920s, advertising sought to create demand for a product (Vinikas 1992:27). Advertisements from this era carried a message that addressed, "and very boldly so, somatic and reproductive success" (Logan 1993:504). Further, "Americans were being convinced that certain products were the only avenues through which individuals could succeed in the tasks of locating and securing a mate, raising a healthy family, and acquiring greater social and economic mobility" (Logan 1993:504).

Appeals to basic emotions, such as avoidance of offending others or of not conforming to social norms, as well as an appeal to attaining sexual desirability, were clearly attempts to create an ever-increasing demand for soap and hygiene products. A survey of magazines from the 1920s reveals "a few common themes" and that "most apparent is the appeal to women in general, and specifically to mother and lover"

(Vinikas 1992:98).

Sample of Advertisements: Methodology

According to Pearce et al. (1971:4.5), the scarcity of research-based knowledge on the social effects of advertising reflects the inherent difficulty of conducting meaningful studies on this topic at this time. The innumerable variables inherent in such studies cannot be controlled, measured, or assessed. More importantly, advertisements, by their very nature, are value-based, and these values play "a dominate role in the interpretation of the social impact of advertising" (Pearce et al. 1971:4.6). The interpretation of soap advertisements is also somewhat problematic; different symbols used in magazine advertisements might mean different things to different people. In an attempt to minimize this problem of interpretation, the advertisements selected for analysis in this thesis were chosen on the basis of clear and discernible emotional appeal.

The advertisements selected for analysis were drawn from bound periodicals from the Lawson McGhee Library located in Knoxville, Tennessee. After studying the subscription information for *Ladies' Home Journal*, *Good Housekeeping*, and *The Saturday Evening Post*, volumes for each magazine from each decade from 1890 until 1929 were selected. After selecting several advertisements from each magazine from the listed

years, I applied the following criteria for selecting the final advertisements.

The first criterion for selection was based on completeness; it was a common practice during the beginning of the twentieth century to excise advertisements, and sometimes the actual covers of magazines, before the binding process. Second, the advertisement must exhibit a clear and discernible emotional message to the consumer. The advertisement must, by the criteria of language or illustration, address "somatic and reproductive" (Logan 1993:504) success. Third, the final selection of advertisements should feature as many manufacturers as possible. By viewing as many different products over the general period of 1890-1920, one may view a continuum of the appeal made to consumers by soap manufacturers and advertising agencies. Fourth, the advertisement should be "typical;" that is, the advertisement should reflect the general attributes of other soap advertisements found in magazines for the same year. Finally, the advertisement must limit itself to a soap product. Thus based on these criteria, the advertisements from *Ladies' Home Journal* were selected from the years 1892, 1909, 1918 and 1925; *Good Housekeeping* from 1903 and 1918; and *The Saturday Evening Post* from 1905 and 1913.

The Appeal to Consumers: Advertisements (1890-1920)

The first advertisement (Figure 3.1)contains an appeal to authority, as well as the fear of disease. The appeal to authority is made according to Dr. R. Ogden Doremus, who states that "[m]edical men are much interested in discovering the various sources of disease, as whether from foul air, impure water, infested food, and possibly soap made from fat from diseased cattle." The mother is told in no uncertain terms that protecting the baby's skin is crucial to avoiding disease. Rather typically, the advertisement addresses the concern of laundry, rather than actually bathing the baby. Importantly, the advertisement uses fear of the causative agents of disease in order to promote sales of a vegetable oil-based soap, in this case "pure" Ivory. Notice that the mother is sitting, attentive, yet passive, while the authority figure, presumable the kindly Dr. Doremus, stands over the seated figure in a display of authority. Notice too that the gesture of the infant closely mirrors the gesture of the authority figure. The juxtaposition of the passive mother and the active authority figure, echoed by the gesture of the infant, signifies an incredibly powerful symbolic tableau. In the foreground is a basket, however, containing cloths and a bar of Ivory soap. The cleaning of the baby as well as the infant's playthings is implied. The placement of cloths and the language of the advertisement, however, specifically

A baby's skin is the most delicate of all delicate things, and is much more subject to external influence than a grown person's. It is frequently affected by the harmful ingredients of common soaps; these do not rinse readily, and will cause painful chapping, rash and disease by remaining in the clothing and coming into contact with the skin of the little one.

Do not permit the child's garments to be washed with anything but Ivory Soap. It is pure and is made of vegetable oils.

Dr. R. Ogden Doremus, of the Bellevue Hospital Medical College, says: "Medical men are much interested in discovering the various sources of disease. as whether from foul air, impure water, infested food, and possibly soap made of fat from diseased cattle.

Figure 3.1: The Most Delicate Of All Delicate Things.

Source:
Ladies' Home Journal. September 1892, Vol. IX, #10. Page 22.

targets the baby's "garments."

The next advertisement (Figure 3.2) is not subtle in its argument. Indeed, the clarion of sanitation is clearly sounded. The consumer is told in very explicit terms that the safety of the entire human race depends on the use of Lifebuoy soap. Using an analogy of a life-saver to Lifebuoy soap, the consumer is told to "protect yourself against the danger of contagious disease. An atmosphere of cleanliness, purity and health prevails wherever Lifebuoy Soap is used constantly." The emotional appeal in this advertisement plays directly upon a consumer's fear of contagious disease. The background is dark, and the figure of the captain looks stern and determined. One is left with an impression that the Lifebuoy captain, and of course the soap he offers, is all that stands between the consumer and the dark possibility of death and disease.

These two advertisements allude to disease and the anxious fears of a mother and the general public. Both refer to disease explicitly. Both inform the consumer that soap offers a measure of safety against disease. Not only should one use soap while bathing or laundering items belonging to an infant, one should use a pure soap made of vegetable oils. Lifebuoy claims "perfection," perhaps implying the soap itself is a perfect composition of alkaloids and fats, or implying that the use of soap leads to a perfection in one's health, or even the perfection in the health of society.

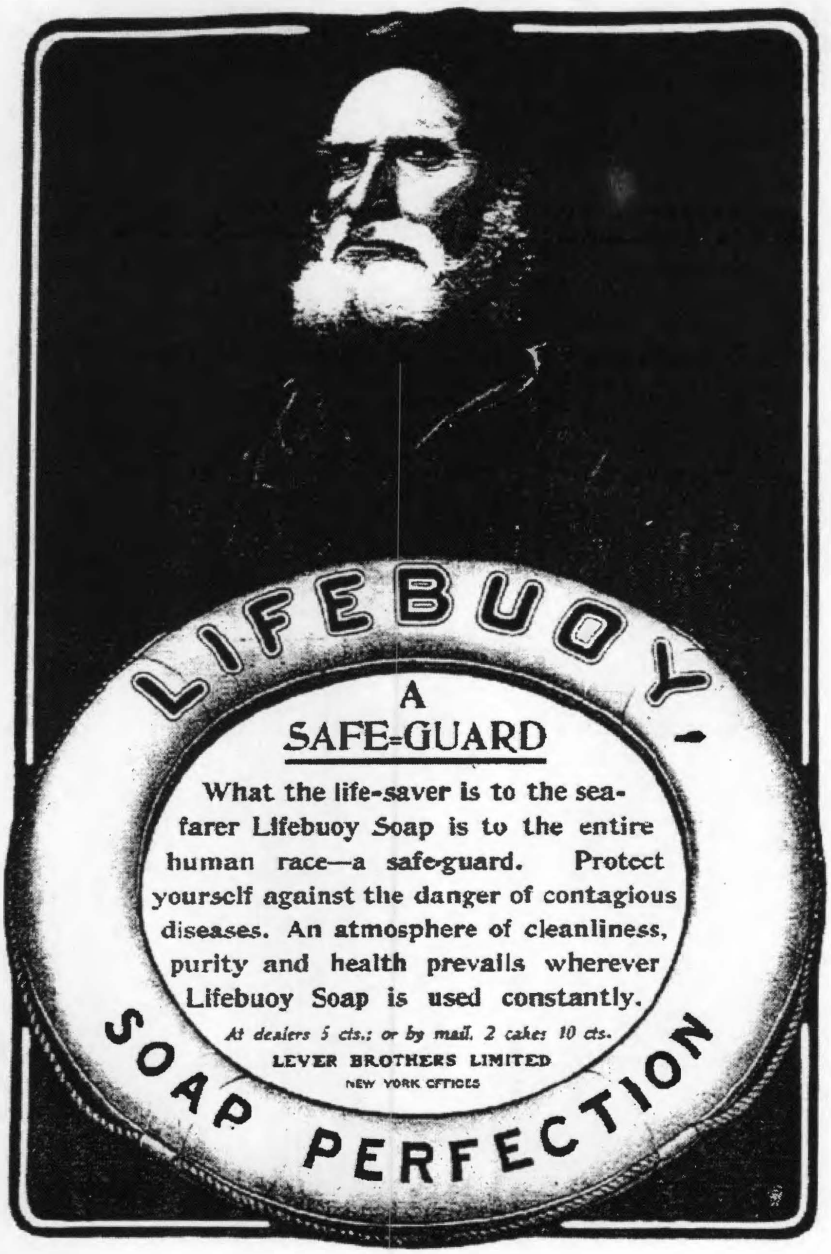

Figure 3.2: A Safe-Guard.

Source:
Good Housekeeping. January 1903. Vol. XXXVI, #1. Front Leaf.

Figure 3.3 marks a turning point in the pattern of early advertisements seen thus far; ads that emphasized the fear of contagious disease. The original advertisement is rather small, and is shown in a cluster of other typical advertisements of 1905, including one for a water closet. Pears' soap "is the great alchemist. Women are made fair by its use." The language of the ad belies its small size. The use of the term "alchemist" is interesting as it implies the magical quality of being able to turn lead into gold, or perhaps the lonely spinster into the belle of the ball. The promise of beauty is an emotional appeal, and a very clear one at that. Also, the small print indicates that Pears' soap has sold continuously since 1789. The indication that this product has sold continuously implies a successful business; one perhaps that a consumer can trust.

