INFORMATION TO USERS

This reproduction was made from a copy of a document sent to us for microfilming. While the most advanced technology has been used to photograph and reproduce this document, the quality of the reproduction is heavily dependent upon the quality of the material submitted.

The following explanation of techniques is provided to help clarify markings or notations which may appear on this reproduction.

1. The sign or "target" for pages apparently lacking from the document photographed is "Missing Page(s)". If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting through an image and duplicating adjacent pages to assure complete continuity.

2. When an image on the film is obliterated with a round black mark, it is an indication of either blurred copy because of movement during exposure, duplicate copy, or copyrighted materials that should not have been filmed. For blurred pages, a good image of the page can be found in the adjacent frame. If copyrighted materials were deleted, a target note will appear listing the pages in the adjacent frame.

3. When a map, drawing or chart, etc., is part of the material being photographed, a definite method of "sectioning" the material has been followed. It is customary to begin filming at the upper left hand corner of a large sheet and to continue from left to right in equal sections with small overlaps. If necessary, sectioning is continued again—beginning below the first row and continuing on until complete.

4. For illustrations that cannot be satisfactorily reproduced by xerographic means, photographic prints can be purchased at additional cost and inserted into your xerographic copy. These prints are available upon request from the Dissertations Customer Services Department.

5. Some pages in any document may have indistinct print. In all cases the best available copy has been filmed.

University Microfilms International

300 N. Zeeb Road
Ann Arbor, MI 48106

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

8319788

Okun, Mitchell

FAIR PLAY IN THE MARKETPLACE: ADULTERATION AND THE ORIGINS OF CONSUMERISM

City University of New York PH.D. 1983

University Microfilms International 300 N. Zeeb Road, Ann Arbor, MI 48106

Copyright 1983

by

Okun, Mitchell

All Rights Reserved

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

PLEASE NOTE:

In all cases this material has been filmed in the best possible way from the available copy. Problems encountered with this document have been identified here with a check mark __✓__.

1. Glossy photographs or pages _____
2. Colored illustrations, paper or print _____
3. Photographs with dark background ✓
4. Illustrations are poor copy _____
5. Pages with black marks, not original copy _____
6. Print shows through as there is text on both sides of page _____
7. Indistinct, broken or small print on several pages ✓
8. Print exceeds margin requirements _____
9. Tightly bound copy with print lost in spine _____
10. Computer printout pages with indistinct print _____
11. Page(s) _____ lacking when material received, and not available from school or author.
12. Page(s) _____ seem to be missing in numbering only as text follows.
13. Two pages numbered _____. Text follows.
14. Curling and wrinkled pages _____
15. Other _____

University
Microfilms
International

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

FAIR PLAY IN THE MARKETPLACE: ADULTERATION AND THE ORIGINS OF CONSUMERISM

by

MITCHELL OKUN

A dissertation submitted to the Graduate Faculty in History in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1983

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

© COPYRIGHT BY

MITCHELL OKUN

1983

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

This manuscript has been read and accepted for the Graduate Faculty in History in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

26 April 1983 — Ari Hoogenboom
date — Chairman of Examining Committee

4/26/83 — [signature]
date — Executive Officer

Professor Richard Wade

Professor Hans Trefousse
Supervisory Committee

The City University of New York

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Abstract

FAIR PLAY IN THE MARKETPLACE:
ADULTERATION AND THE ORIGINS OF CONSUMERISM

by

Mitchell Okun

Adviser: Professor Ari Hoogenboom

Controversy concerning adulteration long antedates the Pure Food and Drug Act of 1906. Three states--New York, New Jersey, and Massachusetts--responded by passing virtually identical anti-adulteration laws. Both these legislative successes, and the ultimate impotence of these laws, reflect the contradictions in a society undergoing rapid growth in transportation, manufacturing, and marketing.

The food-supply chain was becoming more centralized through improved refrigeration for long-distance transport, the mechanization of canning, and the growth of packaging. More of what the neighborhood grocer sold, by 1880, was prepared by other hands. The pharmaceutical market was undergoing similar changes. Even while licensing laws began to restrict pharmacy to the academically-trained professional, the neighborhood druggist prepared fewer prescriptions; more and more he "filled" them with mass-produced pharmaceuticals, or sold over-the-counter medications and "patent" medicines.

Early adulteration laws were stimulated by publicity about the questionable quality of the urban milk supply. Coinciding with this

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

legislation, pioneer sanitarians succeeded in creating professionalized boards of health, to which the enforcement of the new milk laws was entrusted. In the area of drugs, the pharmacists obtained, in 1848, federal legislation prohibiting the importation of adulterated drugs, and for a time argued that this law eliminated most pharmaceutical adulteration.

In the 1870's, however, intense publicity concerning adulteration focused on the technological innovations of the marketplace. It was widely believed that sugars were adulterated with glucose, a sweetening agent manufactured from starches--"rags and sawdust," the accusers claimed--and that oleomargarine, a product made from animal fats, was being universally substituted for butter. Businessmen, sanitarians, and the chemists, who now played a central role upon the boards of health, tried to defuse these accusations, with little success.

To defeat prohibitory legislation, the commercial interests created their own version of an adulteration law, publicized through a national contest, in an attempt to restrain truly unscrupulous adulterators, "without imposing unnecessary burdens upon commerce." Though successful in derailing more radical legislation, they failed to get their own bill through Congress. On the state level, however, they were more successful.

In New York, the responsibility for enforcing the new law was given to Prof. Charles F. Chandler, the chemist who had drafted the bill, a man employed by many commercial organizations even while President of the New York City Board of Health. Chandler completely ignored the drug market, leaving its supervision to the pharmaceutical associations, and focused upon the food retailer. He never prosecuted a single food manufacturer or wholesaler, even when direct evidence existed of their guilt. Yet Chandler

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

was able to persuade the sanitarians in charge of the State Board of Health to decriminalize the wholesale products the retailers had been arrested for selling. After this acquiescence, the New York law was a dead letter.

Meanwhile, the dairymen, alarmed about the influx of oleomargarine, succeeded in achieving state legislation restricting its sale, though Chandler (who was employed by the manufacturers) argued strenuously against them. When oleomargarine sales continued to grow, the dairymen convinced the state to take control over dairy products away from the sanitarians, and create a State Dairy Commission. In 1886, dairy associations persuaded Congress to tax the manufacture and sale of oleomargarine --the first federal regulation of a domestic food.

By 1886 the boards of health no longer attempted to regulate the marketplace, the sanitarians and chemists arguing that they were concerned only with dangerous adulterations, not mere fraud. Business leaders were confident that, by publicizing infrequent deleterious adulterations, they could allow the marketplace to regulate itself. An attempt by retailers and reformers to generate federal legislation was neutralized by the wholesalers and manufacturers. By 1887 the anti-adulteration movement had passed into other hands.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

PREFACE

There is a gap in the history of American reform that has gone virtually unnoticed. Except for a few specialized monographs, studies of the origins of the consumer movement have concentrated on the federal Pure Food and Drug Act of 1906. Yet the conditions that inspired that law had fully developed a generation earlier. Francis Thurber, the architect of the first general anti-adulteration legislation in America noted, in 1885, that "the time for a laissez faire policy is past. Our civilization is constantly growing more complex and the forces which now control it must themselves be controlled and directed." The battles over adulteration in the period 1865-1886 were not merely a rehearsal for reform, but anticipated the issues, the arguments, and even the solutions of the Pure Food and Drug Act.

Oscar Anderson's The Health of a Nation is appropriately celebrated as the consummate treatment of Harvey W. Wiley's battle for the law of 1906. But Anderson's comprehensive study has compounded the tendency to neglect the diverse and complex origins of this reform movement, because he dismissed as abortive--almost as irrelevant--all activities unrelated to Wiley's. And although more parochial studies have chauvinistically eulogized the heroes of the public health, pharmaceutical, chemical, and medical professions, they have contributed little to a comprehensive understanding of the underlying relationships and contradictory motivations of those who shaped the consumer movement in this era of bewildering change.

In the period after the Civil War the marketplace for foods and drugs rapidly assumed modern proportions. This concentration and centralization

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of production, large-scale, heavily-capitalized merchandising, and new technologies in packaging and shipping, revived hoary--sometimes implausible--anxieties about the quality and reliability of even the most commonplace commodities. As early as 1820 readers had been warned that the traditional relationship between producer, merchant, and consumer was being threatened by the very "division of labour" that was helping to create a revolution in the trade of industrialized nations. It was feared that the growing complexity of the marketplace, the loss of localism, the dispersion of neighborhood production, and the resulting anonymity of modern business would encourage fraud and immorality. Yet, of course, these challenges to traditional concepts of justice and order were only first emerging early in the century.

The rapid growth of pharmaceutical manufacturing and of food canning, packaging, and centralized distribution in the post-Civil War period stimulated concern about a broad variety of consumer goods, but attention focused first upon the most basic food item, milk. In urban areas the local dairy, whose cattle fed off the grass of small open fields, and supplied the needs of neighboring residents, had vanished. The rapid rise of urban population, exemplified by New York's incredible growth that began in the years just before the war, resulted in the concentration of milch cows in crowded, filthy stables, where they were fed with the vegetable waste of local distilleries in a primitive assembly line.

By the 1870's the efforts of sanitarians--and even more, the economic realities of the age--dictated the development of intensive dairying in neighboring counties, with milk transported over the expanding railway net into New York City. Now unsupervised "creameries" mechanically skimmed the milk for butter and cheese production, and sent the residue in forty-gallon cans to itinerant milk dealers, who routinely thinned it with water. No longer

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

could New Yorkers rely on the good faith of neighborhood entrepreneurs, and urban concern over the milk supply resulted in the first modern anti-adulteration laws.

Similarly, early accusations had been made about the adulteration of many other staple goods, such as mustard, ground coffee, and spices. With the concentration of production, packaging, and distribution of all these food items, renewed suspicion led to investigations about these, and dozens of other products. These suspicions were intensified by the competitive advertising and accusations of the manufacturers themselves. Certainly one of the central questions, which would continue to be an issue even after passage of the law of 1906, was the deleteriousness of alum, widely used in baking powders by the 1870's. The baking-powder industry itself rapidly divided into alum and cream-of-tartar advocates, who competed with no holds barred. Concern over these products led to the passage of virtually identical general anti-adulteration laws in New York and two neighboring states.

If the new techniques of merchandising aroused anxiety about traditional products, there was even more intense concern about food products that were entirely new, technological innovations which could profitably be manufactured only in large-scale production. Of these items glucose, a sweetener produced from vegetable starches, stimulated attacks not only from concerned citizens and public-health officials, but from the sugar refiners, whose reputability was threatened by rumors of granulated glucose being used as a sugar adulterant. This furor led to one of the earliest federal investigations of a domestic food.

Even more excitement was created by the introduction of oleomargarine, a product made, in this era, from animal fats and the residue of the slaughter-houses. Encouraged by dairy interests as well as reformers, virtu-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ally every state drafted anti-oleomargarine legislation by 1886, and in that year the federal government legislated against it--the first federal regulation of a domestic food product.

These controversies, created because of the new technological and entrepreneurial innovations, provided a testing-ground for professionalism. The first adulteration laws coincided with the institutionalization of public health, and the establishment of local and state boards of health throughout the nation. Supervision over the food supply thus fell into the hands of the sanitarians, despite their lack of training or qualification. It was also in this era that medicine, pharmacy, and chemistry became professionalized and institutionalized. The chemists quickly proved their indispensability to the amateur reformers and the medical men who had fought for the health boards, but who now discovered that merely "sanitizing" the cities was an insufficient solution to complex urban problems. Empowered by the new adulteration laws to impose order and honesty--as well as healthfulness--upon the marketplace, the sanitarians found themselves more and more relying upon the expertise of the chemical profession.

But the chemists were seldom on firm ground. Despite their positive assertions, they were uncertain, unknowledgeable, and insecure. Judges who were forced to render decisions on questions of the healthfulness or acceptability of business practices found themselves listening to contradictory professional testimony, with neither side able to provide positive --nor, often, convincing--proof of their claims. Moreover, in this first, tentative period of professionalization, self-regulation and the development of codes of ethics fell far behind the necessities and realities of the problems. The services of underpaid public employees were easily purchased by businessmen who sought to avoid regulation, or who demanded testimony

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

against competitors. Often these professionals retained their public office while working for the very industries they were simultaneously regulating. Though the professionals ridiculed the clumsy attempts of "amateur" reformers to arouse the public to the dangers or immorality of business practices, their own efforts, because of inadequate internal regulation and the complete absence of legal restraint, often approached burlesque.

Though many of the pharmaceutical and medical professionals were sincerely concerned with the public welfare and with the improvement of their own standards of practice, they too suffered from an excess of confidence and an insufficiency of hard knowledge. Moreover, leaders of the pharmacists and physicians were deeply concerned with eliminating the competition of amateurs--the grocers and general-store keepers who sold patent medicines or the new pre-packaged "legitimate" remedies. They gave highest priority to establishing reputability and esteem, and were more concerned about installing members of their own organizations to supervise the new laws relating to adulteration, and to licensing and regulation, than they were in seeing the laws succeed.

But if the chemists, the medical/pharmaceutical professionals, and the public-health spokesmen are not seen here as the saints they are often made out to be, neither were they villains, or the corrupt minions of the business interests. Rather, the professionals of this era were trapped in a complex situation of divided loyalties, a time when codes of ethics and professional pride and dedication were inadequate responses to the temptations of power and the expanding technology of the time. Nor were the businessmen to whom they were often linked simply clever corruptionists, subverting reform efforts to their own purposes.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Business leaders too were deeply involved with organizational problems, for in their effort to respond to the mounting power of the new monopolies, such as the railroads, the mercantile interests sought associational power to combat the commercial giants, and to respond to the new complexities of the marketplace. Astute business leaders quickly came to understand that public anxiety about adulteration and other consumer concerns could neither be ignored nor squelched. Rather, they succeeded, not only in using the professionals to achieve their own ends, but in taking command of the reform movements, shaping and controlling them in ways that would hopefully eliminate the competitive practices of irresponsible merchants or manufacturers, while protecting their own interests. The most modern and responsive leaders of the business community had more difficulty controlling members of their own organizations--with making them understand the need for reform--than they did with the reformers.

While business leaders came to agree that the time for laissez-faire was over, that the modern marketplace required regulation, they felt that the regulators should tolerate established business practices, including adulterations that had become "sanctioned by usage." In this genesis of governmental regulation business "reformers" argued that the only way to insure that "legitimate" commercial practices would not be inadvertently damaged in an excess of regulation, was to establish as the regulators, not the amateur enthusiasts, but the professionals upon whom they knew they could rely. They believed that only the "monopolist," and the rare immoral entrepreneur who concealed his irresponsibility in the complexities of commerce, need be exposed and eliminated. Ultimately the market could be returned to the natural and immutable laws of competition, and the nation could once again enjoy fair play in its marketplace.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

In 1881-1882 business leaders succeeded, with the cooperation of the professionals, in establishing their conception of anti-adulteration legislation in New York, New Jersey, and Massachusetts. The present study examines the nature of food and drug adulteration, and the publicity about its extent and danger, in the period before 1880; the responses of sanitarians, professionals, and business leaders to this publicity; the passage of anti-adulteration laws on the state level; and the enforcement of those laws. The most detailed examination is reserved for New York, where the inspiration for the law originated, and where "modern" business complexity was greatest and came earliest. The controversies surrounding the federal law of 1906 were played out in New York by 1886; New York was a model for the national problems that culminated in national legislation a generation later.

* * * * * * *

I wish to acknowledge my gratitude to Professor Ari Hoogenboom, who first called my attention to the absence of material on early anti-adulteration activities, and who has patiently given advice throughout my research and writing. I would also like to thank Professor Richard Wade for his encouragement and confidence, and Professor Hans Trefousse for his discerning criticism. My thanks also go to Kingsborough Community College, for granting me a fellowship leave.

"Some circumstantial evidence is very strong,
as when you find a trout in the milk." --

Henry David Thoreau

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE OF CONTENTS

Chapter		Page
PREFACE		vii
I.	INTIMATIONS OF ADULTERATION, 1820-1863	1
II.	NEW YORK SANITARY REFORM: THE EXERCISE OF "AUTOCRATIC" POWER	44
III.	CHARLES FREDERICK CHANDLER: TESTS OF POWER	79
IV.	"UPON RELIABLE AUTHORITY"	113
V.	FORGING AND USING NEW TOOLS	139
VI.	"WITHOUT IMPOSING UNNECESSARY BURDENS UPON COMMERCE"	172
VII.	LEGISLATIVE SUCCESSES	209
VIII.	LEGISLATIVE FAILURES	239
IX.	ENFORCEMENT: AN UNEVEN HAND	280

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

TABLE OF CONTENTS (continued)

Chapter		Page
X.	ENFORCEMENT: ONE MAN'S POISON	325
XI.	OLEOMARGARINE: THE EVOLUTION OF LEGISLATION	375
CONCLUSION	. . . . .	432
APPENDIX A:	EXTANT PORTION OF DR. BILLINGS' ORIGINAL DRAFT OF FEDERAL LEGISLATION	440
APPENDIX B:	FINAL VERSION OF NATIONAL BOARD OF TRADE FEDERAL BILL	441
APPENDIX C:	FOOD AND DRUG ADULTERATION LAW OF NEW YORK AND NEW JERSEY	442
SOURCES CONSULTED	. . . . .	443

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

LIST OF ILLUSTRATIONS

Illustration		Page
1.	Frontispiece, Fredrick Accum's *Treatise on Adulterations*	2
2.	Typical adulteration table	18
3.	Microscopic Drawing of Milk Adulterated with "Sheep's Brains"	20
4.	Distillery Cow, from Leslie's *Illustrated*	22
5.	Sanitary Map from *Report of the Council of Hygiene*	48
6.	Section of H.K. & F.B. Thurber "Price List"	102
7.	Advertisement for "Butter Color"	150
8.	H.K. & F.B. Thurber Letterhead	152
9.	Massachusetts, Vote Distribution, 1882, on National Board of Trade Adulteration Bill	233
10.	Anti-Oleomargarine Cartoon, *Puck*	387
11.	Anti-Thurber Cartoon, *Judge*	405

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER I

INTIMATIONS OF ADULTERATION, 1820-1863

Between 1879 and 1906--when the Pure Food and Drug Act and the Meat Inspection Act were passed--190 bills to control the proliferation of food and drug adulteration were introduced in Congress.[1] On the state level, however, success came much earlier; in the year from mid-1881 to mid-1882 three states, led by activists in New York, passed virtually identical anti-adulteration laws.

In the mid-nineteenth century the development of analytical chemistry and the related rise in the status of medicine and pharmacy, accompanied by radical changes in the food- and drug-supply systems, reawakened interest in claims of adulteration. In the period before the Civil War the basic pattern of accusations concerning adulteration was firmly established, and the first laws regulating the worst offense, contaminated and adulterated milk, were passed in New York. On the national level, important steps were taken to combat the adulteration of drugs. But publicity concerning the dangers and extent of adulteration long antedated legislation.

Early attempts to expose poisons and frauds in foods and drugs are important because they established certain attitudes and conceptions which had remarkable persistence, even when later evidence clearly refuted many of the charges made. In all likelihood, had it not been for the wide acceptance of the exaggerated claims of these early crusaders, the strong tendency in nineteenth-century America toward laissez-faire would not have been over-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

come, even at the local and state levels.

* * * * * * *

The first man to have an American audience in the effort to strip the mantle of respectability from the purveyors of sophisticated[2] goods was Fredrick Accum, a German pharmacist and chemist living in England. Accum's Treatise on Adulterations was published in England in 1820, quickly going through four editions. A pirated edition was immediately published in the United States. Because of the graphic phrase "There is death in the pot," used at the conclusion of his preface, Accum's Treatise came to be known by this biblical allusion. Succeeding editions printed the theme on the titlepage, accompanied by a striking illustration.[3]

For the most part, Accum eschewed technical explanations and tests; the Treatise was an attempt to convey to a broad audience the prevalence and danger of adulteration. In most ways Accum's book was a preview of the central arguments concerning adulteration that would endure for the next

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

several generations. His main thesis was that the complexity of modern food and drug production, distribution, and sale--the growing separation between producer and consumer--invited fraud and lent room for "reprehensible...sophistication" and the "eager and insatiable thirst for gain" which was "proof against prohibitions and penalties":

> It is a painful reflection, that the division of labour which has been so instrumental in bringing the manufactures of this country to their present flourishing state, should have also tended to conceal and facilitate the fraudulent practices in question; and that from a correspondent ramification of commerce into a multitude of distinct branches, particularly in the metropolis and the large towns of the empire, the traffic in adulterated commodities should find its way through so many circuitous channels, as to defy the most scrutinising endeavor to trace it to its source.[4]

Accum's most perceptive illustration of this modern process related to the coloring of cheese with annatto, a harmless vegetable agent which would, many years later, play a central role in the war between the dairy and oleomargarine interests. In the 1880's dairymen admitted that annatto had long been used to gild butter and cheese, especially in the winter months, when milk products tend to lack color due to the nature of the cattle feed. Though annatto itself is harmless, it is certainly a "sophistication" when used to improve the "natural" appearance of any product. But it too was frequently adulterated. In Accum's example the annatto was contaminated with red lead, the danger of which Accum prophetically warned of, though lead continued to be used as an ingredient of cosmetics and food colorings for decades.

Accum had a mercantile traveler adulterate the dyes, then sell them to a druggist. The druggist, unaware of the existing sophistication, might further adulterate the product, before selling it to a local merchant, "without any suspicion of the use to which it would be applied." The merchant might contaminate it even further, before selling it to a farmer.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The farmer would use the now triply-adulterated annatto to color his cheese, which he would sell to a dealer in London, who might market it to an innkeeper, who would serve it to a customer.[5] The complexities of modern commerce helped to create a situation that would have been exceptional a generation earlier, when local innkeepers bought cheeses directly from nearby farmers. Before urbanization, when tradesmen and customers were neighbors and anonymity was rare, these casual frauds were far less likely, or so at least Accum believed.

He argued that "almost every commodity which can be classed among either the necessaries or the luxuries of life" was being adulterated, "to a most alarming extent in every part of the United Kingdom." He even declared that "there are some substances which are scarcely ever to be procured genuine."[6] These accusations would be continually repeated over the next several decades. Even the specific adulterations singled out by Accum for special consideration were, by and large, the same ones that would retain the focus of later critics.

He pointed to the use of alum in bread, but was unable to render a judgment as to its danger; the debate over alum would continue into the twentieth century. Accum accused importers of selling imitation tea leaves; sophisticated teas became the first specific food import prohibited by federal law. Accum warned that ground coffee was frequently adulterated with "pease and beans"; this accusation was not only accurate, but the legal standard for ground coffee eventually established in New York would permit the use of both peas and cereals. Accum warned that genuine mustard was rare, that it was adulterated with flour and colored with turmeric; these sophistications would eventually be not only discovered, but permitted, by the sanitarians. Accum warned that spices were almost universally adul-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

terated; half a century later the experts would not only agree, but throw up their hands in helplessness. Accum also warned of lead in confectionery colors, a deadly practice that later studies would confirm.

There were only three major foods that Accum failed to deal with that would later occupy the attention of the sanitarians. But glucose, a sugar artificially produced from vegetable starches, and oleomargarine, a butter substitute made from animal fats, had not yet been discovered. More puzzling, Accum barely mentioned milk. Yet milk would be regarded by the sanitarians as the most central of all foods, and its adulteration would excite the greatest concern of all.

Accum also introduced other arguments that later became quite common. He regarded "cheapness" as constituting prima-facie evidence of adulteration. After the Civil War, not only the sanitarians, but spokesmen for the grocery trade, would warn against the practice of buying the "cheapest" commodity, because of the likelihood of adulteration, and because it encouraged excessive competition, which induced adulteration. Accum also presented as "proof" of his accusations miscellaneous newspaper and magazine articles whose claims echoed his own, without investigating their truthfulness. He also was willing to identify offenders by name, though he did this sparingly. Accum's argument was that such unsought publicity would discourage adulterative practices more readily than would the law.

Although Accum devoted far more space to foods than to drugs he was convinced that "nine-tenths of the most potent drugs and chemical preparations used in pharmacy, are vended in a sophisticated state by dealers who would be the last to be suspected."[7] With this statement two great weaknesses of Accum's study become apparent. He was unable to gauge the actual extent of adulteration with any accuracy, and tended--as would

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

those who followed him--to make broad generalizations based on the study of a small sample.[8] Secondly, he relied heavily on what pharmacists call "organoleptic" tests--that is, tests of the unaided five senses. These judgments, consisting of essentially subjective standards, were of minimal aid even to those familiar with pure samples of foods or drugs. Descriptions of color, texture, or smell could be of little assistance to the pharmacist, the grocer, or the consumer, particularly if the adulterator had done his job well. It is true that the book was written for the layman, for "persons unacquainted with chemical science."[9] Nonetheless, even though Accum was a thoroughly competent "analyst and industrial chemist,"[10] in this book, at least, that chemical knowledge is largely concealed in generalities.

No discernible action resulted in this country from the alarm Accum raised, and little more was published on the subject for some time. But in 1842 Robert M. Hartley, soon to become secretary of the Association for Improving the Condition of the Poor (AICP), wrote a ground-breaking book on the milk supply of large cities,[11] and four years later a broader and more exacting study of adulteration was published. Lewis Beck's Adulterations of Various Substances, however, was not intended for a general audience. Beck, a chemist at Rutgers College, had no particular theme, presenting simply an alphabetical review of foods and drugs, concentrating on the chemical tests to determine the most "common" sophistications. Though Beck devoted most of his review to drugs, and relied heavily upon European authorities,[12] some of his comments on foods filled gaps left by Accum.

On coffee, for example, Beck devoted much of his space to chicory, which would eventually be revealed as the largest single adulterant of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ground coffee, the use of which would later be authorized by the health officials in New York. Beck also devoted half a page to adulterations of chicory itself. More importantly, Beck spent three pages discussing milk. His analysis of the milk situation anticipated the arguments that would echo back and forth for years:

> In large cities, where the consumption of milk is very great, it is seldom exposed for sale without having received some fraudulent addition. Although these adulterants are not always positively injurious, they at least diminish those qualities which render milk so valuable an article of food.[13]

Beck discussed the instruments available for testing the purity of milk, most of which were designed to measure the specific gravity of liquids, and which theoretically indicated either the addition of water or the removal of cream. But Beck cast doubts upon these tools, especially that most commonly used, the lactometer. He noted that milk was quite irregular in its specific gravity, depending on a great number of variables, and that the lactometer had also been shown to be inaccurate in the measurement of added water. He did not specifically note the accusation later made against this technique for weighing adulteration: since the addition of water reduces specific gravity, while the subtraction of cream increases it, if both operations are performed concurrently heavily adulterated milk could be produced that defies the lactometer. The debate over the accuracy and value of these instruments would continue into the twentieth century.

Beck reported that the most common adulterations of milk were skimming and dilution, "and the addition of bicarbonate of soda to neutralize its acidity." He also noted that annatto, or other harmless coloring agents, were sometimes added to disguise diluted milk. He dutifully noted reports of more bizarre adulterants, though he affirmed that "There is no doubt that these supposed adulterations have been greatly exaggerated, as most

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of the substances are easy of detection, and do not after all answer the purpose for which they are said to be employed." Unfortunately the claims which Beck dismissed were so outrageous that they established themselves firmly in the popular conception of milk adulteration, and would be repeated even by knowledgeable experts, most of whom would also dismiss them, yet in the process cement the misconceptions even deeper in the minds of their readers. Thus far-fetched stories persisted that milk was sometimes sophisticated with egg yolks, chalk, plaster of Paris, "and even the cerebral matter of the sheep."[14]

Beck was also one of the first to insist that disease could be carried by milk. Although these accusations would not be statistically established until 1881, Beck cited a French study that had detected tuberculosis in the lungs of Parisian cattle kept in warm, confined quarters, and reasoned that there was a connection between this discovery and "the great mortality among children in Paris." He went even further, and insisted that the health of the cows, and the type of fodder used, had "an important influence upon the quality of their milk," and could induce illness among humans.[15]

At about this time sanitary reformers in New York, inspired by Hartley and Beck, turned their attention to the healthfulness of milk, particularly milk from cattle fed on swill. Swill was the vegetable residue of the distilleries, and large urban dairies were often located nearby so the inexpensive fodder could be emptied into the feeding troughs. Though early in the century most of the area's milch cows had grazed on open land within the city boundaries, the rapid growth of population in the metropolis from 1845 to 1860 removed much of this pasturage. Though by 1850 neighboring counties had established a thriving dairy industry, it concentrated on butter and cheese production until the 1860's,[16] and though the New York

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

railway net had assumed "modern outlines" by 1850,[17] the system of transporting upstate milk to the city in ten-gallon cans was still in the process of development. For the time being, until the late 1860's, an indeterminate but surely large percentage of the milk supply was swill or "stump-tail" milk.[18]

On June 26, 1847, the New York Tribune began an attack on "New York's Augean Stable." When the city government proved loathe to act against the dairies, the New York Academy of Medicine organized a committee to investigate conditions. Dr. Augustus K. Gardner was made chairman, and Dr. John H. Griscom, who had recently been removed from his position as New York City Inspector[19] for political reasons, became its most active member. On March 1, 1848, the committee presented its report to the Academy. It cited a deficiency of butter fat, and the speculation that distillery milk could cause cholera infantum, a deadly diarrheal disease. But the committee's resolutions--that swill milk was positively harmful, and that the authorities should take action against it--were permanently tabled by the Academy.