Figure 3.4 is for Sweetheart soap. This advertisement, like the previous one, is rather simple in its message. The very name of the soap implies romance. The addition of the term "toilet soap" is also interesting. Thus far, in this survey, this advertisement distinguishes between types of soap. Where the first advertisement focused on infant's garments and the purity of a soap, the second focused on cleanliness in general and the escape from contagious disease, and the third focused on the magical quality of fairness, this advertisement explicitly states Sweetheart soap is made exclusively for bathing the body.

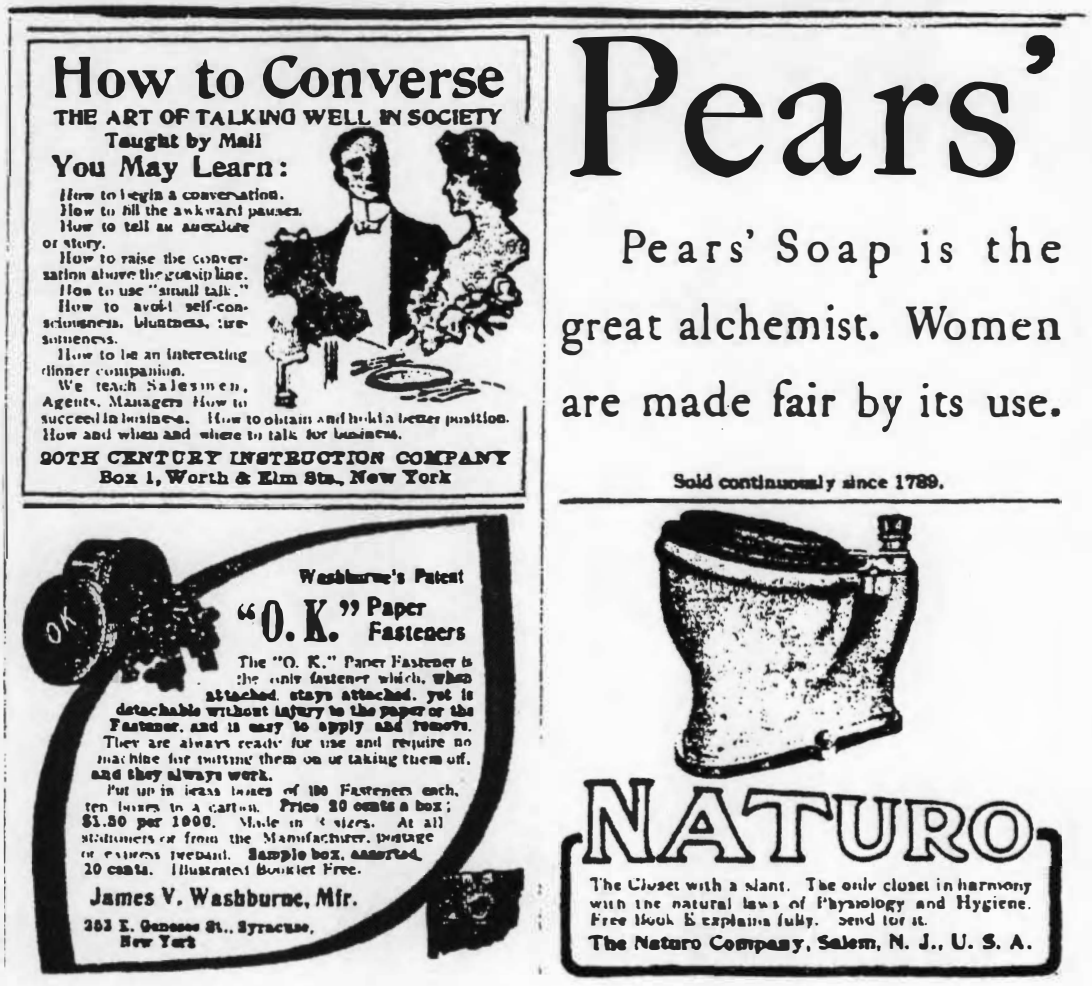

Figure 3.3: Women Are Made Fair By Its Use.

Source:
Saturday Evening Post. November 18, 1905. Vol. 178, #2. Page 39.

Figure 3.4: Used Wherever Clean People Are.

Source:
Ladies' Home Journal. May 1909. Vol. XXVI, #6. Page 82.

Furthermore, the exhortation that this soap is used "wherever clean people are" implies to the consumer that "clean people" is a desirable category in which to belong. The very shape of the bar of soap, the ornate curlicues and the oval shape, implies a quality of femininity. The emotional appeal is quite clear; if one desires a mate, one should bathe the body with Sweetheart soap.

Figure 3.5 entices the consumer with a desirable fragrance. Soap manufacturers have long known that the addition of palm oil gave soap an unintentional violet scent (Schisgall 1981:11). The strong glycerin content resulted in a transparent soap. The advertisement describes the color of the soap as green and translucent, and that by washing "your hands, your face, your hair" with Jergens Violet Glycerin Soap the consumer would enjoy the scent of "*real*" violets [emphasis in original]. The illustration heading the advertisement features a beautiful, young woman with clear and glowing cheeks, and a revealing plunging neckline. This advertisement uses the lure of scent to give an impression of romance. The appeal to consumers targets their desire to smell good in an attempt, perhaps, to increase their charm.

Figure 3.6 is a return to advertisements that target mothers. In this advertisement, Lifebuoy soap claims to be "the best soap for babies because it cleans and disinfects at the same time. Infection is childhood's constant menace. Children who are easy prey to the

Figure 3.5: Smell it! The Moment You Do You Will Want It.

Source:
Saturday Evening Post. March 15, 1913. Vol. 185, #37. Page 47.

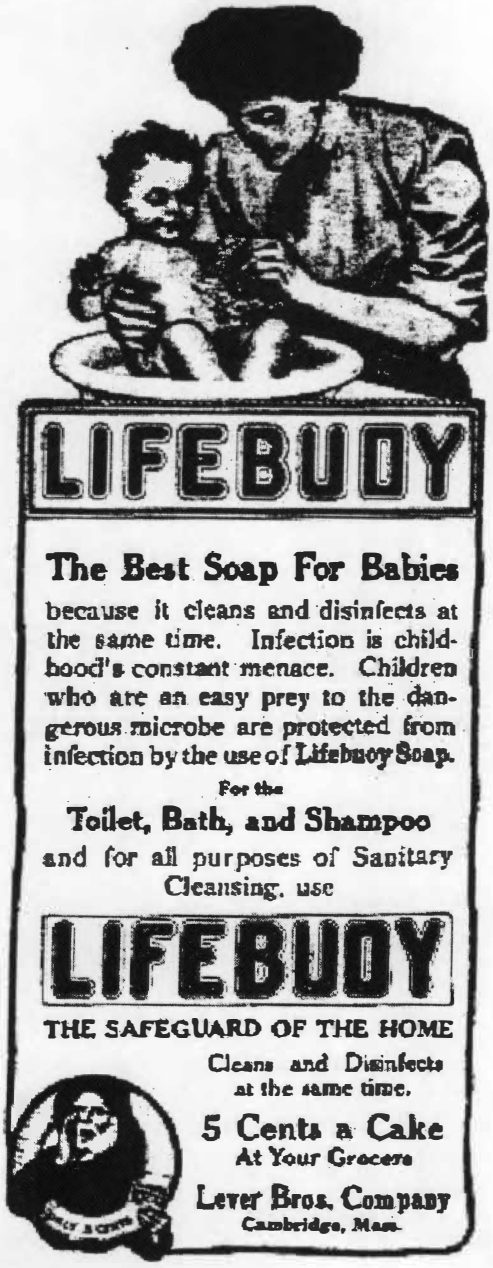

Figure 3.6: The Best Soap For Babies.

Source:
Ladies' Home Journal. March 1909. Vol. XXVI,#4. Page 70.

dangerous microbe are protected from infection by the use of Lifebuoy soap." Again, the message is emotional and exploits the relatively new disease theory linking "microbes" with "infection." The attempt to merge "disinfectant" with "soap" is clearly discernible. A soap that offered a disinfecting quality would certainly appeal to any mother who was concerned with warding off the diseases of infancy. This advertisement states that washing a baby with Lifebuoy soap not only cleans the baby, but protects against deadly disease.

The advertising campaign for soap during the era 1890 through 1909 in the United States focused on exploiting the fears of the American consumer. Specifically, the newly emerging germ theory contributed to the language and sales-tactics contained within the soap advertisements. The pattern of appeal to consumers via the microbe is significant. The fear of contagious disease is a demonstrably important cognitive construct in the American psyche. Products which were perceived as being able to confer health to the consumer (soap, disinfectants, showering devices, etc.) all capitalized upon the emotion of fear. As infant mortality rates of the time suggest, such fears were indeed well founded.

Figure 3.7 marks another transition in the theme of advertising. The questions, "what has he said to her?" and "does your glowing face cause an exclamation of pleasure?" remain unanswered. Here the reader

What has he said to her?

Brilliant lights revealing every grace and every flaw; eyes fixed upon you ready to admire—can you face them unembarrassed?

Don't spoil your evening wondering about your complexion. Descend the stairs to meet your friends radiant and blooming—thrilled by the knowledge that you are looking your best.

You can have this confidence

Any young girl has a right to a soft glowing skin. Youth should not endure the thought of wrinkles, of colorless faces, of blemishes of any sort. Constant care of the skin in youth insures a clear, fresh complexion later.