Whether the majority of the Academy was motivated by a desire to await even more conclusive evidence, or for political reasons, "the net result of their inaction was to strengthen the hands of unscrupulous dealers."[20] Dr. Griscom made a further unsuccessful attempt, at the June meeting, to revive the resolution by changing its wording slightly. But the committee's report was not published officially by the Academy until 1851, and renewed attempts by Griscom and Gardner to have the Academy take a stand on the issue were still being rejected as late as 1857.

* * * * * * *

If Beck's book on adulterations had helped inspire the activities of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Griscom and Gardner, his comments on drug sophistication may also have encouraged a sudden display of concern on the part of American pharmacists and chemists. In 1847 leaders of the pharmaceutical profession began lobbying for a federal law to prohibit the importation of adulterated drugs.

In that era pharmacy was essentially an unorganized and unregulated profession. Although three states in the deep South had statutes on their books requiring the licensing of pharmacists, these laws had long been inoperative.[21] Though a few states had laws theoretically regulating the sale of poisons and abortifacients, such legislation did not become common until the 1850's, and it is impossible to determine the extent and efficacy of these early efforts. The first national pharmaceutical organization, the American Pharmaceutical Association (APhA), was not organized until 1852, and no parallel state association came into being until after the Civil War.

In this period there was no clear distinction between the medical and pharmaceutical professions; doctors regularly dispensed drugs, and pharmacists regularly prescribed them. The leadership lay within the schools of medicine and pharmacy. As of 1847 there were only four such pharmaceutical schools--the Philadelphia, Massachusetts, New York City, and Maryland Colleges of Pharmacy. The first national medical organization, the American Medical Association (AMA), had just become officially operational in May of that year. Moreover, although medical schools go back to the colonial period, there was such divisiveness of medical theory and practice, and such a generally low standard in the schools, that it would be some time before there existed a coherent and respected leadership that could speak for the profession. As one author has explained, "The first medical

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

schools had been intended to supplement rather than to replace training by apprenticeship and this view still obtained as late as the 1840's." Because of the absence of state regulation "A large proportion of those who entered practice up to about 1820, moreover, did so without benefit of any formal education."[22]

The direct inspiration for the law to regulate drug imports came from Dr. M.J. Bailey, who had apparently expressed concern about the quality of these goods as early as 1844.[23] In 1846 Bailey approached Secretary of the Treasury Robert J. Walker, and succeeded in getting himself appointed Special Examiner of Drugs at the Port of New York Customs Office, for the purpose of evaluating the quality of the drugs arriving at New York, where, he estimated, three-fourths of all such merchandise entered the country. Most of these crude and processed drugs were imported from England, where members of the British Pharmaceutical Society had already expressed anxiety concerning the quality of the goods handled by English merchants.[24]

In Bailey's opinion, not only were the majority of drugs entering the Port adulterated or deteriorated, but the British exporters with whom American merchants had been dealing intentionally selected the worst of their own medicinal supplies for export to the United States. It was Bailey's contention that, throughout Europe, drug processors prepared two qualities of drugs--one, of reasonably decent quality, for the European market, and a second, the residue that could be sold nowhere else, for their American customers.

Under Bailey's agitation, in 1847 the New York College of Pharmacy and the New York Academy of Medicine appointed committees to confer on the subject of restricting the importation of adulterated and impure drugs.[25] By the next year Bailey had succeeded in getting memorials sent to Congress

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

from both organizations, from a number of well-known Washington physicians and apothecaries, and from the AMA.[26] A Select Committee of the House of Representatives, appointed to consider Bailey's charges, issued a report on June 2, 1848. The AMA and College of Pharmacy memorials printed in the report echoed Bailey's accusations, and the Philadelphia College of Pharmacy petition added the thought that since stringent laws on the Continent prohibited the sale of adulterated drugs, and since all goods must, "as a matter of necessity, find a market elsewhere," the United States had become the dumping-ground for "all the refuse merchandise."[27]

Most of the report, however, consisted of the testimony of Dr. Bailey and the commentary of Congressman Thomas O. Edwards, a physician, and chairman of the Select Committee. Bailey estimated that over half the drugs entering the country under his inspection during 1847 had been adulterated or were unsatisfactory for other reasons, such as intentional mislabeling or deterioration. He stressed especially that the inexactness of a drug's strength and purity rendered it "less effective and more uncertain in the treatment of disease, and, in some cases, actually dangerous to the patient as well as obviously unjust and greatly embarrassing to the physician."[28]

Bailey placed the blame for adulteration almost wholly upon the foreign exporters. He claimed that "but two or three of our regular and otherwise respectable" importers had knowingly ordered adulterated drugs, and that almost all favored a federal law prohibiting the trade. They were aware, argued Bailey, that their business would improve if they could rely on the quality of the goods they received, but they also supported legislation on the grounds of moral "principle." Bailey denied that the domestic manufacturers of drugs would simply adulterate on their own, if the trade were stopped. He argued that the separate states could "if needs be, protect

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

themselves from domestic evils of the kind, by enacting stringent laws" similar to those in operation on the Continent.[29]

The most interesting parts of the report, however, were the comments and summary of Dr. Edwards. He credited the medical profession with robbing smallpox "of its loathsomeness and its terrors," with making the plague "comparatively harmless," and rendering cholera "more amenable to the healing art." But Edwards explained that, "through mercenary fraud," doctors "are despoiled of their power to heal." Doctors fail, he argued, principally because of discrepancies in the drugs they use: "Examine the catalogue of adulterated medicines, and you have the key to the secret."[30]

The medical profession and the honest importers demand protection, Edwards explained, not because of "selfishness, or design of pecuniary advancement. Their requests flow from a higher, purer fountain. Humanity, self-respect, and a just professional pride have prompted their petitions."[31] But he also worried that if the public's confidence in the medical and pharmaceutical professions was consistently undermined because of ineffective drugs they might turn to unqualified practitioners. If people turned to substitute remedies, such as the "patent" medicines which were rapidly expanding in this period,[32] the influence of professional pharmacists and physicians would be jeopardized.

The legal precent cited by Edwards is also worth noting. He quoted section ten of the Tariff Act of 1842, which declared "all indecent and immoral books and pictures" imported to the United States were "subject to confiscation and destruction." Edwards explained that "the paternal supervision of all good governments is not only needed to protect the morals of the people, but is justly demanded in all that pertains to their health and physical well being."[33] The Secretary of the Treasury concurred, and argued

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

that since the law of 1842, "designed to guard against the corruption of the public morals," had not been found unconstitutional, "the same principle, it is conceived, would justify the prohibition by Congress of the importation of adulterated and deteriorated drugs."[34]

On June 26, 1848, only a few weeks after the report was released, the bill became law. This first federal statute regulating adulteration prohibited the importation of substandard[35] or unsafe drugs, which had to be either re-exported or destroyed. Early the next year Edwards reported that the law was working well; though virtually no adulterated drugs had been detected at the customs offices in Philadelphia, Boston, or Baltimore, Bailey had rejected large quantities of imports at the Port of New York. Edwards argued that the law had already proven itself: not only had tons of spurious drugs been seized, but the general quality of drugs received appeared to be improving, now that the exporters understood that the law's provisions were indeed being enforced. With this law, Edwards felt, Congress had done all it could; it was now up to the states to penalize domestic adulterators. But he insisted that:

> No one can believe that adulterations here would be carried to the extent practised by foreigners. It is scarcely presumable that all the druggists will be engaged in a traffic so nefarious. The rivalry of business, the pride of the profession, and the higher and nobler motives of humanity, will be equal to the ingenuity and invention of the dishonest, and will effect its exposure.[36]

Bailey himself reported on the operation of the law a few months later, in an address to the New York Academy of Medicine. He estimated that over 90,000 pounds of drugs destined for the United States had been rejected at the Port of New York alone. Bailey responded to the few "free trade" editorials published in opposition to the law in a manner reminiscent of Accum's complaints about the complexities of modern commerce: "...medicines are

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

every where purchased and sold by merchants dealing at the same time in every other description of merchandise, and who do not even profess to have any practical knowledge of the drug trade as a separate pursuit."[37]

Bailey now admitted that "home adulterations" were far more common than previously reported, but hoped that the new law would permit these activities to be traced to their "guilty source." But Bailey did not advocate the passage of state laws for this purpose. Rather, he suggested that the AMA appoint committees representing each of the states, "whose duty it shall be to closely scrutinize powdered drugs, and all other medicinal preparations," exposing frauds in the columns of the medical journals. The profession, in other words, should police itself. State laws for this purpose should be the course of "last resort."[38]

If it can be safely assumed that the emphasis Bailey gave to "all other" drugs was a subtle reference to patent medicines, his next proposal gains added significance. There was one type of law that Bailey urged be passed immediately: a law that would, as the American Journal of Pharmacy expressed it, prohibit "herbalists, grocers, and general store-keepers" from vending drugs.[39] The law of 1848 had removed a major source of drug adulteration without casting a bad reflection upon the American medical/pharmaceutical profession. Now these professionals were attempting to eliminate the principal threats to their control over the practice of medicine: the ready-made "cures" that increasingly were taking patients away from their care, and the non-professionals who sold these nostrums. Over the next years pharmaceutical leaders consistently sought laws to remove this competition, always with the promise that their profession could then eliminate adulteration, without further governmental interference.[40]

* * * * * * *

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

One historian of food adulteration has questioned whether adulteration truly increased in the second quarter of the nineteenth century, or whether "the rise of modern chemistry" merely made these frauds "more visible."[41] The great new weapon of analytical chemistry was the microscope, and it was the English physician Arthur Hill Hassall, a member of the Royal College of Surgeons and a recognized authority on the scientific use of the microscope, who first systematically applied this tool to food and drug analysis. In 1850 Hassall became interested in the quality of ground coffee available in London, and decided to employ his microscopical expertise to investigate. His paper, "On the Adulteration of Coffee," aroused a great deal of public attention because, coincidentally, the Chancellor of the Exchequer, Sir Charles Wood, had just testified in the House of Commons that it was impossible to determine "with any degree of certainty whether a mixture /of coffee/ contained chicory or not."[42]

As a result of this publicity Hassall was approached by Thomas Wakley, founder and editor of the medical journal the Lancet, the foremost publication of its kind. Wakley proposed forming an "Analytical Sanitary Commission" of the Lancet, and offered Hassall the position of chief analyst. Thus began an extensive investigation of food and drug adulteration, published in the Lancet between 1851 and 1854, gathered into book form in 1855, and then expanded into Adulterations Detected, published two years later. Hassall's work led directly to the Parliamentary investigations of adulteration in 1855 and 1856, and to the Adulteration of Food Act of 1860.

Aside from their microscopic illustrations, the Lancet reports made a further contribution by publishing the names of offenders. As one journal observed, "A gun suddenly fired into a rookery could not cause a greater

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

commotion than did this publication of the names of dishonest tradesmen; nor does the daylight, when you lift a stone, startle ugly and loathsome things more quickly than the pencil of light, streaming through a quarter-inch lens."[43] Hassall and Wakley established their charges so well that only one legal action was ever brought against the Lancet by those named in the articles, and even it was dropped before going to court.[44]

The articles, and the resulting book, Food and Its Adulterations, dealt primarily with food and drink; Hassall added material on drugs in his revision of 1857. Hassall's microscopical illustrations of pure and adulterated foods seemed irrefutable proof of his claims. But he sometimes made charges on mere hearsay, and prepared elaborate tables of purported adulterative substances. These tables became the mainstay for tracts on adulteration in the years following the Lancet material; Hassall's successors continued to reprint even his most exotic accusations. Moreover, Hassall reached conclusions about the vast extent of adulteration that--while they may have been true--he could not really establish, not having conducted a systematic investigation of its scope, merely of its nature.[45]

No purpose would be served by reviewing the hundreds of examples of food adulteration reported by Hassall. Rather, since milk was regarded as the most fundamental food, since the initial American reform activity in foods dealt with milk, and since Hassall's claims in this area were dutifully repeated by others, milk should serve as a sufficient illustration of his studies.

After reporting on the normal constituents of milk, and discussing the use of the lactometer[46] to measure its specific gravity, Hassall noted the weakness of relying on this test alone, much as had Beck. Of the adulterants possibly used to sophisticate milk, Hassall reported that

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Typical adulteration table, styled upon Hassall's. Taken from the British Chemical News, 10/6/60. (Reduced.)

TABLE

SHOWING THE MORE IMPORTANT ARTICLES OF FOOD AND DRINK,

AND

THE SUBSTANCES EMPLOYED FOR ADULTERATING THEM.

Wentworth L. Scott.

[The right of reproduction is reserved.]

[Reprinted from the Chemical News, Vol. II, 1860.]

Articles of Food and Drink.	Substances with which they are Adulterated. Class I.	Class II.	Class III.	Class IV.	Class V.	Class VI.	Remarks.
Acids:—Acetic, Vinegar	Wool spirit, tarry matters, &c.		Water.	*Sulphuric acid*, brown sugar, &c. (a)			a Rarely such acidic acid, probably from having used *sodio-muriatic*.
" Citric, "Lemon-juice" "Lime juice," &c.	*Microscopic fungi* and decaying organic matter.		Water.	Tartaric acid, *tartar*, sugar, &c. (b)			b Some "*calcareous digestives*" examined by the *contained nutritive acid at all?* Lemonade is said to be sometimes adulterated with mineral acids.
" Tartaric, "Effervescing-powders," drinks, &c.	*Results of imperfect manufacture.*		Water, white sugar	*Tartar.*			c Also the *cocculus*, *nux vomica*, *bitter ash wood*, "*ground of quassia*," *salivary* and even pure *strychnia*. Hops are liable to the attacks of a peculiar fungus, *erysiphe macularis*, and are adulterated with old and spent hops and worst dye. Some kinds of gum may be added to beer also to give richness.
Beer:—Ale, "Scotch," and other sweet varieties			Water, sugar	Sugar, *chamomile flowers*, salt, &c.			
" " "Bitter," "India," &c.			Water, sugar	COCCULUS INDICUS, NUX VOMICA, QUASSIA, &c. (c)			
" Porter and Stout			Water.	——*Sulph. acid*, liquorice, br. sugar, *logwood*, salt, &c.			d Some time ago butter was adulterated with *powder glass* at very low Large provincial towns.
" "Fancy" (See also *Butter, Sugar*, &c.)			——*Chalk, plaster of Paris*, &c.	Salt, *alum*, various starches, &c.			e I have not met with or heard of any thing containing clays or any mineral colours.
Butter:—Fresh "Devonshire," "Epping," &c.	*Butter-milk, curd, butyric and lact. acid*		Water, lard, mutton fat, starch, &c.	Potato and other starches, *alum*, salt, *borax*, &c.			f Acorns, parsnips, &c. roasted, are also occasionally added.
" Salt "Dorset," &c.			——Salt, nitre, *silicate of soda* (d).	——Carb. ammonia, gum, &c.			g The addition of *myrtle leaves* to tea is doubtful (in my opinion).
Cheese	*Fungi, animal. lact. and valerian acids*, &c.		*Inferior varieties*	Fats, annatto, *saffron*, *nitre*, &c.	*Various colouring matters*, &c. such as saffron, CHR. YEL. &c.		
Chicory	Results of over roasting	Ordin. dandelion roots, by error	*Brickdust*, oatmeal, dandelion, &c. (e)	Annatto.			
Chocolate	Results of over heating, imperfect fermentation, &c.	*Inferior nuts, unripe, old or germinating specimens*	*Brickd.* starches, oatmeal, linseed,	Coffee-grounds, bl. sugar, salt, &c.			
Cocoa	Impaired quality from over roasting	(When green) damaged berries, &c.	*Red clays, sawdust, tallow*, &c.	{Var. fats, RED LEAD, *Venetian red, red ochres, clays*, sugar, salt, &c.			
Coffee			Roasted corn, *beans, mould, star.* &c. (f)	Burnt sugar.			
Condiments and Spices:—Allspice, &c. (*powder*)	Results of improper preparation, packing, or of exposure to atmospheric influences, or fermentation, dust, &c.	Shrivelled corollas, twigs, &c.	*Brickd.* col. & oth. woods & *sweepings.*	Inferior spices, essences, &c.			
" " Cloves		Undeveloped and old fruits	Spent cloves, myrtle-husks*, &c.	Burnt sugar, oil of cloves, &c.		Sp. clo. & inv. &c.	
" " Ginger		Injured and undeveloped fruit, &c.	Flour, *chalk, plaster of Paris*, &c.	Cayenne pepper, &c.		Imitation ginger.	
" " Mace and Nutmegs			*Betel-nuts*, damaged samples, &c.	Oil of nutmegs		Betel-nuts, wooden nutmegs, &c.	
" " Mustard			*Clay*, flours, radish-seed, oatmeal, &c.	*Turmeric, gamb.* annatto, *Cay. pep.* &c.			
" " Pepper			*Brickd. boned. shale*, husks, star. &c.	Capsicums, long pepper, lime, &c.			
" " " Cayenne			*Brickd. clay*, oatm. *red wood chips*, &c.	Long pepper, &c.			
" " Vanilla	Results of improper drying, &c.	Unripe and damaged pods	Water, damaged and spent pods.	Treacle, essences, benzoin, &c.		Other bean-pods.	
Eggs	Results of packing in lime, dung-straw, &c.	*Addled and rotten eggs*	*Inferior and boiled eggs*			White eggs coloured like the rarer kinds (?)	
Farinaceous foods:—Arrow-root	Cellulose, &c. from imperf. washing, &c.		Potato, rice, & oth. star. sago-meal, &c.	Dextrine.*			
" Flour	*Dust, sand, (from millstones) bran*, &c.	*Results of diseased grain* (g)	Bad flour, starches, *plast. of Paris*, &c.	Salt, *alum*.			
" " Barley, *Oatmeal*, &c.			*Dust, sweepings*, starch, sawdust.	Salt, sugar.			
" " Millet	Dust, husks, &c.	Seeds of other *gramineæ*	Other seeds, husks, sand, &c.				
" " Peas, Beans, Lentils, &c.		Damaged specimens, &c.	Damaged, inf. kinds, horsebeans, &c.	Gum, dextrine.			
" " Sago, Tapioca, &c.	Results of over heating, &c.		Inferior and damaged varieties				
" " Wheat (grain)	Husks, dust, shrivelled and im. grains, &c.	*Smutted and milldewed grains*, &c. (h)	See 1st and 2nd Classes. Water, &c.	Steam (to swell the grains).			
Fish (fresh)	Results of improper packing, &c.	*Partly decomposed specimens*	Inferior varieties	Salt, *chloride of lime*, &c.			
" (preserved) Anchovies	*Results of improper preparation*, &c.		Sprats and other inferior varieties.	RED LEAD, *lake, Venetian red*, &c.		Sprats & oil skin's.	
" Sardines and other varieties	Decomposition from *rancid oil*, &c.						A common adulteration, or rather substitution.
Fruit (fresh) large varieties Apples, Pears, Oranges, Melons	*Results of improper packing, handling, or collecting.*	*Undeveloped or decaying specimens, various insects, fungi, dust*, &c.	*Washed, boiled, and false specimens*	*Alkaline and acid washes.**			* (1) alkali.
" small varieties, Strawberries, Currants, &c.			Inferior kinds, *unripe fruits, berries*, &c.	*Solution of tartaric acid*			† Generally organic, and not chemically impure.
(preserved) Jams, Jellies, &c.	*Products of ferm.* &c. &c. *use of damp fruit, inferior sugar, imperf. prep.* &c.		Starch, gelatine, gum, &c.	*Various colours, colours*, &c.		Folse specimens.	
" Marmalade			Starch, &c. ord. oranges, turnips, &c.	*Gamboge, salicine, and various bitters.*			‡ Far more common in Germany and parts of America than in this country, although specimens of German sausage, &c. affected with it are occasionally met with here, even those of British manufacture.
" Various dried kinds	*Results of imperfect preparation*, &c.		*Inferior and damaged varieties.*	*Various essences and colours*	*Various colouring matters.* (i)		
Gelatine:—Tinglass	*Fungoid growths from being stored when damp*, &c.		Gelatine of various qualities	Isinglass (externally applied).	*Various colouring matters.* (i)	Gelatine.	
" Gelatine			*Glue, gelatinised paper*, &c.			Glue.	
Liqueurs:—Curaçoa	Decomposed syrup from over heating, &c		Water, syrup, molasses	Sugar, *capsicums, pepper.*			
" (various)	*Products of fermentation.*		Water, gin, &c.	Sugar, salt, *nitro-benzole*, nux. vo. &c.			
Meat (various)	*Products of decomposition.* &c.	*Results of organic disease*, &c.	*Inferior portions of animal*	Salt, ARSENIC, *chloride of lime*, &c.			
" Pork, &c.	——	*Entozoa*, &c. PECULIAR POISON, &c. (j)					
" Tongue (ox)	Imperfect curing		*Old and diseased specimens*	Nitre, salt, &c.		Horses and cows' tongues.	
" Various cooked and preserved varieties	Contagion from method of killing, preparing, &c.		*Diseased and inferior portions*	Pepper, salt, and various spices.			
" Poultry, Game, &c.	*Results of bad feeding*, &c.	*Results of various diseases.*	*Damaged and inferior varieties*, &c.	——(When dres.) ARSENIC, &c. (k)			
Milk	*Results of damp, time*, &c.	*Taken at wrong periods*	*Water, butter-milk, skim-milk*	Annatto, *cerebral matter, chalk*, &c.			
Nuts (various)	*Fungoid growths*, &c. *from exposure to air.*	*Unripe or decayed specimens*, &c.	Damaged and inferior varieties.				
Oils:—Olive, Florence, Lucca, &c.		Colouring matter, &c.	Various animal oils, &c.				
Pickles:—"Mixed," "Piccalilly," &c. (See also *Vegetables, Condiments, and Vinegar*)	(See Vinegar, &c.)		*Inferior vegetables, spices*, &c.	VERDIGRIS, COPPERAS (*l*) *capsic.* &c.	Var. green colouring matters.		
Spirits:—Brandy	*Fusel-oil, wood spirit*, &c.		Water, gin, &c.	*Pepper, capsicums*, molasses, salt, &c.	SCHEELE'S GREEN, VERDITER, CHR. YEL. and OIL and other colours, orpiment,		
" Gin	*Fusel-oil*, &c.		Water	——Sulphuric acid, *turpentine*, &c.			
" Other varieties	—— Acetic, *butyric, valerianic acids*, &c.		Water, inferior varieties, &c.	*Various flavours*, &c.			
Sugars:—Loaf	Native colouring matter, &c.		Chalk*, clay*, beet-root-sugar, (m) &c.			Carrara marble.*	
" Brown	—— *Various insects, fungi*, &c. molasses		——*Sand*, salt, starches, &c.	Spicules, &c. of mica (?)			
" Honey	*Dust, products of fermentation*, &c.	Wax, peculiar flavouring principles, &c.	Water, flour, potato-starch, &c.	Sugar various kinds, &c.			
Sugar-plums (various articles of confectionary)	*Results of imperfect manipulation.*		*Chalk, plast. Paris* (n) *clay, flo. star.* &c.	Dextrine, molasses, &c.			
Tea:—Black	Old and over dried leaves from defective manipulation	Old and inferior leaves, twigs, &c.	(* *Lie tea,*" leaves of *ash, beech, buckthorn*, oak, pop. *sloe*, willow, &c. (o).	*Black-lead*, lamp-bl. salt, *Prus bl.* &c.	Var. *as mineral*, oil, or ARSENIC, &c. and various narcotics. (p)	"*Lie-tea*" containing *no tea at all*, but made up of sweepings, &c. coloured and "*faced.*"	
" Green		Old and inferior leaves, &c.		*Salts of iron*, COP. & LEAD, *turm.* &c.			
Vegetables:—Fresh ordinary varieties	*Discased and blighted specimens*, undrained soil and decaying specimens. Dust, insects, &c.	*Decaying or unwholesome*	*Old and damaged specimens*	Salt, carbonate of soda, &c.			
" " Asparagus		Root of ACONITUM NAPELLUS (q)					
" " Parsley		EHELLA CYNAPIUM (q)					
" " Watercresses		HETEROCHÆTA MOSTOSUM (q).					
" " Mushrooms		Var. species of poison. fungi, &c. (q)					
" Dried or preserved varieties (See *Pickles and Sauces*)							
Vinegar:—Malt	*Results of imperfect manipulation*		*Inferior varieties*, water, &c.		*Various colours and essences.*		
" Wine	—— *Fungi, acetic, fungi*, &c.		Water, *damaged preserves*, &c.	*Pepper, tart. acid, various flavours*, &c.			
" Foreign, Port, Claret, &c.	*Results of Oidium, tartar*, &c.		*Wet. cider, elder wine, extr. of logs*, &c.	Brandy, *capsicums, catechu*, &c.			
" " Sherry, Madeira, &c.	*Results of Oidium*, &c. in the vine		Water, ginger-wine*, &c.	Brandy, *capsicums, nit. essences*, &c.			
" " Champagne and allied wines			Wat. r, cider, gooseberry-juice, &c.	Tartaric acid, bicarbonate of soda, &c.			
" Allied beverages—Cider, Perry, &c.	*Results of bad fruit, imperf. manip.* &c.		Water, *vinegar*, &c.				