You can make your skin what you will. Nature does her part. You can do the rest. Every day the old skin dies and new skin forms in its place. What this new skin is

Does your glowing face cause an exclamation of pleasure?

depends on the care you give it.

Skin specialists say that the best way to build up a clear, beautiful complexion, to keep the skin in a healthful, active condition, is by proper cleansing and stimulating treatments with a soap carefully prepared to suit the nature of the skin.

Woodbury's Facial Soap was prepared by a skin specialist after 30 years of experience with the skin and its needs.

Let this treatment give you the charm of a flawless skin

Begin tonight to get the benefits of this skin specialist's soap for your skin. Use this Woodbury treatment every night and watch your skin lose every flaw; watch it take on a smooth texture, a soft glowing color.

Lather your washcloth well with Woodbury's Facial Soap and warm water. Apply it to your face and distribute the lather thoroughly. With the tips of your fingers work this cleansing antiseptic lather into your skin, always using an upward and outward motion. Rinse with warm water, then with cold—the colder the better. If possible, finish by rubbing your face for a few minutes with a piece of ice. Always be careful to dry your skin well.

A 25 cent cake of Woodbury's Facial Soap is sufficient for a month of this treatment. Get a cake today. It is for sale at druggists' and toilet counters everywhere in the United States and Canada. Watch your skin gradually improve so you can face the most glaring light, the most critical eyes—confident of its smoothness and freshness.

4c brings you a week's treatment

For 4c we will send you a sample cake of Woodbury's Facial Soap large enough to last a week. Write today. Address The Andrew Jergens Co., 101 Spring Grove Ave., Cincinnati, Ohio.

If you live in Canada, address The Andrew Jergens Co., Ltd., 101 Sherbrooke St., Perth, Ontario.

For sale wherever toilet goods are sold

Figure 3.7: What Has He Said To Her?

Source:
Ladies' Home Journal. January 1918. Vol. XXXV, #1. Page 58.

is invited to step into the scenario and invent her own answers to the first question. The second question is meant to be rhetorical. The smiling woman descending the staircase is young and her skin is flawless. She is well-dressed, her hair is up, and she carries herself gracefully. The well-groomed gentleman who watches her descent seems enchanted. Interestingly, the consumer can clearly see her face, while the gentleman's face is turned away from the reader. The reader is told "you can have this confidence," presumably the same confidence seen in the descending figure. "Let this treatment give you the charm of a flawless skin" informs the reader that this is not merely a toilet soap, but a beauty regiment that will confer not only beautiful skin, but charm as well. The emotional appeal is that of desirability; gentlemen will be drawn by a young woman's charm, confidence, smile, glowing skin, beauty—all of which result from the use of Palmolive soap. One who wishes to be perceived with these attributes would do well to bathe with this soap which gives "a skin you love to touch."

Figures 3.8 is more explicit than the preceding advertisement. In this advertisement for Palmolive soap, the young lady is called "the prettiest girl in her set." Her cheeks glow with a fetching blush, and she passively gazes into a mirror. According to Ewen (1976), mirrors were a recurring symbol in the advertisements of the 1920s. Women in the advertisements were "constantly observing themselves, ever-critical" of

Figure 3.8: The Prettiest Girl In Her Set.

Source:
Ladies' Home Journal. January 1925. Vol. XLII, #1. Page 41.

their appearance (Ewen 1976:177). Her arms, chest, and neck are exposed. Her hair is "bobbed" in a modern style of the mid-1920s. Butterflies often symbolize transformation, in this case, the transformation of a young lady into a desirable mate.

The language of the advertisement is very direct. The "prettiest girl in her set" is the prettiest because she "makes the most of her attractions —[by] protecting the good complexion nature gave" and in so doing, she "assures beauty and happiness in the future." This advertisement explains that those fortunate enough to have been blessed with beauty should guard against aging and blemishes, and those not so fortunate "should make the most of assets nature gave them". The advertisement also explains that "*every* woman may have a clear, wholesome skin [emphasis in original]." Also note that "happiness is more necessary to a woman...than a man," and that the "girl who is beautiful in simple, unaffected ways is sought by everyone. 'The most popular girl in her set' is usually the happiest girl." The reader of this advertisement quickly equates a good complexion with beauty and beauty with happiness. After all, "what woman can be happy who is unattractive?" The message seems more than clear.

Conclusion

To summarize, Figure 3.1 (The Most Delicate Of All Delicate Things), Figure 3.2 (A Safe Guard), and Figure 3.6 (The Best Soap For Babies) all address the emerging germ theory. Again, Proctor and Gamble emphasized the purity of Ivory soap by warning the consumer that other "impure" soaps made from the tallow of diseased cattle may actually be a causative agent of disease. The inclusion of the authority figure, the mother, and the infant form a tableau which speaks directly to the fears of mothers in general. Lifebuoy, however, focused on a sanitary campaign which included the concept of "safe-guarding" the entire human species from contagious disease. Later, Lifebuoy decreed that their product was a disinfecting agent which could protect infants against the menace of infections.

It is clear that the patterns of advertising were in a process of change. Figure 3.3 (Women Are Made Fair By Its Use) and Figure 3.4 (Used Wherever Clean People Are) are the early heralds of the change which was to follow. The former advertisement alludes to the magical quality of becoming beautiful. By using this soap, one would be transformed; a woman would be "made fair." The latter, by the very name and the feminine shape of the product, proclaims to the consumer that romance is awaiting those who use Sweetheart soap. These

advertisements target the feminine attributes of beauty and desirability. A woman who is "fair" is desirable. When one bathes with Sweetheart soap, one is associated with "clean" and desirable people.

The pattern which is discernible in the last set of advertisements, published between 1913 and 1925, also addresses the concern of young women who wish not only to acquire, but to keep, their natural beauty. Figure 3.5 (Smell It! The Moment You Do You Will Want It.), Figure 3.7 (What Has He Said To Her?), and especially Figure 3.8 (The Prettiest Girl In Her Set) illustrate that soap was not just perceived as a method whereby one could secure health and physical well-being. Soap was the young woman's ally in securing the elusive quality of beauty. The woman's complexion and beauty are firmly tied to her destiny. The "prettiest girl" is the one destined to be blessed with "happiness." The young lady who is delicately perfumed with the "real" scent of violets is, presumably, more alluring than one who is not perfumed. Finally, the confident, graceful woman who descends the staircase has a face which causes an "exclamation of pleasure." Beauty, grace, confidence, happiness, and pleasure are promised to those who use soap as a beauty treatment.

The last set of advertisements are, perhaps, the most obvious example of advertising that addressed "somatic and reproductive success" as well as the concerns of "locating and securing a mate" (Logan

1993:504). However, the first set of advertisements, those which tell the consumer to wash an infant's garment in a pure soap, to guard against contagious disease, and that soap will act as a disinfectant for babies, also illustrate reproductive success. The simple use of soap was an avenue by which mothers could reduce the chance of infant death caused by infectious disease.

Reproductive success or fitness pertains to an "individual's relative genetic contribution to future generations" (Logan and Qirko 1996:616). Both personal hygiene and the use of soap are adaptive behaviors. Irons states that adaptive behaviors "revolve around aiding relatives, choosing mates, seeking wealth and status, and parenting strategies" (Irons 1996:3). Parenting strategies which include keeping an infant clean, as well as keeping the mother's hands and breastfeeding areas clean, also vouchsafed a reproductive advantage. The culture of personal cleanliness promoted through the medium of soap advertising conferred reproductive advantage in that it significantly reduced infant mortality.

CHAPTER IV

THE DECLINE OF INFANT MORTALITY RATES IN THE UNITED STATES AND THE UNITED KINGDOM, 1890-1920

Introduction

The accuracy of early infant mortality figures for the United Kingdom and the United States have been the subject of intense scholarly debate. Before 1900, data on the causes of infant death were not precise. Only after the formation of the Death and Birth Registration Areas was reporting improved. Recently, data from the 1900 Census of the United States were re-analyzed by Preston and Haines (1991), giving researchers a reliable estimate for infant mortality figures prior to 1915. After 1915, analyses of infant mortality rates for the United States are drawn primarily from Woodbury (1926). Newman (1906) provides analyzed mortality figures for infants in the United Kingdom (from the 1890s until the early 1900s). Greene (1984) provides detailed information on infant mortality rates for both countries.

The declining infant mortality rates for both the United States and the United Kingdom during the latter decades of the nineteenth century and the first decades of the twentieth century will be presented. This

chapter will explore one of the most insidious (and incidentally, one of the most preventable) cause listed for infant death during this era: diarrhea associated with enteric infections. Lastly, the increased use, production, and popularity of soap during this era will be explored. Then, these changes in perspective about hygiene will be placed inside the context of infant health.

Infant Mortality Rates and Data for the United States

Infant mortality rates are defined as "the proportion which the deaths of infants under one year of age bears to each one thousand births occurring *in the same* area and during the same period of time [emphasis in original]" (Baker 1925:138). Although accurate data for the United States after 1915 are readily available, mortality rates before this period have long been problematic. Preston and Haines state that "little is known about the trends, levels, and differentials in American mortality in the nineteenth century. It is not altogether clear when or even whether mortality declined in the United States during the period" (Preston and Haines 1991:51). However, according to Preston and Haines (1991), by employing the 1900 census, it is possible to estimate levels of child and infant mortality in the decade 1890-1900. After the formation of, first, the Death Registration Area (1900), and later, the

Birth Registration Area (1915), data on infant mortality become significantly more reliable.

The Data from the Death and Birth Registration Areas

The Death Registration Area [DRA] was formed in 1900. The DRA in 1900 contained 26.3 percent of the population of the United States. This percentage of the population represents a demography which was "significantly more urban than the nation as whole" (Preston and Haines 1991:49). In 1900, the DRA covered ten states and the District of Columbia. The data from the DRA consists of death statistics, including cause of death. These data become useful for establishing trends in the cause and rates of infant death.

In 1915, the Federal Bureau of the Census began to publish information on birth statistics for the Birth Registration Area [BRA]. The BRA comprises an area "which, in the judgment of the bureau, birth registration was at least 90 percent complete" (Woodbury 1926:3). In 1915, this area included 10 states and the District of Columbia, and represented 31 percent of the population. Woodbury (1926) cautions that birth registration information before 1915 is incomplete. Although the data gathered prior to 1915 may not represent an adequate sample from birth data, the decline in infant mortality seen after 1915, Woodbury (1926) states, should be thought of as an adequate sample to

discern the decline in infant mortality rates after 1915, as well as for analysis of the principal causes of death. By 1921, the BRA had enlarged to include 29 states and the District of Columbia, and comprised 60 percent of the population. Finally, in 1933, the BRA encompassed the entire continental United States (Brust 1950:17).

To summarize, the sources of data concerning both the rate of infant deaths, as well as causal factors in these deaths, come from three sources. First, Preston and Haines (1991) provide estimates of rate and cause of infant deaths from 1880-1900 based on data gathered from the 1900 Census. Data from 1900-1915, again, from Preston and Haines (1991), are based on the DRA. Finally, Woodbury (1926) provides data from the BRA after 1915 until the 1920s. Baker (1925) also provides information from 1915 until the mid-1920s.

The figures in Table 4.1 are gleaned from the above sources. These figures represent infant mortality rates for the United States. These data show a gradual decline in infant mortality rates. During the 1880s, levels of infant mortality for both males and females are considerable. After 1880, the infant mortality rate declines. Overall, the infant mortality figures for both males and females are reduced by more than half between 1880 and 1921. The increase seen in 1918 is due to the influenza epidemic that ravaged the United States (Woodbury 1926:13).

Table 4.1: Estimates of Infant Mortality in the United States, 1850-1921.

Source	Period	Sex	Rate
Preston and Hains (1991)	1880	M	220.15
		F	229.80
Preston and Hains (1991)	1890	M	163.34
		F	157.65
Preston and Hains (1991)	1900	M	133.56
		F	124.76
Greene (1984)	1901-1910		147
Baker (1925)	1916		101.2
Baker (1925)	1917		93.8
Baker (1925)	1918		100.9
Baker (1925)	1919		86.6
Baker (1925)	1920		85.8
Baker (1925)	1921	M	83.5
		F	67.3
Woodbury (1926)	1921		78.67

Sources:

Baker, Josephine
1925 Child Hygiene. New York: Harper & Brothers, Publishers; pages 146, 152.

Greene, V. W.
1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association; page 5.

Preston, Samuel H., and Michael R. Haines
1991 Fatal Years: Child Mortality in Late Nineteenth-Century America. Princeton, NJ: Princeton University Press; page 53.

Woodbury, Robert Morse
1926 Mortality and Its Causes: With an Appendix on the Trend of Maternal Mortality Rates in the United States. Baltimore, MD: The Williams & Wilkins Company; page 19.

Infant Mortality Rates for the United Kingdom

Newman (1906) details the status of infant mortality rates in England and Wales, primarily during the period 1883-1903. Newman (1906:6) states emphatically that the infant death rates during this era, in the United Kingdom, despite appearances, were actually stationary. Newman (1906:3) also states that the apparent decline is attributable to the reduced birth rate.

The decline in infant mortality, as illustrated in Figure 4.1, shows that the reduction in infant deaths was soon to gain enormous momentum in both the United Kingdom and in the United States after 1900. Figure 4.1 illustrates the profound decline in infant deaths in Great Britain, Massachusetts, and Newark, New Jersey. Note the decline in Massachusetts during 1890-1900 and the decline in Great Britain in 1900-1910. Newark exhibits the most profound decline in infant mortality.

The infant mortality rates for this period are given in Table 4.2. It becomes clear that the infant mortality figures given after 1900 show a sharp decline. In the United Kingdom, as in the United States, the decline appears dramatic after 1900. The decline in infant mortality in the United Kingdom fell by half during the period 1881-1923 (Baker 1925:155).

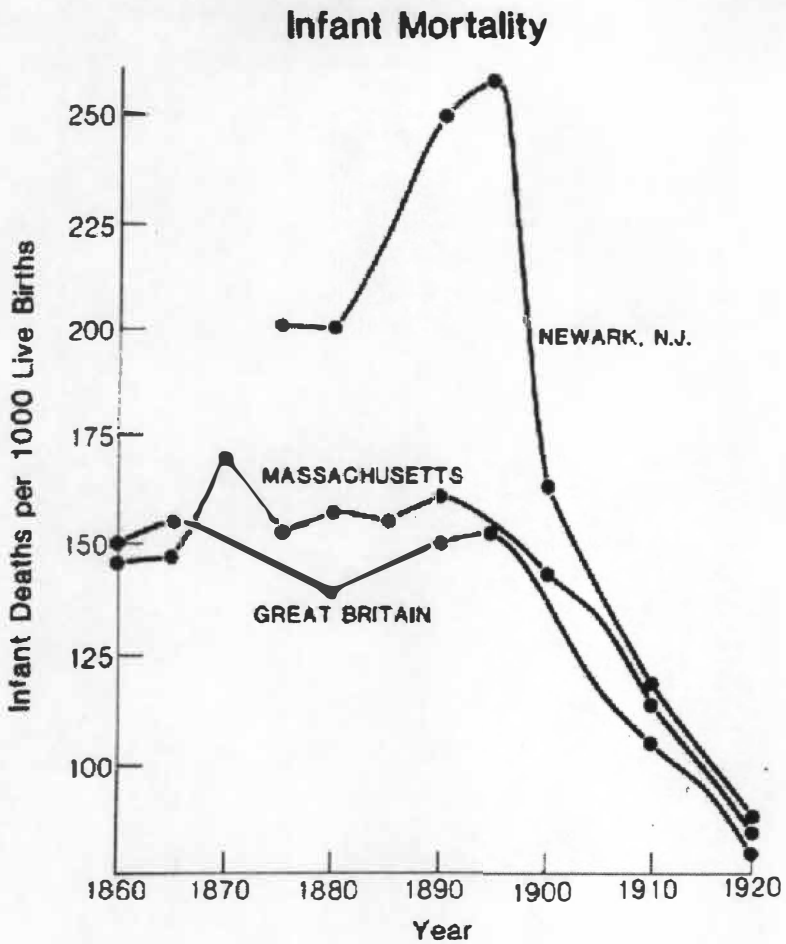

Figure 4.1: The Decline in Infant Mortality in Great Britain, Massachusetts and Newark, NJ, 1860-1920. Reproduced by permission of the Soap and Detergent Association.

Source:

Greene, V. W.
1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association.

Table 4.2: Infant Mortality Rates for England and Wales, 1883-1903.

Source	Period	Infant Mortality Rates	
		England and Wales	London
Newman (1906)	1881-1890	142	152
Newman (1906)	1891-1900	154	160
Newman (1906)	1900-1905	138	141
Baker (1925)	1911	130	129
Baker (1925)	1912	95	91
Baker (1925)	1913	108	105
Baker (1925)	1919	89	85
Baker (1925)	1920	80	75
Baker (1925)	1920	83	80
Baker (1925)	1922	77	74
Baker (1925)	1923	70	60

Sources:

Baker, Josephine
1925 Child Hygiene. New York: Harper & Brothers, Publishers; page 155.

Newman, George
1906 Infant Mortality: A Social Problem. London: Methuen and Co.; page 3.

Figure 4.2 summarizes the decline in infant mortality in both the United Kingdom (from 1840-1980) and the United States (from 1910-1980). Note the decline for the United Kingdom begins during the 1890s and continues a sharp decline until 1910. The decline in infant mortality in the United States, however, begins in 1910 and shows a very pronounced drop until 1925.

Declining Infant Mortality from Gastro-Intestinal Disease and Improvements in Personal Hygiene

Unquestionably, the years between 1890 and 1920 witnessed a change in both public and private hygiene. When infant mortality figures for 1890-1910 are examined, it becomes clear that a decline in gastro-intestinal disease occurred. In the United States, this trend is amply illustrated. Gastroenteritis "includes all forms of acute diarrhea and enteritis that are not due to dysentery, typhoid fever, or other clearly defined epidemic diseases" (United Nations 1954:47). The most germane cause of diarrhea, in this discussion, is Enteropathogenic *Escherichia coli.* Transmission of this bacteria is from mother to infant. The infection may occur at delivery, or via the fecal-oral route. Gastroenteritis is "in the great majority of cases, a disease of lack of cleanliness" (United Nations 1954:47). Poor hygienic practices,