Acids:—Acetic, Vinegar	Wool spirit, tarry matters, &c.		Water.	*Sulphuric acid*, brown sugar, &c. (a)			a Rarely such acidic acid, probably from having used *sodio-muriatic*.
" Citric, "Lemon-juice" "Lime juice," &c.	*Microscopic fungi* and decaying organic matter.		Water.	Tartaric acid, *tartar*, sugar, &c. (b)			b Some "*calcareous digestives*" examined by the *contained nutritive acid at all?* Lemonade is said to be sometimes adulterated with mineral acids.
" Tartaric, "Effervescing-powders," drinks, &c.	*Results of imperfect manufacture.*		Water, white sugar	*Tartar.*			c Also the *cocculus*, *nux vomica*, *bitter ash wood*, "*ground of quassia*," *salivary* and even pure *strychnia*. Hops are liable to the attacks of a peculiar fungus, *erysiphe macularis*, and are adulterated with old and spent hops and worst dye. Some kinds of gum may be added to beer also to give richness.
Beer:—Ale, "Scotch," and other sweet varieties			Water, sugar	Sugar, *chamomile flowers*, salt, &c.			
" " "Bitter," "India," &c.			Water, sugar	COCCULUS INDICUS, NUX VOMICA, QUASSIA, &c. (c)			
" Porter and Stout			Water.	——*Sulph. acid*, liquorice, br. sugar, *logwood*, salt, &c.			d Some time ago butter was adulterated with *powder glass* at very low Large provincial towns.
" "Fancy" (See also *Butter, Sugar*, &c.)			——*Chalk, plaster of Paris*, &c.	Salt, *alum*, various starches, &c.			e I have not met with or heard of any thing containing clays or any mineral colours.
Butter:—Fresh "Devonshire," "Epping," &c.	*Butter-milk, curd, butyric and lact. acid*		Water, lard, mutton fat, starch, &c.	Potato and other starches, *alum*, salt, *borax*, &c.			f Acorns, parsnips, &c. roasted, are also occasionally added.
" Salt "Dorset," &c.			——Salt, nitre, *silicate of soda* (d).	——Carb. ammonia, gum, &c.	*Various colouring matters*, &c. such as saffron, CHR. YEL. &c.		g Some time ago butter was adulterated with *powder glass* at very low Large provincial towns.
Cheese	*Fungi, animal. lact. and valerian acids*, &c.		*Inferior varieties*	Fats, annatto, *saffron*, *nitre*, &c.			h I have not met with or heard of any thing containing clays or any mineral colours.
Chicory	Results of over roasting	Ordin. dandelion roots, by error	*Brickdust*, oatmeal, dandelion, &c. (e)	Annatto.			i Acorns, parsnips, &c. roasted, are also occasionally added.
Chocolate	Results of over heating, imperfect fermentation, &c.	*Inferior nuts, unripe, old or germinating specimens*	*Brickd.* starches, oatmeal, linseed,	Coffee-grounds, bl. sugar, salt, &c.			j The addition of *myrtle leaves* to tea is doubtful (in my opinion).
Cocoa	Impaired quality from over roasting	(When green) damaged berries, &c.	*Red clays, sawdust, tallow*, &c.	{Var. fats, RED LEAD, *Venetian red, red ochres, clays*, sugar, salt, &c.			
Coffee			Roasted corn, *beans, mould, star.* &c. (f)	Burnt sugar.			
Condiments and Spices:—Allspice, &c. (*powder*)	Results of improper preparation, packing, or of exposure to atmospheric influences, or fermentation, dust, &c.	Shrivelled corollas, twigs, &c.	*Brickd.* col. & oth. woods & *sweepings.*	Inferior spices, essences, &c.			
" " Cloves		Undeveloped and old fruits	Spent cloves, myrtle-husks*, &c.	Burnt sugar, oil of cloves, &c.		Sp. clo. & inv. &c.	
" " Ginger		Injured and undeveloped fruit, &c.	Flour, *chalk, plaster of Paris*, &c.	Cayenne pepper, &c.		Imitation ginger.	
" " Mace and Nutmegs			*Betel-nuts*, damaged samples, &c.	Oil of nutmegs		Betel-nuts, wooden nutmegs, &c.	
" " Mustard			*Clay*, flours, radish-seed, oatmeal, &c.	*Turmeric, gamb.* annatto, *Cay. pep.* &c.			
" " Pepper			*Brickd. boned. shale*, husks, star. &c.	Capsicums, long pepper, lime, &c.			
" " " Cayenne			*Brickd. clay*, oatm. *red wood chips*, &c.	Long pepper, &c.			
" " Vanilla	Results of improper drying, &c.	Unripe and damaged pods	Water, damaged and spent pods.	Treacle, essences, benzoin, &c.		Other bean-pods.	
Eggs	Results of packing in lime, dung-straw, &c.	*Addled and rotten eggs*	*Inferior and boiled eggs*			White eggs coloured like the rarer kinds (?)	
Farinaceous foods:—Arrow-root	Cellulose, &c. from imperf. washing, &c.		Potato, rice, & oth. star. sago-meal, &c.	Dextrine.*			
" Flour	*Dust, sand, (from millstones) bran*, &c.	*Results of diseased grain* (g)	Bad flour, starches, *plast. of Paris*, &c.	Salt, *alum*.			
" " Barley, *Oatmeal*, &c.			*Dust, sweepings*, starch, sawdust.	Salt, sugar.			
" " Millet	Dust, husks, &c.	Seeds of other *gramineæ*	Other seeds, husks, sand, &c.				
" " Peas, Beans, Lentils, &c.		Damaged specimens, &c.	Damaged, inf. kinds, horsebeans, &c.	Gum, dextrine.			
" " Sago, Tapioca, &c.	Results of over heating, &c.		Inferior and damaged varieties				
" " Wheat (grain)	Husks, dust, shrivelled and im. grains, &c.	*Smutted and milldewed grains*, &c. (h)	See 1st and 2nd Classes. Water, &c.	Steam (to swell the grains).			
Fish (fresh)	Results of improper packing, &c.	*Partly decomposed specimens*	Inferior varieties	Salt, *chloride of lime*, &c.			
" (preserved) Anchovies	*Results of improper preparation*, &c.		Sprats and other inferior varieties.	RED LEAD, *lake, Venetian red*, &c.		Sprats & oil skin's.	
" Sardines and other varieties	Decomposition from *rancid oil*, &c.						A common adulteration, or rather substitution.
Fruit (fresh) large varieties Apples, Pears, Oranges, Melons	*Results of improper packing, handling, or collecting.*	*Undeveloped or decaying specimens, various insects, fungi, dust*, &c.	*Washed, boiled, and false specimens*	*Alkaline and acid washes.**			* (1) alkali.
" small varieties, Strawberries, Currants, &c.			Inferior kinds, *unripe fruits, berries*, &c.	*Solution of tartaric acid*			† Generally organic, and not chemically impure.
(preserved) Jams, Jellies, &c.	*Products of ferm.* &c. &c. *use of damp fruit, inferior sugar, imperf. prep.* &c.		Starch, gelatine, gum, &c.	*Various colours, colours*, &c.		Folse specimens.	
" Marmalade			Starch, &c. ord. oranges, turnips, &c.	*Gamboge, salicine, and various bitters.*			‡ Far more common in Germany and parts of America than in this country, although specimens of German sausage, &c. affected with it are occasionally met with here, even those of British manufacture.
" Various dried kinds	*Results of imperfect preparation*, &c.		*Inferior and damaged varieties.*	*Various essences and colours*	*Various colouring matters.* (i)		
Gelatine:—Tinglass	*Fungoid growths from being stored when damp*, &c.		Gelatine of various qualities	Isinglass (externally applied).	*Various colouring matters.* (i)	Gelatine.	
" Gelatine			*Glue, gelatinised paper*, &c.			Glue.	
Liqueurs:—Curaçoa	Decomposed syrup from over heating, &c		Water, syrup, molasses	Sugar, *capsicums, pepper.*			
" (various)	*Products of fermentation.*		Water, gin, &c.	Sugar, salt, *nitro-benzole*, nux. vo. &c.			
Meat (various)	*Products of decomposition.* &c.	*Results of organic disease*, &c.	*Inferior portions of animal*	Salt, ARSENIC, *chloride of lime*, &c.			
" Pork, &c.	——	*Entozoa*, &c. PECULIAR POISON, &c. (j)					
" Tongue (ox)	Imperfect curing		*Old and diseased specimens*	Nitre, salt, &c.		Horses and cows' tongues.	
" Various cooked and preserved varieties	Contagion from method of killing, preparing, &c.		*Diseased and inferior portions*	Pepper, salt, and various spices.			
" Poultry, Game, &c.	*Results of bad feeding*, &c.	*Results of various diseases.*	*Damaged and inferior varieties*, &c.	——(When dres.) ARSENIC, &c. (k)			
Milk	*Results of damp, time*, &c.	*Taken at wrong periods*	*Water, butter-milk, skim-milk*	Annatto, *cerebral matter, chalk*, &c.			
Nuts (various)	*Fungoid growths*, &c. *from exposure to air.*	*Unripe or decayed specimens*, &c.	Damaged and inferior varieties.				
Oils:—Olive, Florence, Lucca, &c.		Colouring matter, &c.	Various animal oils, &c.				
Pickles:—"Mixed," "Piccalilly," &c. (See also *Vegetables, Condiments, and Vinegar*)	(See Vinegar, &c.)		*Inferior vegetables, spices*, &c.	VERDIGRIS, COPPERAS (*l*) *capsic.* &c.	Var. green colouring matters.		
Spirits:—Brandy	*Fusel-oil, wood spirit*, &c.		Water, gin, &c.	*Pepper, capsicums*, molasses, salt, &c.	SCHEELE'S GREEN, VERDITER, CHR. YEL. and OIL and other colours, orpiment,		
" Gin	*Fusel-oil*, &c.		Water	——Sulphuric acid, *turpentine*, &c.			
" Other varieties	—— Acetic, *butyric, valerianic acids*, &c.		Water, inferior varieties, &c.	*Various flavours*, &c.			
Sugars:—Loaf	Native colouring matter, &c.		Chalk*, clay*, beet-root-sugar, (m) &c.			Carrara marble.*	
" Brown	—— *Various insects, fungi*, &c. molasses		——*Sand*, salt, starches, &c.	Spicules, &c. of mica (?)			
" Honey	*Dust, products of fermentation*, &c.	Wax, peculiar flavouring principles, &c.	Water, flour, potato-starch, &c.	Sugar various kinds, &c.			
Sugar-plums (various articles of confectionary)	*Results of imperfect manipulation.*		*Chalk, plast. Paris* (n) *clay, flo. star.* &c.	Dextrine, molasses, &c.			
Tea:—Black	Old and over dried leaves from defective manipulation	Old and inferior leaves, twigs, &c.	(* *Lie tea,*" leaves of *ash, beech, buckthorn*, oak, pop. *sloe*, willow, &c. (o).	*Black-lead*, lamp-bl. salt, *Prus bl.* &c.	Var. *as mineral*, oil, or ARSENIC, &c. and various narcotics. (p)	"*Lie-tea*" containing *no tea at all*, but made up of sweepings, &c. coloured and "*faced.*"	
" Green		Old and inferior leaves, &c.		*Salts of iron*, COP. & LEAD, *turm.* &c.			
Vegetables:—Fresh ordinary varieties	*Discased and blighted specimens*, undrained soil and decaying specimens. Dust, insects, &c.	*Decaying or unwholesome*	*Old and damaged specimens*	Salt, carbonate of soda, &c.			
" " Asparagus		Root of ACONITUM NAPELLUS (q)					
" " Parsley		EHELLA CYNAPIUM (q)					
" " Watercresses		HETEROCHÆTA MOSTOSUM (q).					
" " Mushrooms		Var. species of poison. fungi, &c. (q)					
" Dried or preserved varieties (See *Pickles and Sauces*)							
Vinegar:—Malt	*Results of imperfect manipulation*		*Inferior varieties*, water, &c.		*Various colours and essences.*		
" Wine	—— *Fungi, acetic, fungi*, &c.		Water, *damaged preserves*, &c.	*Pepper, tart. acid, various flavours*, &c.			
" Foreign, Port, Claret, &c.	*Results of Oidium, tartar*, &c.		*Wet. cider, elder wine, extr. of logs*, &c.	Brandy, *capsicums, catechu*, &c.			
" " Sherry, Madeira, &c.	*Results of Oidium*, &c. in the vine		Water, ginger-wine*, &c.	Brandy, *capsicums, nit. essences*, &c.			
" " Champagne and allied wines			Wat. r, cider, gooseberry-juice, &c.	Tartaric acid, bicarbonate of soda, &c.			
" Allied beverages—Cider, Perry, &c.	*Results of bad fruit, imperf. manip.* &c.		Water, *vinegar*, &c.				

Note.—The names of adulterants more or less injurious to health are printed in *italics*, poisonous substances in small capitals. A dash rule —— in any column represents *all the substances* in the line immediately above it.

In the above Table the adulterants are thus classified:—

Class I. Results of imperfect purification or preparation, or of improper packing or storing, &c. (*frauds without, or from negligence*).

Class II. (In dried wood in water (dry, or nearly so.) Results of animal decomposition, organic disease, certain parasitical plants and insects, or various injurious agents, apparently resembling the true ones for which they are sold (*fraudulent, or from negligence*).

Class III. Adulterants employed as diluents (*fraudulent*).

Class IV. Adulterants used for imparting fictitious "strength," flavour, or colour, &c. (*fraudulent*).

Class V. Substances not employed as adulterants proper, but for the purpose of additional ornamentation or disguise (*highly injurious to health, but not legally speaking fraudulent*).

Class VI. Substances not employed as adulterants proper, being substituted *for* or *in imitation* of the true articles for which they are sold (*distinctly fraudulent*).

Published by C. Mitchell & Co. 12 Red Lion Court, Fleet Street, E.C.

Printed by Straker, Young and Co. 326, High Holborn.

those in actual use included water, treacle or other sweeteners, salt, annatto, turmeric, gum tragacanth, bicarbonate of soda, starch, chalk, and "cerebral matter." He reviewed the chemical or microscopical techniques for detecting the presence of each of these ingredients, as well as for some "alleged adulterations," such as boiled white carrots.

To what extent had Hassall observed these substances in his own tests? He reported that he had examined twenty-six samples of London milk--a rather narrow sample from which to draw broad conclusions. Of these, he reported that twelve were genuine, and fourteen adulterated. But the only adulterant he states having actually found was "water." Yet Hassall was positive that the other sophistications were in actual use, that, though he had never personally observed chalk, cerebral matter, or starch in milk, "there is no question but that /they/ have been are are occasionally, though rarely, employed." Yet the only proof he could provide was hearsay evidence, often very vague in nature: "There is also good reason for believing...." "Further, it has been stated that...." Hassall's philosophy seems to have been to include even the most doubtful adulteration, then indicate that its use "is but little probable."[47]

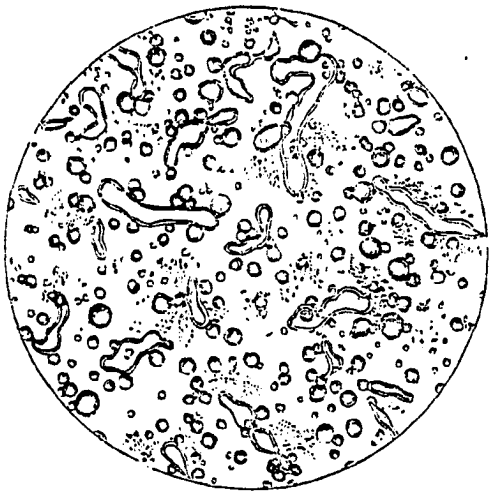
The most bizarre of Hassall's claims was that "cerebral matter"--sheeps' brains--was sometimes used to adulterate milk: "Starch and cerebral matter have been met with at different times by more than one observer. Professor /John T./ Queckett has in his possession some drawings made from samples of adulterated milk, showing the presence of both starch and cerebral matter." Hassall then reproduced Prof. Queckett's drawing.[48]

At the hearings conducted by the House of Commons on adulteration in 1856 Prof. Queckett appears to have been the only witness to testify to having found this substance in milk. In response to questioning he said:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Fig 73.

MILK ADULTERATED WITH SHEEP'S BRAINS.



> About five or six years ago I investigated one case in which nervous matter formed the sediment; but I may say that since that time I have not been able to detect anything of the kind..../Question #/ 401. The only adulteration you have detected in milk since that time has been the not uncommon one of the mixture of water with the milk? --Exactly so..../Question #/ 403. It has been currently reported that sheeps' brains are largely used in milk; is that correct? --I do not think that has been done lately.[49]

Even if Queckett had not been mistaken "five or six years" earlier, he had discovered only a single case of "brains" in milk; since then he had found only water used as an adulterant.