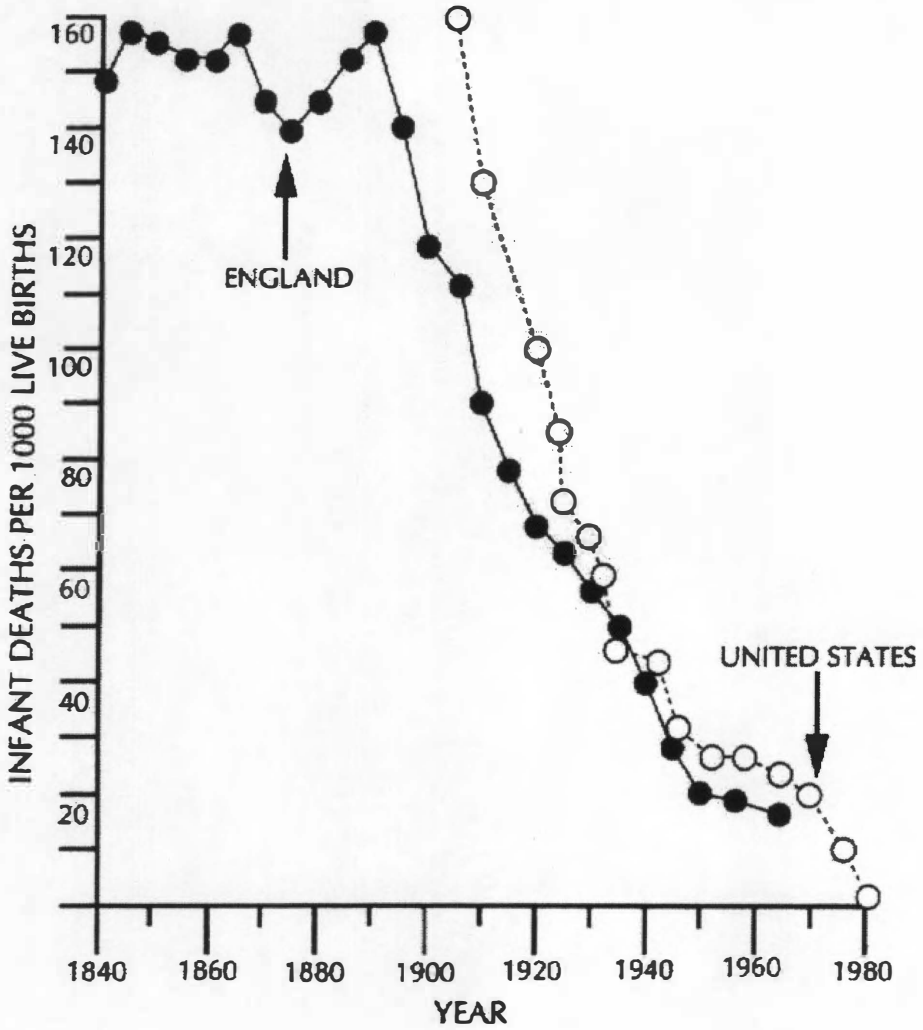

Figure 4.2: The Decline of Infant Mortality Rates in the United Kingdom and the United States. Reproduced by permission of the Soap and Detergent Industry Association.

Source:

Soap and Detergent Industry Association.

1996 Health and Hygiene. Detergent Industry Information Bureau. Soap and Detergent Association, United Kingdom; page 3.

especially lack of handwashing after contact with feces, contributes to the occurrence of this disease (Greene1984:33).

In 1907, mothers were told that important considerations in breast-feeding an infant were "regularity" and that the "nipples should be kept clean by being washed *after* every nursing" [emphasis mine] (Holt 1907:44). By 1909, however, mothers were instructed that nipples should be washed with boric acid solution, or sterile water, before and after each nursing (Schereschewsky 1909: 709). Thus, cleaning the breast before nursing was clearly advocated by the end of the first decade of the twentieth century.

The risk of transmission of bacteria to an infant from the mother during breastfeeding could have disastrous effects on the infant's health (Soap and Detergent Industry Association 1996:8). "The greatest cause of infant diarrhea," according to Greene, (quoted without citation in Stuller [1992:133]) "came from mothers who went to the toilet, didn't wash their hands and passed along intestinal bacteria to their babies." Improvements in personal hygiene "helped most—in 1915—to displace diarrhea as the leading cause of infant death in the United States" (Stuller 1992:133).

Greene (1984) discusses the role that personal hygiene played in the reduction of infant deaths, particularly deaths that fall under the category of diarrhea. Greene (1984) maintains that "the dramatic and

welcome decrease in infant mortality from 179/1000 [live births] (in 1850) to 50/1000 [live births] (in 1940)—literally hundreds of thousands of lives per year—*can be attributed mainly to the decline of a disease that is prevented by personal hygiene...*" [emphasis in original] (Greene 1984:47). An examination of Figure 4.3 permits the following statements. Until the end of the first decade of the twentieth century, the most important cause of infant deaths is directly linked to diarrhea or gastro-intestinal diseases (Wyman 1909:15). The "control of diarrhea—a disease attributable to poor hygiene—is the best rational explanation for the dramatic decline in infant mortality until the 1930s" (Greene 1984:46).

Conclusion

How great was the decline in infant deaths from diarrhea? According to Preston and Haines (1991:4-5), in 1899-1900, 60,524 infants died in the United States. Of those infants, 15,112 or 24.97 percent, died from gastro-intestinal diseases. Baker established that in 1921, 129,588 infants died. Of those, 24,846 or 19.2 percent died from gastro-intestinal diseases (Baker 1925:87). Woodbury (1926) states that between 1915 and 1921, there was a 34.6 percent decrease of infant deaths due to gastric and intestinal diseases. Further, when these

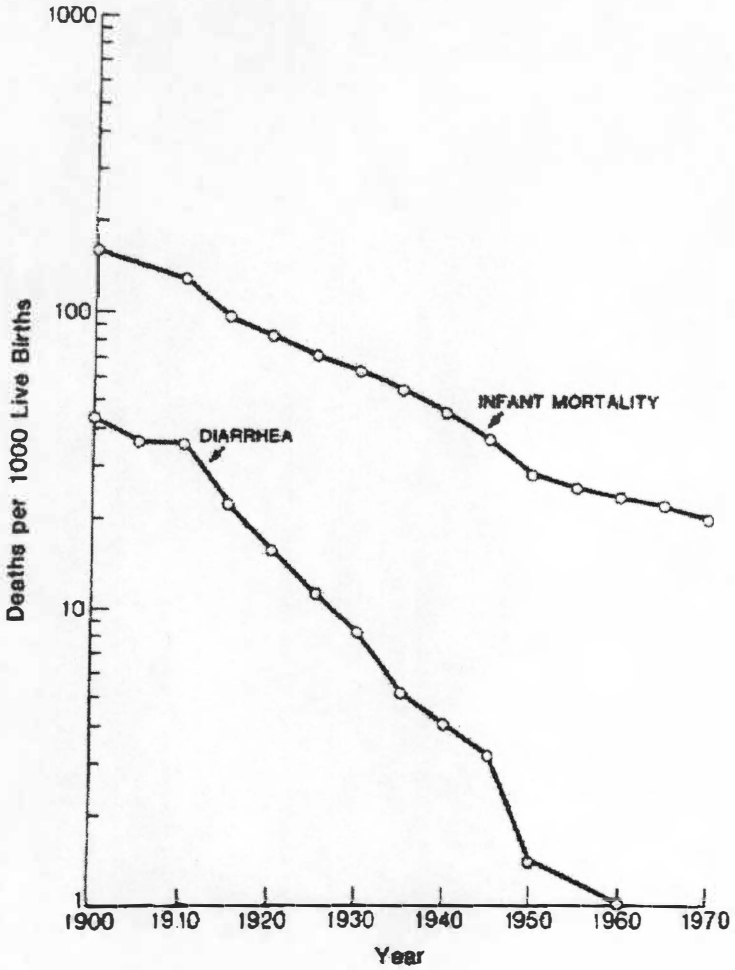

Figure 4.3: Comparison of Infant Mortality Rates and Diarrheal Deaths, 1900-1970 in the United States. Used by permission of the Soap and Detergent Association.

Source: (adapted from)

Greene, V. W.

1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association; page 48.

statistics from 1915-1921 are applied to children in urban areas, a decrease of 40.8 percent is seen. For rural children, the decrease is 21.9 percent (Woodbury 1926:10).

The evidence from all data sources utilized here makes one point abundantly clear: infant mortality rates for both the United States and the United Kingdom begin to show significant declines during the decade immediately preceding and following the turn of the century, i.e. 1890 for the US and 1900 for the UK until 1915. These two decades are of paramount importance in discerning the effect both personal hygiene and increasing soap consumption played in daily life, and how in turn these behavioral changes affected infant mortality. Indeed, Greene claims:

> Handwashing and bathing, it must be remembered, decrease the potential transmission to infants of diarrhea agents, which liberally contaminate the skin (hands and breasts) of women who don't wash their hands adequately after defecation. The simple availability of soap, hot water, clean towels, and above all, the development of a personal hygiene consciousness probably did as much to control infant diarrhea as all of the other medical advances in history (Greene 1984:48).

The decline in infant deaths owing to a class of causes generally referred to as "gastric and intestinal diseases" (Woodbury 1926:10) were certainly related to the improvements in personal hygiene.

Changes in hygienic practices during the end of the nineteenth

century and the beginning of the twentieth century are readily apparent. For example, the study of the production of soap can yield clues that illuminate these changing norms regarding cleanliness. Greene (1984:39) gives the following data: in 1859, Americans spent 19 million dollars on soap. By 1899, 53 million dollars were spent on soap. In 1904, various manufacturers produced 700,000 tons of soap. Per capita use of soap was 8.4 kilograms [kg] per year. In 1914, one million tons of soap were produced. The per capita use was 10 kg per year; and Americans spent 129 million dollars annually on soap. By 1919, American manufacturers produced almost 2 million tons of soap, supplying 16 kg/per capita. Between 1904 and 1919, soap use per capita almost doubled. Production of soap almost doubled. Millions of dollars spent a decade earlier on soap more than tripled by 1919.

Perhaps more telling than the figures of production given above, the popularity of soap is also reflected in various items obtained through premium offers. Lief provides this example of a premium offer featuring "a miniature facsimile of an Ivory cake in celluloid...it was worn galore by the gallants. On college campuses students sported it as they did a Phi Beta Kappa key" (Lief 1958:69). This example illustrates that soap was not viewed strictly as a necessity; soap was popular. The popularity of this product, though, owed to advertising and profit seeking. Cultures, after all, are interrelated systems.