At the hearings Hassall was not only the chief witness, but was permitted to both open and close the testimony. He testified that "In 999 cases out of 1,000 I may state that I have only given to the Committee evidence of which I have distinct personal knowledge, and not from hearsay."[50] But Hassall's testimony was replete with phrases such as "I believe," "I am not prepared to say," "I have never found /a particular adulterant/ myself, but there is undoubted evidence of the fact...." For all his unquestionable skill with the microscope, and despite the fact that the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

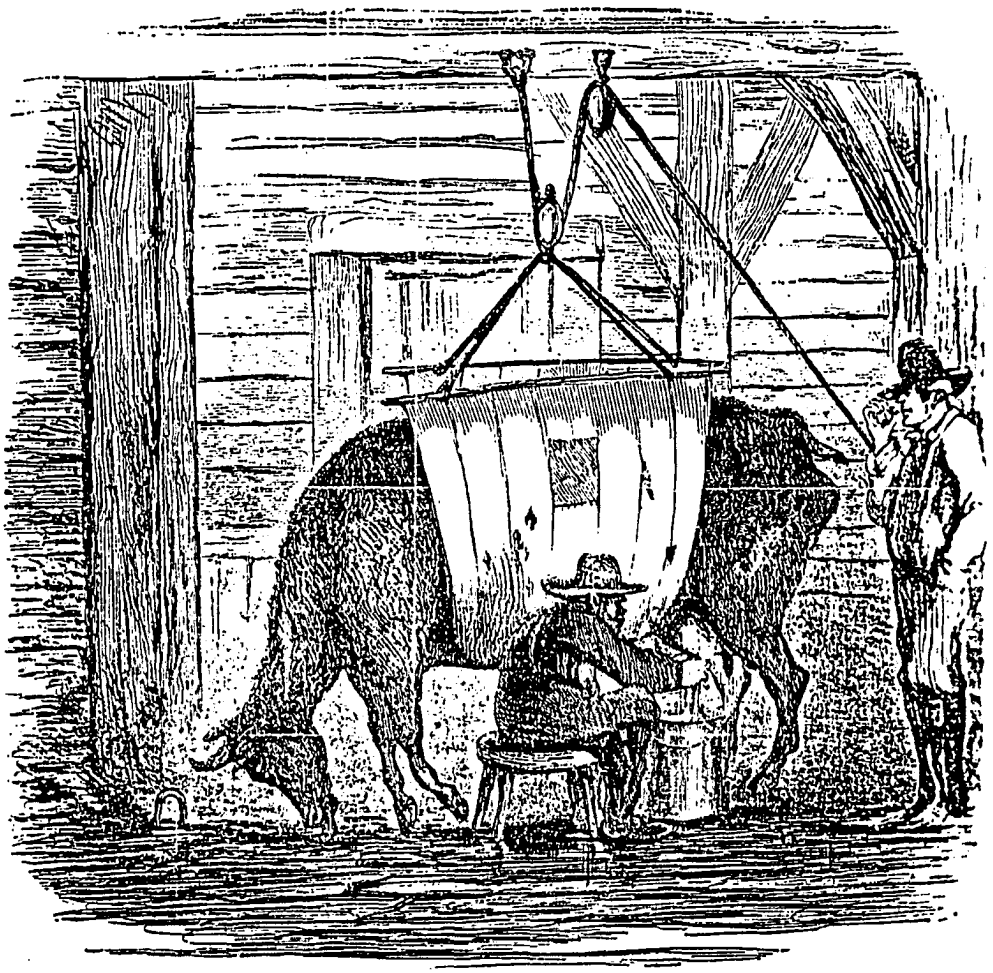
Parliamentary Committee found him more than credible, Hassall was an unreliable witness. Perhaps it was merely his zeal that led him to exaggerate, but nonetheless there are countless gaps of proof or logic in what he had to say, and in what he published. Yet, for a generation, Hassall's assertions continued to be the authoritative source American reformers would draw upon.

* * * * * * *

In New York, at this time, milk had suddenly become a burning issue once again. The question of swill milk had never really disappeared, despite the failure of the effort of Drs. Griscom and Gardner. In the 1850's the newspapers repeatedly ran stories about the intolerable conditions in the "distillery" stables. The Tribune had asserted, in 1849 and 1853, that thousands of New York infants died each year because of swill milk. In 1854 the Times "blamed swill milk for the deaths of no fewer than 9,847 children under the age of two." The City Inspectors' reports were filled with citizens' complaints about swill dairies and the stench they caused, and by 1857 the Times was estimating that over two-thirds of all New York City milk came from the distillery stables.[51]

Then, in the spring of 1858, Frank Leslie's Illustrated Weekly Newspaper began a campaign against the swill milk industry. Although Leslie's attack had strong elements of "yellow" journalism--the famous illustration below shows a distillery cow so weak it had to be suspended from a beam for milking--his accusations were true in their essentials. The campaign, kept up over several issues, and supported by both the Times and the Tribune, finally forced the hand of the City Common Council. But the cursory inspection of Alderman Michael Tuomey, whom, along with Alderman

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.



Leslie's Illustrated, 5/15/58

E. Harrison Reed, Leslie would soon accuse of whitewashing the situation, convinced no one.[52] The public protest against this scandalous "investigation" led the Board of Health to appoint a special committee to look into the situation.

But the "board of health" at this time consisted merely of the mayor and the Common Council; various aldermen and other city officers were designated "commissioners of health," and were to confer with the mayor on matters related to the public health.[53] Thus the "Select Committee"

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

conducting the June 1858 investigation on swill milk consisted merely of four aldermen, two of whom were Tuomy and Reed. These two conducted most of the interrogation, and freely permitted the attorney for the owner of the largest swill stable unrestricted right of examination; it sometimes appeared that the swill interests were conducting the hearings.

Moreover, one of the two "eminent chemists" hired by the Committee to analyze the swill milk was R. Ogden Doremus, who would play an obstructionist role in several future conflicts over adulteration. Although unquestionably a competent chemist, Doremus' commitment to public health is debatable; his services were for sale to the highest bidder, which almost invariably was the person or company accused of adulterating.

To make matters worse, free access to the hearing-room was granted, with the result that hordes of swill-stable employees attended daily. The situation became so uncontrolled that Leslie, who was the chief witness against the stables, and who brought a number of medical and other witnesses to testify in confirmation of his accusations, refused to appear before the Committee when called. He sent a letter to the Committee, complaining that "the room has been crowded by the employees of the Sixteenth street stables, who have on each occasion threatened me with personal violence, and have intimidated several of my important witnesses from coming forward."[54] The Committee then subpoenaed Leslie, who, now that his protests had been publicly aired in the newspapers, was given more leeway by Tuomey and Reed.

With conditions controlled by those opposed to Leslie, chances for a condemnation of the swill stables were slim. Things were made worse by the repeated insistence of Leslie's witnesses that distillery waste was fatally poisonous, not only to the cattle, but to children drinking their milk, for such broad claims could not be documented.[55] The more appropriate accusa-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

tions were directed to the filthy conditions of the stables and the cattle, and the carelessness of the "dairymaids" (predominantly Irish men). Cow droppings and urine, and the unwashed hands of the men, all went into the milk. But these accusations were not as effective as they might have been, for the stable owners had been given advance warning of the "official" investigation; half the cattle had been moved out of the stables, which had been cleaned as thoroughly as possible.

Nor were Drs. Griscom and Gardner very effective witnesses on Leslie's behalf. Griscom admitted that "I am not able to say that I have treated a case of disease contracted directly from swill milk,"[56] nor was he able to establish clearly that the analyses of swill and "country" milk made for the Academy of Medicine in 1847 were proof of the superiority of one over the other. Moreover, Griscom testified that watered milk was actually better "for very young children" than pure milk. Since he could not pinpoint exactly "what proportion" of water was best he laid himself open to questioning that implied that milk that was half added water was superior to unadulterated milk, thereby weakening his credibility.[57] The testimony of Dr. Gardner was based, not on a scientific and objective evaluation, but on an emotional appeal. He explained that "if God made the milk in a certain way, that it could not be improved upon; and if any milk was totally opposite from the natural milk, God's milk, that it must be totally wrong."[58]

The Majority Report, signed by Tuomey and Reed, and by Alderman William Tucker, gave the swill stables a clean bill of health, although it recommended increased ventilation, and greater stall space for the cattle, since the average of three feet currently provided made it impossible for them to lie down. The Minority Report, by Alderman Charles H. Haswell, condemned

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the distillery stables because of their filth, the diseases of the cows, and the careless practices of the milking-men. He called for the complete elimination of all such establishments. He also vehemently pointed out that these cattle, when disease had reduced their condition below profitableness, were commonly slaughtered and sold for meat, and that some carcasses "of cows that have died of disease have been dressed and exposed for sale for a like purpose."[59]

But it looked as if Leslie's agitation would have no permanent results. Griscom and Gardner approached the Academy of Medicine once again on June 2, 1858--the very day that the public hearings began--in an attempt to get Academy support for the condemnation of swill milk. Their resolution was voted down, thirty-five to twenty-four. On July 14 the City Council discussed the reports and records of the hearings, and voted to accept the Majority Report.

Mayor Tiemann, however, soon approached the Academy with a request that it investigate the swill milk question further. The report of the committee formed to fulfill this request was presented to the Academy the following March. It condemned both swill milk and the meat of distillery-fed cattle, citing the testimony provided by Thomas DeVoe, spokesman for the city's butchers. This time the Academy voted to accept its committee's report. The recommendation to prohibit the sale of swill milk, and to institute licensing for all persons involved in milk distribution was sent to the mayor.[60]

But, when no legal remedy for the ills of adulteration was forthcoming, Leslie renewed the attack in his Weekly, and other publications joined the battle. An article in the Knickerbocker, though merely repeating the worst accusations made by Hassall, and offering no evidence of similar American

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

conditions, declared that "the practice of adulteration extends to almost every article of food....Not only do luxuries possess the deleterious ingredients, but the commonest necessities of life are contaminated...." The Knickerbocker claimed that New York milk was "diluted with water and thickened with chalk, and in some instances with sheeps' brains."[61] An article in Hunt's Merchants' Magazine acknowledged wide-spread adulteration but--as other business-oriented journals would later repeat--placed much of the responsibility upon the "bargain"-hunting consumer.[62]

In 1861 What We Eat, an extensive volume on adulteration that gave special attention to American conditions and to the milk problem, was published in Boston. Although most of Thomas Hoskins' statements applied specifically to foods obtained in Massachusetts, he was intimately concerned about the New York milk campaign. Written at the time that the first English food law was passed, Hoskins' book urged that in America too, this evil "has become at last so enormous as to call imperatively for governmental interference, to protect the lives and pockets of the public."[63]

His greatest concern was for the adulteration of the foods that directly affected children, and Hoskins quite properly devoted much attention to the frequently poisonous colorings used in confectionery, and to "poisonous milk."[64] Hoskins' treatment of swill milk reflected the general theory of disease prevalent in this period, before the germ theory had been promulgated. The foundations of public health in America derive from the medical theory of "miasma." It was believed that invisible poisons emanating from filth, sewers, bodily discharges, and fecal matter directly caused disease. Thus the earliest public health "sanitarians" believed that disease could not develop if the cities were cleared of all contamination. The sanitarians' misconceptions were nonetheless serendipitous, for street-cleaning, sealed

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

cartage for "night soil," the elimination of slaughter-house refuse, etc., by reducing the breeding-ground for germs, helped reduce the urban death rate. Hoskins argued that the miasma of the confined stables affected both the cattle and their milk, making it poisonous. Though this "fine and virulent animal poison...like the fatal malaria of swamps" had eluded "the most delicate tests which art has yet been able to employ," Hoskins insisted it must nonetheless exist.[65]

Hoskins traced the history of the confrontation between Frank Leslie and Aldermen Tuomey and Reed, leaving "to the reader's judgment" the question of whether the aldermen were "open to the suspicion of bribery." "However that may be, in this case, as in most others where in large cities the public welfare comes in collision with the interests of wealthy individuals or corporations, the public welfare went down, 'and bloody money triumphed over it.'" Hoskins even went so far as to suggest that, "unprotected in their dearest rights by the legal authorities," the people of New York "would hardly be condemned by public sentiment" if they should resort to "mob-law."[66]

Hoskins ridiculed the excuse "that the public demand goods so cheap in price that it is impossible to furnish them of the proper quality," and called for the cooperation of all honest dealers to help suppress the unfair competition of the adulterator. Despite the good intentions of men like Hassall and Leslie, "the efforts of the press alone, in this direction, are an entirely insufficient protection to the public." Publicity merely encourages "a reliance upon the terror of public exposure, rather than upon the law, for protection." But Hoskins seems to have held little hope for significant legislation: "In a letter received by me, a few days since, from that most distinguished friend of sanitary science, Dr. John

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

H. Griscom, of New York, he informs me that all attempts to obtain enactments for the suppression of the horrible distillery milk-stables have entirely failed."[67]

Frank Leslie also seems to have temporarily abandoned hope for legislation. At this time he editorialized that the city government refused to take action against the swill stables because the wealthy owners could "buy off the crusade." But Leslie, by 1861, had gained powerful allies in his battle. The Academy of Medicine had now taken a stand against swill milk, and the New York Sanitary Association and the AICP were campaigning in Albany.[68] A milk bill passed the State Senate in 1861, but failed in the Assembly. The New York press kept up its support, hoping for success the following year, and the influential journal, the North American Review, joined the battle with a very extensive (forty-page) article on adulteration.

The Review took the position that "Nothing, we may say, in the whole domain of Nature, has escaped this universal contamination," but reserved its harshest criticism for three "most serious and pernicious" villanies: the sophistication of drugs, milk, and candies.[69] Though the journal stated that "the chief adulteration of milk is with water; the others are of minor importance," it nonetheless mentioned the "traditional" accusations, including "sheep's brains." It condemned the continuing problem of the swill-milk stables. But it reserved its harshest treatment for the use of poisonous confectionery colorings, quoting Dr. Hoskins: "How many children have expired in sudden convulsions, where no one ever suspected the virulent cause in the apparently innocent, gayly-colored sugar-plum, clasped in its little hand, perhaps even in its dying struggles."[70]

The article condemned adulteration, not only for its obvious dangers to health, but also "its immoral influences upon trade,--encouraging fraud,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and discouraging the honest trader by a ruinous system of underselling." The Review agreed with Hoskins that these evils could not be eliminated by publicity alone, and that legislation was needed. But the article raised a problem that would not be overcome in the nineteenth century--nor at the present time, for that matter. Western society had great difficulty treating merchants as common criminals. In contrast to the harsh punishment meted out to the:

> urchin who filches a bun...the cunning and systematic adulterator of our food and drink, who robs us, not only of our money, but sometimes also of our health and strength.../is/ allowed to violate the law with impunity in his daily dealings, and not only to go unpunished, but to carry about with him, as at present he commonly does, in his intercourse with his fellows, the undeserved reputation of an honest man....[71]

The Review complained about the options of punishment available under the English law of 1860, implying that sentencing depended on the whim of the magistrate and the influence and position of the offender. The law was too "lenient, and easily evaded." Though, for the moment, the only "safeguard" in America for "the defrauded consumer of adulterated foods" was "Caveat emptor!" the journal hoped that this nation would soon pass laws like those of "the more positive and executive governments of the continent of Europe."[72]

Finally, on April 23, 1862, both houses of the state legislature passed the long-awaited bill prohibiting the adulteration of milk. The new law provided a $50 fine for the sale of adulterated or unwholesome milk, or for maintaining a swill stable. But the law failed to define clearly what constituted an adulteration, or to restrict the addition of water.[73] The law was amended two years later to forbid specifically the "addition of water or any substance other than a sufficient quantity of ice to preserve the milk while on transportation to market," and to de-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

fine all milk from swill-fed cows as being "impure and unwholesome."[74]

One important loop-hole remained, however, for the laws only made it illegal to "knowingly" sell adulterated milk. (This wording was absent from the sections of the laws directed at those who actually perform the adulteration.) This question of guilty knowledge would play an important part in the legal battles to come, and set back for a number of years the attempts to prosecute adulterators. Moreover, even when "an effective health administration" had been established, in 1866, the sheer number of dairies and milk dealers militated against efficient enforcement of the laws.[75] But at least there was now a legal foundation for the effort to fight the adulteration of this most vital food.

* * * * * * *

Paralleling the debate over the public's "demand" for cheap foods, there were conflicting notions among medical reformers of where to place the blame for the adulteration of drugs, and for the proliferation of patent medicines. For example, Dr. Griscom had argued in 1854 that "the fault lies rather with the public which patronizes, and not so much with the tradesman who profits by" the sale of nostrums. It was the duty of the medical professionals, Griscom explained, to educate the people away from "charlatanry."[76] An 1859 report on a pharmaceutical convention in Boston explained that the pharmacists "manfully acknowledge it to be their high duty to purge their profession of the disgrace which their dishonest brethren bring upon it." But the article also noted that the pharmacists were especially critical of patent drugs.[77] The North American Review had estimated that the state of the American drug market "is even worse than in England," but argued that "These sophistications probably take place in the drug-grinders' hands. We

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

do not believe that the retail druggists are guilty of them, but they do not all test, or know how to examine, their drugs, and the fraud passes unsuspected by them."[78]

It will be remembered that Dr. Bailey had recommended that the AMA police the domestic drug market, and had advised against state laws regulating drug adulteration, but sought legislation that would eliminate patent medicines, and keep non-professionals such as grocers from vending drugs. But those professional pharmacists who controlled the colleges of pharmacy and represented their profession within the AMA were not satisfied with the operation of the law of 1848. They wished to establish a firm set of standards to be used by the port drug inspectors. But the AMA, at its 1851 meeting, rejected their proposal. Did this small group of pharmacists, the medical men asked, truly represent the sentiments of the entire profession? Out of this disagreement developed the American Pharmaceutical Association (APhA).

In October 1852 a group of about twenty pharmacists, representing local societies and colleges of pharmacy, met to form the first national pharmaceutical organization. The initial constitution adopted by the new Association admitted into membership all druggists, but only if they adhered to a "code of ethics" and would "discountenance quackery"--refuse to sell nostrums. But too many practicing druggists depended upon the sale of the patent medicines, and within three years this membership requirement was dropped. The new constitution of 1856 compromised by explaining that it was the goal of APhA "to suppress empiricism /quackery/ and as much as possible to restrict the dispensing and sale of medicines to regularly educated druggists and apothecaries."[79]

To establish high and firm standards for drugs, the United States

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Pharmacopœia (USP), in publication since 1820, was adopted as the semi-official guide for all American druggists. A pharmacopoeia is a book describing drugs and chemicals, with information about their "standard" composition, formulae for preparation, and related information. The language of the 1848 law, however, sanctioned the use of five different pharmacopoeias, published in the United States and Europe.[80] This meant that the federal inspectors could legally choose among varying standards for particular drugs; the USP was but one guide.

Even before the founding of the first college of pharmacy in America--the Philadelphia College of Pharmacy (1821)--a group of eleven physicians, each representing a local medical society or school, met in Washington to authorize the publication of a national pharmacopoeia. A committee was appointed under the leadership of Dr. Lyman Spalding, who had initiated the conference, to draft the manuscript. It was published in December 1820, and was an immediate success, for a second edition was published within two years.[81] Because of "the progressive improvements in medicine," it was understood that the USP would require periodic revision. Thus the Washington convention voted that in ten years--or sooner, if necessary, a similar convention would be called for this purpose.[82]

But when the first revision of the USP appeared, in 1830, it was almost immediately followed by another, different, "first revision," which most pharmacists felt to be a superior version. This variant publication gradually usurped the "official" title of the USP. The editors of this publication were Drs. George B. Wood and Franklin Bache, of the Philadelphia College of Pharmacy, who continued to publish revisions of it for the rest of their lives, along with an accompanying volume, The United States Dispensatory. The commercial success of the Dispensatory, which was an expli-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

cation and commentary on the USP, provided the financing for the older book. Thus, with the publication of the first edition of this schismatic revision, in 1831, the pharmacists controlled the USP.[83]

As criticism of drug adulteration increased in the late 1850's, leaders of APhA responded--perhaps defensively--that the problem was centered in flaws within the 1848 Drug Law. In 1858 APhA petitioned Congress to improve the system by which inspectors were appointed, arguing that improperly-qualified inspectors--presumably non-members of APhA--were stationed in some of the ports,[84] and that drugs rejected by a qualified inspector were merely reshipped to another port, where a less competent, or more venal, inspector might well pass on them.

With the election of President Lincoln, and the opportunity for a fresh start presented by the new Republican administration, a host of New York medical and pharmaceutical societies organized a joint committee to renew these appeals. The leading spokesman for these groups was Dr. Edward R. Squibb, a Brooklyn doctor and pharmaceutical manufacturer who had rapidly gained a reputation for competence and honesty, and who would later play an important role in the broader battle against adulteration. In a letter to the American Medical Times Squibb presented the complaints of the New York professionals. He explained that the law of 1848, if left "in the hands into which it naturally falls, namely, the political and importing interests," would "become almost a dead letter," with "incompetent or careless persons" as inspectors.[85] In fact, he argued, an unenforced law becomes a positive hindrance, for it discourages attempts to provide genuine deterrence.

In 1860 the AMA had appointed a committee of three men, including Squibb, to investigate the operation of the 1848 law. Though no report was made, the committee was reappointed in 1863.[86] Similarly, APhA maintained its own

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

interest in the law. In 1862 Dr. Squibb had persuaded APhA to discontinue its Committee on Adulteration, and reorganize upon a broader format as the Committee on the Drug Market.[87] Squibb was made the chairman of this committee, and his report to APhA the next year was an indictment of the drug market, the government, and the 1848 law. He reported that prices for crude drug supplies had skyrocketed because of the war, and the quality of the drug supply had fallen. But if the war was the immediate instigation for this corruption, there were broader causes: "doubtless the moral tone of the community at large."[88]

The import law was being misused because the government "needs the offices created under the law to bestow on politicians as the price or profit of services." Without the effective mediation of the law the natural incompatibility between "the drug market" (which sought only profit), and the community (which sought drugs of good quality), had become sharper. The balancing force should be the druggist and the physician. But in these difficult times, Squibb noted sadly, "the magic power of profits" appears to have corrupted "a large majority" of the pharmacists, and many of the doctors. Squibb pointed to the natural difficulty of the professional, who had to maintain high ethical standards, yet deserved to earn a good living. Squibb was one of the few medical men who freely admitted that, though the professional had an "important duty to his fellow-men," he was still "a merchant."[89]

Squibb prepared a similar report for the AMA committee, but that group never succeeded in agreeing upon a presentation. Always the maverick, and never hesitant to speak out, Squibb blamed the AMA chairman for "procrastination" which had made it impossible to function effectively. Squibb took full responsibility for his comments, and presented his views to the AMA,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

claiming that the law was an almost complete failure, though it had worked successfully when first instituted, under Dr. Bailey. The failure was due to three things: the Secretaries of the Treasury, in charge of the appointments, had failed to place competent inspectors at the custom houses; the men appointed had not abided by their oath to enforce the law faithfully; and the standards adopted by the Treasury Department were below those set by the USP, and therefore too lenient.[90] The AMA listened to Squibb's "Remarks" politely, but failed to act upon them.

* * * * * * *

Ernst Stieb notes that when Hassall's articles and books were published in England there was a good deal of antagonism toward his methods. Stieb does not suggest that the British medical and pharmaceutical professions were unaware of the problems of adulteration, but that "these problems never seem to have occupied a major place in thought or official action." The movement was maintained, not by the professional organizations, but by individual members of those organizations. On both sides of the Atlantic, many men engaged in the business of medicine saw adulteration as a "natural phenomenon," merely part of free economic competition.[91]

On the whole, the professionals preferred to seek a solution in self-regulation, rather than in law, except when they could control the administration of the law, or when the law enhanced their own authority. Thus, in both nations, "organized pharmacy looked to government action mainly to inspect imported drugs,"[92] and American professional organizations opposed laws regulating their professions, except to the extent that regulation would restrict the competition of the amateur and the charlatan.

There was little interest in making the law of 1848 work more effect-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ively. The law existed, and the professions had done their duty in its passage; if the law failed, the government, not the medical and pharmaceutical professions, was responsible for the continuation of adulteration. For similar reasons, in England, drugs were excluded from the Act of 1860. The British Pharmaceutical Society had persuaded Parliament that it was perfectly capable of supervising the drug market.

Nonetheless, laws were being passed in both countries; the later British adulteration laws, for example, did include pharmaceuticals. In America, the law of 1848, and the New York milk laws, were only foretastes of an increasing tendency to set aside the belief in laissez-faire, and legislate for the public good.[93] It was perhaps an exaggeration to hope, with Hassall, that caveat emptor could so suddenly be changed to caveat venditor,[94] but surely the first steps were being taken.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER I

[1]Thomas A. Bailey, "Congressional Opposition to Pure Food Legislation, 1879-1906," American Journal of Sociology, XXXVI (July, 1930), 52.

[2]In the terminology of the era "sophisticated" was used almost synonymously with "adulterated." The word connoted the sense of the deprivation of "naturalness" or "simplicity."

[3]Ernst W. Stieb, Drug Adulteration: Detection and Control in Nineteenth-Century Britain (Madison, Wisconsin: University of Wisconsin Press, 1966), p. 167, notes that the design reproduced here "appeared on the titlepage of the second and all succeeding editions."

[4]Fredrick Accum, A Treatise on Adulterations of Food, and Culinary Poisons (Philadelphia, 1820), p. 20.

[5]Accum, p. 210.

[6]Accum, pp. 13-14.

[7]Accum, p. 23. Stieb, p. 163, discusses two earlier periodical articles by Accum which dealt with tests for drug adulteration.

[8]Stieb, pp. 114-118, points out that Accum's lack of documentation and his quantitative vagueness were typical of the era. Stieb also makes the judgment that, despite the likelihood of exaggeration because of Accum's "zeal as a reformer, we may still infer extensive adulteration."

[9]Accum, p. v.

[10]Stieb, p. 165. Frederick A. Filby, A History of Food Adulteration and Analysis (London, 1934), p. 19, was more interested in foods than drugs, and appears to have been less aware of Accum's pharmaceutical expertise. He argued that Accum "may not rank as an analyst of the first order."

[11]Robert M. Hartley, An Historical, Scientific, and Practical Essay on Milk (New York, 1842), republished in 1850 as The Cow and the Dairy (New York). Hartley argued that it would be difficult to destroy the swill-milk business because the sale of distillery slops was an important economic factor in the success or failure of the distilleries, which were very competitive. He estimated (pp. 111-112) that while there had been 1,129 distilleries in New York State in 1829, only 200 remained in 1842.

The New York Association for Improving the Condition of the Poor was organized in the winter of 1842-1843. It operated on the assumption that there would always be a large sub-stratum of the poor in society, and worked to improve their condition, without attempting to "lift" them out of poverty. Although a number of physicians and sanitarians became members, it was run by the type of liberal reformer whom John G. Sproat has called "the best men." It continued to be very active in the post-war period.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[12]Lewis C. Beck, Adulterations of Various Substances Used in Medicine and the Arts, with the means of detecting them (New York, 1846), Preface, cites only one American source, the United States Dispensatory, which is discussed below, pp. 32-33.

[13]Beck, p. 138.

[14]Beck, pp. 139-140.

[15]Beck, pp. 140-141.

[16]Ulysses P. Hedrick, A History of Agriculture in the State of New York (1933; rpt. New York: Hill and Wang, 1966), p. 364.

[17]George R. Taylor, The Transportation Revolution, 1815-1860 (1951; rpt. New York: Harper and Row, 1968), p. 84.

John Mullaly, The Milk Trade in New York and Vicinity (New York, 1853), pp. 25-30, though concluding that there was a great deal of swill milk sold in the city, hoped that the increasing railroad cartage would operate to reduce it. He estimated that in 1851 the New York and Harlem Railroad carried 12,634,178 quarts of milk, the Erie Railroad 12,610,556, and the Hudson River Railroad 1,398,138 quarts.

Norman Shaftel, "A History of the Purification of Milk in New York or How Now Brown Cow," New York State Journal of Medicine, LVIII, no. 6 (March 15, 1958), 915, believes that the first milk shipment to the city by rail took place in 1841, though regular traffic did not begin until about 1845.

[18]The term "stump-tail" derived from the idea that these cattle were so diseased and malnourished that their tails rotted from their bodies. Many of the stabled cattle were lacking tails, but the stable operators argued that the tails had been amputated for purposes of cleanliness.