CHAPTER V

CONCLUSIONS

Introduction

The Health Revolution played a profound role in reducing the incidence of communicable diseases. By implementing large-scale sewage systems in urban environments, by stripping urban streets and alleys of massive amounts of garbage, and by the construction of municipal water supplies, American and British cities were poised to accomplish a revolution in the standards of living. The revolution was to have many penetrating impacts on the inhabitants of urban environments.

The reduction of infant mortality rates, the reduction of massive and deadly epidemics, and a general increase in human longevity can be attributed to the technological innovations which occurred during the 1850s and continue until the present. However, the technological innovations in and of themselves might not have had such an impact were it not for the fact that they enabled, for the first time since the height of the Roman Empire, a means by which the masses could avail

themselves to the simple act of bathing.

The Industrial Revolution, which certainly played a role in drawing people to urban environments, also provided soap, toilets, and bathtubs. Not only did major industries manufacture soap, they also promoted their products through the newly emerging national magazines. Advertisement of soap products targeted their consumers through the emotional fear of contagion, and later, through the emotional appeal of beauty. Soap advertisements accomplished two main goals. First, the American consumer was compelled to buy soap to ward off death and disease as well as beautify the body. Second, as an agent of socialization, advertisements educated the masses that cleanliness was of paramount importance—a goal of cleanliness that was to be sought at every moment. Failure to do so would only bring loneliness and failure.

A cleaner urban environment, and the promotion of soap and hygiene in general, played a definite role in reducing infant mortality; specifically those infant deaths which were the result of diarrhea. These factors, it can be argued, were all intertwined. By teasing out these separate strands of a tapestry, it is possible to show a causal association. Technology enabled the Health Revolution. The Health Revolution and the consciousness of cleanliness affected sales of soap. Soap played a major, largely unrecognized, role in reducing infant death.

Methodology

How is it possible to show that these factors are linked by more than association? How does the associative argument evolve into a cause-effect argument? The answer lies in data that clearly demonstrate a causal relationship. By following the methodology outlined by Greene (1984), this thesis centers around the hypothesis that a cultural change pertaining to public and personal hygiene significantly altered earlier patterns of health and disease.

Biological Factors

Epidemiological evidence which supports the hypothesis that improved hygiene contributes to lowered infant mortality is readily available. The American Public Health Association handbook on Control of Communicable Diseases in Man lists at least 40 diseases whose prevalence rates can be decreased by improving public and personal hygiene (c.f. Puffer and Serrano 1975). Of these, perhaps the most germane to this discussion is diarrhea, particularly that associated with *Escherichia coli*. Concerning the former, a common mode of transmission is from mother to infant. Infants can also auto-infect by hand to mouth contact. Infection may occur at delivery, or via the fecal-oral route associated with changing diapers, then nursing or otherwise feeding the

infant. Poor hygiene practices, especially lack of handwashing after contact with human wastes, contributes to the risk of this disease, which can produce a fatality rate up to 40 percent of all cases (Greene 1984:33).

Temporal Association

Another epidemiological criterion, timing, is an important component for strengthening the plausibility of the hypothesis presented here. Did the noted improvements in health occur after the changes pertaining to hygiene? The answer is yes. Using the history of Proctor and Gamble as an example, we can state that soap was commercially available in the United States as early as the 1830s. By the early 1880s, P&G began advertising their famous soap, Ivory. Schisgall (1981:34) states that these early ads were "enormously effective." Soap consumption per capita increased from 8.4 kg (1904) to 16 kg (1919) (Greene 1984:39).

The technological innovations brought about by the Health Revolution (i.e. sewage disposal, low-weight bathtubs, hot water heaters, etc.) changed the normative behaviors regarding bathing. Once seen as impracticable to the extreme, bathing simply was not a part of the "folk culture" (Greene 1984:35). During the latter years of the 1890s and early 1900s, however, "daily bathing had become a cardinal virtue"

(Eberlein 1978:340).

Other evidence concerning the concept of keeping infants clean can be gleaned from the so called "baby-care books." In 1907, mothers, and others who cared for infants, were told that important considerations in breast-feeding an infant were "regularity" and that the "nipples should be kept clean by being washed *after* every nursing" [emphasis mine] (Holt 1907:44). By 1909, however, mothers were instructed that the mother's nipples should be washed with boric acid solution, or sterile water, *before* and after each nursing [emphasis mine] (Schereschewsky 1909: 709).

Specificity of the Association

The third criterion of epidemiological plausibility is specificity of the association. The question under consideration is this: is this a unique association or is the same effect attributable to different causes? The decline in infant mortality from gastroenteritis can be attributed to two main causes. The first cause is a public heath classic: pasteurization of milk. Scholars writing about infant mortality during the early 1900s emphasized the differential mortality in breast versus artificially fed infants (c.f. Woodbury 1926). Schereschewsky (1909:691-693) presents infant mortality figures from other nations that are, frankly, horrifying. For example, the death rate for infants under one

year during the period 1892-1897 due to diarrhea in France was 385 per thousand live births. In 1905, some districts in France had an infant mortality rate, from diarrhea, in excess of 600 per thousand live births. In Germany (1905-1906), of all infant deaths, 44 percent resulted from diarrhea.

As stated in Chapter IV, Preston and Haines (1991:4-5) argue that in 1899-1900, 24.97 percent of infants died from gastro-intestinal diseases. Baker established that in 1921, 19.2 percent of infants died from gastro-intestinal diseases (Baker 1925:87). Between 1915 and 1921, there was a 34.6 percent decrease in infant deaths due to gastric and intestinal diseases (Woodbury 1926 16-17).

Pasteurization of milk was not common before 1910. In 1911 only 15 percent of the milk supply sold in New York was pasteurized. In 1908, pasteurization was made compulsory in Chicago (Centers for Disease Control 1999b:850); prior to that date, only one-fifth of the milk sold in Chicago had been pasteurized. Pasteurization was made compulsory in New York in 1912. Greene (1984:48) argues that the "1910-1920 decade was the earliest with sufficient consumption of pasteurized milk to impact significantly on the infant mortality rate". The marked decline in infant mortality between 1890 and 1915 may have resulted from another cause. It is plausible that cleanliness, personal hygiene, and handwashing are the hidden saviors of infants. As soap

consumption increased, infant mortality rates from gastroenteritis decreased *before* the advent of compulsory pasteurization of milk.

Consistency of Association

The fourth criterion of epidemiological plausibility is consistency of association. The question addressed here can be stated simply: has the same association been observed among different populations, at different times, in different countries, by different researchers, and determined by different research designs? Again, the answer is yes. In the late 1960s and continuing throughout the 1970s, the United States Department of Health, Education and Welfare published studies on the health profiles of several countries. Their series, entitled *Syncrisis: The Dynamics of Health, An Analytical Series on the Interactions of Health and Socioeconomic Development*, contains volumes on the following countries: Afghanistan, Ethiopia, Haiti, Nicaragua, and Zaire. Greene (1984) lists the per capita soap and detergent consumption figures for these nations from approximately the same time that these studies were conducted. Therefore, these nations have been selected for discussion here.

Afghanistan, in 1978, had an infant mortality rate of 180 per thousand live births (U.S. Department of Health, Education, and Welfare 1978:xi) and only a "few years previously it was believed to have been as high as 500/1000 live births" (U.S. Department of Health, Education,

and Welfare 1978:9). Children under five accounted for 68 percent of all deaths. Measles, diarrhea, and pneumonia claimed 63 percent of infants and children under age five (U.S. Department of Health, Education, and Welfare 1978:6). The high percentage of infant, child and maternal deaths "derive in large measure from the lack of adequate environmental sanitation and personal hygiene" (U.S. Department of Health, Education, and Welfare 1978:xii).

Contributors to the spread of communicable diseases were "lack of potable water" and "primitive waste disposal methods" (U.S. Department of Health, Education, and Welfare 1978:4). Additionally, "[l]ack of personal hygiene also must be added to the environmental problems as a cause of disease in Afghanistan. Cultivation of habits of personal cleanliness ... should be an area of major emphasis in programs to improve Afghanistan's health environment" (U.S. Department of Health, Education, and Welfare 1978:25). The population of Afghanistan "usually washes in polluted water and usually without soap or detergents" (U.S. Department of Health, Education, and Welfare 1978:94). Per capita use of soap and detergents in Afghanistan, in 1978, was only 0.6 kg/capita (Greene 1984:54). Finally, "it would seem that the whole health environment in Afghanistan would benefit from the increased production and distribution of soap and detergents" (U.S. Department of Health, Education, and Welfare 1978:95).

Ethiopia, in the early 1970s, did not have a "regular system of vital events registration" (U.S. Department of Health, Education, and Welfare 1974:2). Infant mortality rates, estimated in 1970, were high, "exceeding 162 deaths per 1,000 live births" (U.S. Department of Health, Education, and Welfare 1974:2). Lack of potable water and inadequate sewage disposal are also cited as a major cause of public health concerns (U.S. Department of Health, Education, and Welfare 1974:11-12). The most common diseases in Ethiopia were infectious diseases, diseases of the digestive tract and those of the respiratory system. Finally, "[i]t can be said that about 50-80 percent of the diseases are communicable and could be prevented by fairly simple measures such as improving water sources, sanitation, control of insect vectors and good personal hygiene" (U.S. Department of Health, Education, and Welfare 1974:13). Per capita consumption of soap and detergents was a mere 0.3kg/capita (Greene 1984:54).

Haiti, in 1975, had an infant mortality rate of 138.8 per thousand live births. The rates during the late 1960s "was generally accepted as being around 180-190" per thousand (U.S. Department of Health, Education, and Welfare 1975a:1). Enteric infections and infant diarrhea "[were] among the most serious health hazards facing the country. During 1963-1964, 47.9 percent of all admissions to the pediatric services of the University Hospital in Port-au-Prince were for

gastroenteritis" (U.S. Department of Health, Education, and Welfare 1975a:10). Significantly, "[i]t has been shown that even apart from a bacteriologically safe water supply, the ready availability of water for ablution and personal hygiene is important in the control of diarrheal diseases" (U.S. Department of Health, Education, and Welfare 1975a:10). Per capita soap and detergent consumption in Haiti, in 1976, was 2.1kg/capita (Greene 1984:55).

Nicaragua, in 1975, had an infant mortality rate of 146 per thousand live births and the "largest proportion of these deaths are from communicable diseases" (U.S. Department of Health, Education, and Welfare 1975b:11). Again, "ignorance of good hygiene, combined with poor sanitation and lack of safe water, adds to the magnitude of endemic disease problems" (U.S. Department of Health, Education, and Welfare 1975b:11). Significantly, the five leading causes of death for children under one year of age (27.7 percent of all deaths) are given in rank order: enteritis and other diarrheal diseases, perinatal mortality, tetanus, pneumonia, and other respiratory diseases. For children age one to four, again, the leading cause of death is enteritis and diarrheal diseases (U.S. Department of Health, Education, and Welfare 1975b:16). Lack of adequate sewage disposal and lack of potable water were again cited as areas of concern (U.S. Department of Health, Education, and Welfare 1975b:71). Finally, "[h]ealth education is needed to change sanitation

habits. Emphasis must be given to the importance of washing hands, cleaning food, and boiling unsafe water" (U.S. Department of Health, Education, and Welfare 1975b:72). Soap and detergent consumption in Nicaragua, in 1973, was 9.7 kg/capita (Greene 1984:55).

Infant mortality rates in Zaire, in 1975, were estimated to be between 150-200 per thousand live births. The mortality for children under the age of five years was estimated to be as high as 500 per thousand. (U.S. Department of Health, Education, and Welfare 1975c:1). The high morbidity and mortality rates for all children under age five "could largely be eliminated or substantially reduced through the institution of preventive health measures, including mass immunization campaigns, health education, extension of potable water and sewerage systems" (U.S. Department of Health, Education, and Welfare 1975c:1). The leading causes of infant and child deaths in Zaire during the time of this study (1975) were malnutrition, malaria and gastroenteritis "coupled with repetitive cases of bronchial pneumonia, diarrhea and infectious diseases" (U.S. Department of Health, Education, and Welfare 1975c:27). Soap and detergent consumption in Zaire, in 1975, was 1.8kg/per capita (Greene 1984:55).

In each of these five nations, diarrhea, dysentery, and pneumonia were listed in the top five causes of infant mortality. In these countries, poor personal hygiene, low per capita soap consumption, lack of potable

water, and lack of adequate sewage systems were noted. The evidence found within these cross-national data strongly demonstrate that personal hygiene must be considered when attempting to ameliorate high infant mortality rates. The five nations under consideration here have different populations, climates, and diets, yet all share the same problem of high infant mortality. These nations also had in common poor hygiene practices, low soap consumption, lack of adequate potable water supplies, lack of adequate sewage disposal—all of which were common to mid-nineteenth century America and Britain. The association between these causal agents and high infant mortality is remarkably consistent regardless of setting.

Strength of Association

The last epidemiological factor to be considered here is strength of association. The hypothesis examined in this thesis is that increasing soap consumption decreases the rate of infant mortality. In Figure 5.1, (which appears on the following page) a scattergram is presented that compares soap and detergent consumption for 120 countries in 1978 with the crude, non-specific, infant mortality rates for these countries in 1975. While the parameters are subject to wide error there is no doubt that a significant correlation exists. The distribution is curved, suggesting that there is an optimal limit beyond which no real benefits

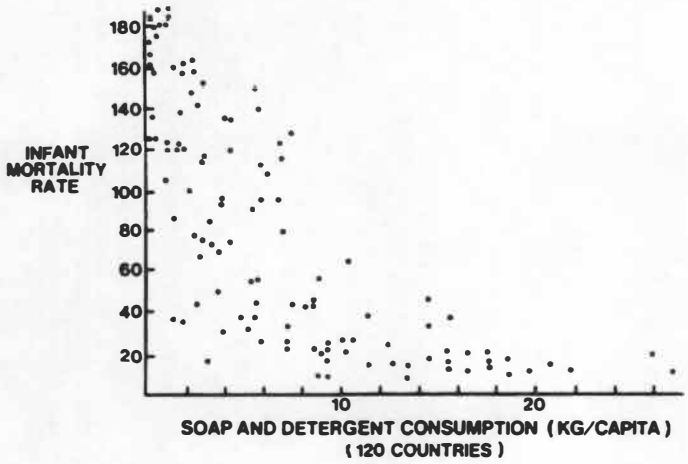

Figure 5.1: (Scattergram) Relationship of Soap and Detergent Use to Infant Mortality. Reproduced by permission of the Soap and Detergent Association.

Source:

Greene, V. W.
1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association, page 52

arise by increasing consumption of soap and detergent. Also, the pattern is certainly scattered "verifying that a lot of factors other than soap and laundry soap influence infant mortality" (Greene 1984:52). Nonetheless, this scattergram definitely reveals an important trend: increased soap consumption does play a role in reducing infant mortality.

Figure 5.2, seen on the following page, contains cross-national data on soap consumption and infant mortality. As can be seen, "the graded consumption increase from <2kg/capita to >8kg/capita is closely related to a decrease in infant mortality from 180/1000 (approximately 19th Century Europe) to 20/1000 (approximately 1960 Western Europe and America)" (Greene 1984:54). A singular conclusion can be drawn from Figures 5.1 and 5.2. The association between hygiene and infant mortality is, indeed, quite strong.

Conclusion

During the latter years of the nineteenth century and the beginning of the twentieth century, a substantial shift in attitudes pertaining to personal hygiene occurred in the United States. During this time, magazine advertisements informed consumers of the hazards of contagion, as well as the rewards associated with cleanliness and beauty. Bathing gradually became part of a normative daily behavior.

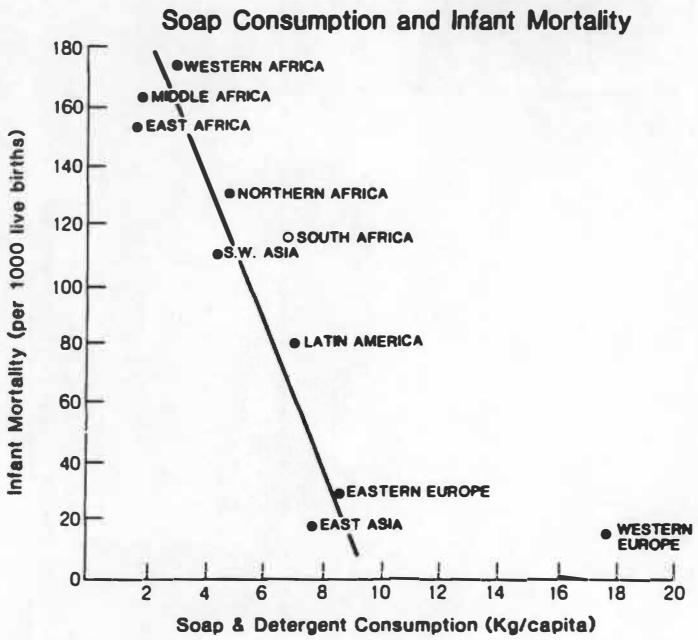

Figure 5.2: Relationship of Soap and Detergent Use to Infant Mortality. Reproduced by permission of the Soap and Detergent Association.

Source:

Greene, V. W.

1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association, page 53.

This "sociocultural modification was followed by dramatic declines in infant diarrhea—the leading component of infant mortality in those years" (Greene 1984:61).

Cross-cultural data strongly demonstrate that where soap consumption is low, where the population relies on contaminated water, and sanitary sewage disposal is lacking, infant mortality is high—exactly the situation found in American and British cities at the end of the nineteenth century. All of this changed, however, with the Health Revolution. While largely fueled by a profit incentive, this dramatic change in American culture and advertising had a significant, though at first hidden, impact. Thousands of infants' lives were being saved due to improvements in personal hygiene. Anthropologically, this certainly is another reminder that cultures are inter-related systems.

REFERENCES CITED

BOOKS

Baker, Josephine

1925 Child Hygiene. New York: Harper & Brothers, Publishers.

Brust, Victoria M.

1950 An Examination of the Health Educational Aspects of the Maternal and Child Health Programs of Knoxville, Tennessee, and New Haven, Connecticut. M.S. thesis, The University of Tennessee, Knoxville.

Burke, James

1985 The Day the Universe Changed. Boston, MA: Little, Brown and Company.

1996 The Pinball Effect: How Renaissance Water Gardens Made the Carburetor Possible—and Other Journeys Through Knowledge. Boston, MA: Little, Brown and Company.

Cassedy, James H.

1978 "The Flamboyant Colonel Waring: An Anticontagionist Hold the American Stage in the Age of Pasteur and Koch." *In* Sickness and Health in America: Readings in the History of Medicine and Public Health. Leavitt, Judith Walzer and Ronald L. Numbers, eds. Madison, WI: The University of Wisconsin Press.

Centers for Disease Control

1999a "Achievements in Public Health, 1900-1999: Family Planning." Morbidity and Mortality Weekly Report 48(47); 1073-1080.

1999b "Achievements in Public Health, 1900-1999: Healthier Mothers and Babies." Morbidity and Mortality Weekly Report 48(38); 849-858.

1999c "Achievements in Public Health, 1900-1999: Changes in the Public Health System." Morbidity and Mortality Weekly Report 48(12); 1141-1148.

1999d "Achievements in Public Health, 1900-1999: Control of Infectious Diseases." Morbidity and Mortality Weekly Report 48(29); 621-629.

Duffy, John
1990 The Sanitarians: A History of American Public Health. Chicago, IL: University of Illinois Press.

Eberlein, Harold Donaldson
1978 "When Society First Took A Bath." *In* Sickness and Health in America: Readings in the History of Medicine and Public Health. Leavitt, Judith Walzer and Ronald L. Numbers, eds. Madison, WI: The University of Wisconsin Press.

Ember, Carol R.
1996 "Cross-Cultural Research." *In* Encyclopedia of Cultural Anthropology. Levinson, D. and M. Ember, eds. New York: Henry Holt and Company.

Ewen, Stuart
1976 Captains of Consciousness: Advertising and the Social Roots of the Consumer Culture. New York: McGraw-Hill Book Company.

Garvey, Ellen Gruber
1996 The Adman in the Parlor: Magazines and the Gendering of Consumer Culture, 1880's to 1910s. New York: Oxford University Press.

Greene, V. W.
1984 Cleanliness and the Health Revolution. New York: The Soap and Detergent Association.

Holt, L. Emmett
1907 The Care and Feeding of Children: A Catechism for the Use of Mothers and Children's Nurses. 4th edition. New York: D. Appleton and Company.

Horsfield, Margaret
1998 Biting the Dust: The Joys of Housework. New York: St. Martin's Press.

Hoy, Suellen
1995 Chasing Dirt: The American Pursuit of Cleanliness. Oxford: Oxford University Press.

Irons, William.
1991 "Anthropology." *In* The Sociobiological Imagination. Maxwell, M. ed. Albany, NY: SUNY Press, 71-90.

1996 "Adaptation." *In* Encyclopedia of Cultural Anthropology. Levinson, D. and M. Ember, eds. New York: Henry Holt and Company, 1-5.

Lambton, Lucinda
1995 Temples of Convenience and Chambers of Delight. New York: St. Martin's Press.

Leavitt, Judith Walzer and Ronald L. Numbers, eds.
1978 Sickness and Health in America: Readings in the History of Medicine and Public Health. Madison, WI: The University of Wisconsin Press.

Lief, Alfred
1958 "It Floats" The Story of Procter & Gamble. New York: Rinehart & Company, Inc.

Logan, Michael H.
1993 "Soft Soap, Hard Sell: American Hygiene in an Age of Advertisement" [book review]. American Journal of Human Biology 5: 504-505.

Logan, Michael H. and Hector N. Qirko
1996 "An Evolutionary Perspective on Maladaptive Traits and Cultural Conformity." American Journal of Human Biology 8:615-629.

McLaughlin, Terrance
1971 Dirt: A Social History as Seen Through the Uses and Abuses of Dirt. New York: Stein and Day.

Newman, George
1906 Infant Mortality: A Social Problem. London: Methuen and Co.

Parlin, Charles Coolidge
1931 National Magazines as Advertising Media: Address to Class in Advertising, University of Pennsylvania, February 9, 1931. Philadelphia, PA: The Curtis Publishing Company.

Pearce, Michael, Scott M. Cunningham, and Avon Miller
1971 Appraising the Economic and Social Effects of Advertising: A Review of the Issues and Evidence. Staff Report. Cambridge, MA: Marketing Science Institute.

Peterson, Theodore
1964 Magazines in the Twentieth Century. Urbana, IL: University of Illinois Press.

Preston, Samuel H., and Michael R. Haines
1991 Fatal Years: Child Mortality in Late Nineteenth-Century America. Princeton, NJ: Princeton University Press.

Puffer, R. R and C.V. Serrano
1975 Patterns of Mortality in Childhood. Scientific Publication 262. Washington, D.C: Pan American Health Organization.

Reed, David
1997 The Popular Magazines in Britain and the United States, 1880-1960. Toronto: University of Toronto Press.

Rosenberg, Charles E.
1978 "The Causes of Cholera: Aspects of Etiologically Thought in 19th-Century America." *In* Sickness and Health in America: Readings in the History of Medicine and Public Health. Leavitt, Judith Walzer and Ronald L. Numbers, eds. Madison, WI: The University of Wisconsin Press.

Schereschewsky, Joseph W.
1909 "Infant Feeding." *In* Milk and Its Relation to Public Health. Bulletin 56. Hygienic Laboratory. Washington, D.C.: United States Public Health and Marine Hospital Services.

Schisgall, Oscar
1981 Eyes on Tomorrow: The Evolution of Procter & Gamble. Chicago, IL: J. G. Ferguson Publishing Company.

Soap and Detergent Industry Association
1996 Health and Hygiene. Detergent Industry Information Bureau. Soap and Detergent Association, United Kingdom.

Stuller, Jay
1992 "Cleanliness has Only Recently Become a Virtue." Smithsonian 22:126-134.

Tomes, Nancy
1998 The Gospel of Germs: Men, Women, and the Microbe in American Life. Cambridge, MA: Harvard University Press.

Ulanoff, Stanley M
1979 Advertising in America: An Introduction to Persuasive Communication. New York: Hastings House, Publishers.

United Nations
1954 "Foetal, Infant and Early Childhood Mortality, Volume I: The Statistics." Population Studies, No. 13. United Nation's Department of Economic and Social Affairs, No 13-18. Department of Social Affairs, Population Division. New York: United Nations.

United States Department of Health, Education and Welfare
1978 Syncrisis: The Dynamics of Health. Vol. XXIV: Afghanistan. Washington, D.C.: U.S. Government Printing Office.

1974 Syncrisis: The Dynamics of Health. Vol. VIII: Ethiopia. Washington, D.C.: U.S. Government Printing Office.

1975a Syncrisis: The Dynamics of Health. Vol. VI: Haiti. Washington, D.C.: U.S. Government Printing Office.

1975b Syncrisis: The Dynamics of Health. Vol. XI: Nicaragua. Washington, D.C.: U.S. Government Printing Office.

1975c Syncrisis: The Dynamics of Health. Vol. XIV: Zaire. Washington, D.C.: U.S. Government Printing Office.

Vinikas, Vincent

1988 "Lustrum of the Cleanliness Institute, 1927-1932." Journal of Social History 8(4):613-630.

1992 Soft Soap, Hard Sell: American Hygiene in an Age of Advertisement. Ames, IA: Iowa State University Press.

Winslow, C.E.A.

1923 The Evolution and Significance of the Modern Health Campaign. New Haven, CT: Yale University Press.

Wood, James Playsted

1949 Magazines in the United States: Their Social and Economic Influences. New York: The Ronald Press Company.

Woodbury, Robert Morse

1926 Infant Mortality and Its Causes: With an Appendix on the Trend of Maternal Mortality Rates in the United States. Baltimore, MD: The Williams & Wilkins Company.

Woodward, Helen

1960 The Lady Persuaders. New York: Ivan Obolensky, Inc.

Wright, Lawrence

1967 Clean and Decent: The Fascinating History of the Bathroom & the Water Closet and of Sundry Habits, Fashions, & Accessories of the Toilet Principally in Great Britain, France, & America. Toronto: University of Toronto Press.

Wyman, Walter

1909 "Introduction: Milk and Its Relation to Public Health." *In* Milk and Its Relation to Public Health. Bulletin 56. Hygienic Laboratory. Washington, D.C.: United States Public Health and Marine Hospital Services.

Magazines

"A Safe-Guard."
1903 Good Housekeeping. (January): Vol. XXXVI, #1. Front Leaf.

"Smell it! The Moment You Do You Will Want It."
1913 Saturday Evening Post. (March 15): Vol. 185, #37. Page 47.

"The Best Soap For Babies."
1909 Ladies' Home Journal. (March): Vol. XXVI, #4. Page 70.

"The Most Delicate Of All Delicate Things."
1892 Ladies' Home Journal. (September): Vol. IX, #10. Page 22.

"The Prettiest Girl In Her Set."
1925 Ladies' Home Journal. (January): Vol. XLII, #1. Page 41.

"Used Wherever Clean People Are."
1909 Ladies' Home Journal. (May): Vol. XXVI, #6. Page 82.

"What Has He Said To Her?"
1918 Ladies' Home Journal. (January): Vol. XXXV, #1. Page 58.

"Women Are Made Fair By Its Use."
1905 Saturday Evening Post. (November 18): Vol. 178, #2. Page 39.

VITA

April D. J. Garwin was born in San Diego, California on April 1, 1970. In 1994, she enrolled at Lassen College in Susanville, California. She was honored with the EOP&S Woman of the Year award in 1996. She was awarded several scholarships, including the John C. McCullan Memorial Scholarship, in 1996. While at Lassen College, she had the honor of serving the student body as a Senator to the Associated Student Body. She was also co-founder and Vice President of the Creative Writer's Guild. She graduated with an Associate of Arts degree in Liberal Arts in 1996.

In 1996, she transferred to Humboldt State University in Arcata, California, where she earned her Bachelor of Arts Degree. During her studies in Anthropology, she served as Curator of the Skeletal Materials Collection for the University. She served as a Teaching Assistant in Physical Anthropology in 1998. She represented the Associated Student Body as a Proxy to the Council of Chairs in the College of Arts, Humanities, and Social Sciences. She graduated *summa cum laude* in 1998.

In 1998, she was accepted into the Master's degree program in Anthropology at The University of Tennessee, Knoxville. She was awarded the position of Graduate Teaching Assistant for the academic year 1998-1999. She will be awarded the Master of Arts degree in Anthropology in December 2000. She will graduate as a member of the Phi Kappa Phi Honor Society.