[19]Prior to 1805 state authorities had the power to regulate health matters in New York City. In that year a new law transferred these powers to city officials. From 1805 to 1866 the organization of the city "board of health" underwent a number of changes. See Susan W. Peabody, Historical Study of Legislation Regarding Public Health in the States of New York and Massachusetts (Chicago, 1909), pp. 13-18.

In the late 1840's there were several city agencies with overlapping jurisdiction in the health area. The office of City Inspector was created by a law of 1839, and given the power to investigate potential health nuisances. See Duncan R. Jamieson, Towards a Cleaner New York. John H. Griscom and New York's Public Health, 1830-1870 (unpublished doctoral dissertation, Michigan State University, 1971), pp. 193-196.

[20]John Duffy, A History of Public Health in New York City, 1625-1866 (New York: Russell Sage Foundation, 1968), pp. 429-430.

[21]Glenn Sonnedecker, Kremers and Urdang's History of Pharmacy (Philadelphia: J.B. Lippincott, 1976), pp. 214-215.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[22]Richard H. Shryock, Medicine and Society in America, 1660-1860 (New York, 1960), p. 138.

[23]Imported Adulterated Drugs, Medicines, &c., 30th Cong. 1st Sess. H. Rept. 664 (Washington, June 2, 1848), p. 16, Bailey testified he had approached Secretary of the Treasury John C. Spencer on this problem, "but as the request was made about the time he retired from that office, he could not carry these wishes into effect."

[24]Stieb, p. 154.

[25]Philip Van Ingen, The New York Academy of Medicine: Its First 100 Years (New York, 1949), p. 17.

[26]F.W. Nitardy, "Notes on Early Drug Legislation," Journal of the American Pharmaceutical Association, XXIII, no. 11 (November, 1934), 1122.

[27]Imported Adulterated Drugs, pp. 1-3.

[28]Ibid., p. 8.

[29]Ibid., pp. 13-15.

[30]Ibid., pp. 17-18.

[31]Ibid., p. 18.

[32]The so-called "patent" or "proprietary" medicines were not truly patented formulations; only their trademark or brand name was registered. See James H. Young, The Toadstool Millionaires (Princeton: Princeton University Press, 1961).

[33]Imported Adulterated Drugs, pp. 16, 19.

[34]Ibid., pp. 21-22. Statement of McClintock Young, Acting Secretary of the Treasury.

[35]The law, 9 Stat. L., 237, set as its standards the various published pharmacopoeias, discussed below, pp. 31-33. Nitardy, p. 1123, notes that the Act was amended early in 1849 to increase the salaries of the special examiners.

[36]Operation of the Law to Prevent the Importation of Adulterated Drugs, &c., 30th Cong. 2nd Sess. H. Ex. Doc. 43 (Washington, January 24, 1849), p. 8.

[37]M.J. Bailey, Report on the Practical Operation of the Law Relating to the Importation of Adulterated and Spurious Drugs...June 6, 1849 (New York, 1849), p. 6.

[38]Ibid., p. 17.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[39]Quoted in Bailey, Report, p. 18.

[40]These attitudes perfectly parallel those among English professionals at this time. Stieb, p. 154, explains that "In general, members of the /British Pharmaceutical/ Society were opposed to severe laws and penalties for controlling adulteration. Organized pharmacy looked to governmental control in this area mainly to inspect imported drugs....The Society and its members thus resisted government interference in the matter of adulterated drugs because the dominant feeling was that this fell within their own sphere of activity and that they had already done much to alleviate the problem."

[41]Filby, p. 18.

[42]Stieb, p. 172.

[43]The Quarterly Review, March, 1855; cited in Thomas H. Hoskins, What We Eat: An Account of the Most Common Adulterations of Food and Drink (Boston, 1861), p. 88.

[44]Stieb, p. 173.

[45]Stieb, pp. 116-117, estimates that Hassall's figures on drugs, in Adulterations Detected, indicate an adulteration rate of 55%. In his earlier book Hassall was less specific, although he later reported that his work for the Lancet had indicated an over-all adulteration rate, for both foods and drugs, of 61.59%.

[46]Actually, Hassall used a different, but related, instrument. The term "lactometer" is used here to avoid confusion.

[47]Arthur H. Hassall, Adulterations Detected, or Plain Instructions for the Discovery of Frauds in Food and Medicine (2nd. ed., London, 1861), pp. 231-232.

[48]Ibid., p. 236.

[49]Report from the Select Committee /of the House of Commons/ on Adulterations of Food, &c., together with the Proceedings of the Committee, Minutes of Evidence.... (London, 1856), p. 36.

[50]Ibid., p. 301.

[51]New York Tribune, 6/6/49, 1/18/53; New York Times, 3/9/54, 9/7/57; cited in Duffy, pp. 430-431, 438 n. 28.

[52]See Duffy, pp. 431-433. Tuomy and Reed brought suit against Leslie for libel, but the grand jury dismissed the charges in October 1858.

[53]Laws of 1850, ch. 275.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[54]Majority and Minority Reports of the Select Committee of the Board of Health, Appointed to Investigate the Character and Condition of the Sources From Which Cows' Milk is Derived, For Sale in the City of New York (New York, 1858), p. 184.

[55]Later investigations conducted by the United States Department of Agriculture established that swill is a satisfactory cattle feed, so long as it is supplemented by other grains.

[56]Majority and Minority Reports, p. 97.

[57]Ibid., pp. 107-109.

[58]Ibid., pp. 169-170.

[59]Ibid., p. 24.

[60]Duffy, pp. 434-435.

[61]The Knickerbocker, LIII, no. 4 (May, 1859), 515-516.

[62]"Adulteration of Groceries in England," Hunt's Merchants' Magazine, XLI, no. 5 (November, 1859), 252. Though the article was supposed to deal with British conditions, the journal assumed that the same situation existed in America. Hunt's was not particularly interested in milk, since milk was vended door-to-door by itinerant tradesmen, and not sold by the retailers who read this journal.

[63]Hoskins, op. cit., p. iii.

[64]Hoskins, pp. 88-89, 94, 95f.

[65]Hoskins, pp. 162-164.

[66]Hoskins, pp. 169-170.

[67]Hoskins, pp. 5, 207, iv-v.

[68]Duffy, pp. 435-436. The Sanitary Association had been formed in December 1858. It was an organization of physicians and sanitarians concerned with the public health. Dr. Griscom was one of its founders. By 1860 there were 250 active members. Jamieson, Towards a Cleaner New York, p. 232, says that the Association "petered out after the passage of the Metropolitan Health Bill in 1866."

[69]"The Adulterations of Food," North American Review, CXCIV (January, 1862), 4, 34.

[70]Ibid., 18, 19, 36.

[71]Ibid., 38, 9.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[72]Ibid., 39-40.

[73]Laws of 1862, ch. 467. Also see Duffy, p. 436.

[74]Laws of 1864, ch. 544.

[75]Duffy, p. 437.

[76]John H. Griscom, "Anniversary Discourse, Before the New York Academy of Medicine" (November 22, 1854), /rpt. in Origins of Public Health in America (New York: Arno Press, 1972)/, pp. 24-25.

[77]"Adulterations in Food and Drugs," Hunt's Merchants' Magazine, XLI, no. 5 (November, 1859), 254.

[78]North American Review, op. cit., 36-37.

[79]Sonnedecker, History of Pharmacy, pp. 198-202.

[80]The United States, Edinburgh, London, French, and German pharmacopoeias. See Glenn Sonnedecker and George Urdang, "Legalization of Drug Standards Under State Laws in the United States of America," Food-Drug-Cosmetic Law Journal, VIII, no. 12 (December, 1953), 744.

[81]James A. Spalding, The Life of Dr. Lyman Spalding (Boston, 1916), p. 360.

[82]The Pharmacopœia of the United States of America (Boston, 1820), p. 16. The Squibb Archives kindly provided access to the rare first edition of the USP, as well as materials relating to the APhA and to Dr. Squibb's work and life.

[83]Sonnedecker, History of Pharmacy, pp. 260-264, 279. Dr. John S. Billings, "A Century of American Medicine, 1776-1876," in Selected Papers of John Shaw Billings (Medical Library Association, 1965), p. 32, claimed that from "a financial point of view, the Dispensatory is the most successful medical book ever published in this country."

[84]Nitardy, "Notes on Early Drug Legislation," 1124; Proceedings of the American Pharmaceutical Association, VII (1858), 234, 36.
APhA may have decided to act at this time because Bailey's services as drug inspector at the Port of New York ended in 1857. See Boston Medical and Surgical Journal, CX, no. 11 (March 13, 1884), 243.

[85]Edward R. Squibb, "The Drug Inspectors and the Profession," correspondence marked "To the Editor of the American Medical Times," January 18, 1861, n.p., Squibb Archives.

[86]Nitardy, 1125.

[87]William C. Alpers, "History of the American Pharmaceutical Association, Second Decade 1860-1870," Journal of the American Pharmaceutical Association, III (December, 1914), 1625; IV (January, 1915), 3.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[88]Edward R. Squibb, "Report on the Drug Market," Proceedings of the American Pharmaceutical Association, XII (1863), 193.

[89]Ibid., 193-195.

[90]Edward R. Squibb, "Remarks Upon the Practical Working of the U.S. Drug Law," Transactions of the American Medical Association, XV (1865), 142-150. The chairman was Dr. Joseph Carson. The other member of the committee was Dr. Henry Bowditch.

[91]Stieb, 158-159, 144.

[92]Stieb, 154.

[93]Lawrence M. Friedman, A History of American Law (New York: Simon and Schuster, 1973), pp. 232-235, 384-385, argues that, in the first half of the nineteenth century, "common law" concepts, which emphasized caveat emptor, prevailed over the slowly-emerging values of "civil law," which argued for increased government "paternalism." Gradually, however, the idea of the "implied warranty" in commercial transactions spread: "although common-law courts refused to imply warranties, they showed a marked tendency to read express warranties into a seller's words, at the slightest provocation." The fear of common-law advocates was that the civil-law concepts would hinder trade, and overburden the courts with the "terror of endless litigation."

The growing complexity of society and commerce, however, contributed to the development of the administrative agency of government, and between 1850 and 1900 tradition slowly "lost its magic, and the legal order was no longer supported by any supernational grace....a huge, tumultuous, middle-class population, anxious for security if not power, made more and more demands on and through government."

[94]Hassall, in Minutes of Evidence (1856), 4674; central theme of Stieb's study: see p. 105.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER II

NEW YORK SANITARY REFORM: THE EXERCISE OF "AUTOCRATIC" POWER

By mid-century the attention of New Yorkers had been drawn to the problem of food and drug adulteration--especially the question of swill milk--but legislation did not seem to promise much in the way of a solution. The responsibility for enforcement of the milk laws of 1862 and 1864 lay in the hands of the same men who vehemently opposed virtually all sanitary reform, because it trespassed upon their own political prerogatives. It was unlikely that the reformers' goals would be attained, unless supervision of New York's sanitary condition could be wrested from the hands of the political machines, the placemen, and the ignorant. The growing public health movement was in the vanguard of the fight against adulteration. The sanitarians, and the boards of health they helped to create, soon carried the burden of enforcing existing laws, and of drafting additional legislation.

At the time the milk bills were being pursued in Albany a campaign was underway to take authority over health matters away from the aldermen. Within a few years the sanitarians had been empowered to challenge the adulterators. By the 1870's laws were being drawn to regularize the pharmaceutical profession.

* * * * * * *

The origin of the Metropolitan Board of Health is an oft-told tale

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

that will bear a brief repetition.[1] In 1852 Dr. Griscom led the New York Academy of Medicine in a campaign for a complete reorganization of the city's health administration. Though initially unsuccessful, the activities of the New York reformers were aided by a general movement for health reform in the country. Though the direct impetus for this broader attack was concern over epidemic disease--which justifiably continued to be the central issue of health reform for many years--it had an impact upon all health-related issues.

In 1857, for example, "the first American congress ever convened for sanitary reform" met in Philadelphia, to consider the question of quarantine,[2] and convened again the following two years. The third session, chaired by Griscom, appointed a Committee on the Quality and Supply of Food in Cities, Markets and Abattoirs, which included in its membership two New Yorkers who would play an important role in that city's reform efforts, Drs. Elisha Harris and Stephen Smith. The Food Committee, however, was not concerned with adulteration per se, but rather with the sanitary control of slaughter-houses and markets. The convention also established a Committee on Legal Control of Poisonous Drugs, and strongly recommended the establishment of local and state boards of health.[3]

In 1859 the New York State Senate voted overwhelmingly in favor of the Academy health board bill, but it failed by four votes to receive the necessary two-thirds majority in the Assembly, where former supporters learned that the bill would deprive their friends of patronage positions.[4] In 1860 an even stronger bill, that would establish a metropolitan health board having jurisdiction over the areas that today constitute New York City, was proposed in the legislature. But once again politics prevailed, and the bill was defeated, as it was again the following year.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Then, in the aftermath of the July 1863 New York City draft riots, renewed attention was drawn to the conditions under which the destitute and frustrated rioters had been living. The new leadership in the drive for sanitary reform was the Citizens' Association, formed in the months after the riots, and led by Harris and Smith, along with other medical leaders such as Drs. Willard Parker and James R. Wood, perhaps the two most repected physicians in the city. Over the next few months the non-medical reform leaders of the city lent their support to the Association, as did the new mayor, C. Godrey Gunther. The Association quickly introduced a new metropolitan health bill into the legislature.

At a large meeting on March 30, 1864, the leaders of the Association met with local doctors, and organized a Council of Hygiene, headed by Dr. Joseph M. Smith, president of the Academy of Medicine, with Harris and Stephen Smith on the executive committee. The Citizens' Association argued that "New York is the only city of considerable magnitude in the civilized world that is without any efficient sanitary police." The nineteen-page pamphlet issued by the Association did not concern itself with food and drug adulteration, but rather with the "nine thousand human beings...annually sacrificed to the demon filth!" The Association also established a Council of Law, to head which Dorman B. Eaton--now chiefly known for his work in civil service reform--was propitiously selected. Eaton suggested that the Council conduct a thorough street-by-street sanitary inspection of the city. After the new health bill was defeated, it was to this inspection that the Council lent its energies in the summer of 1864.[5]

When the survey was completed, at the end of the year, it filled seventeen volumes with a remarkable and detailed account of the city's

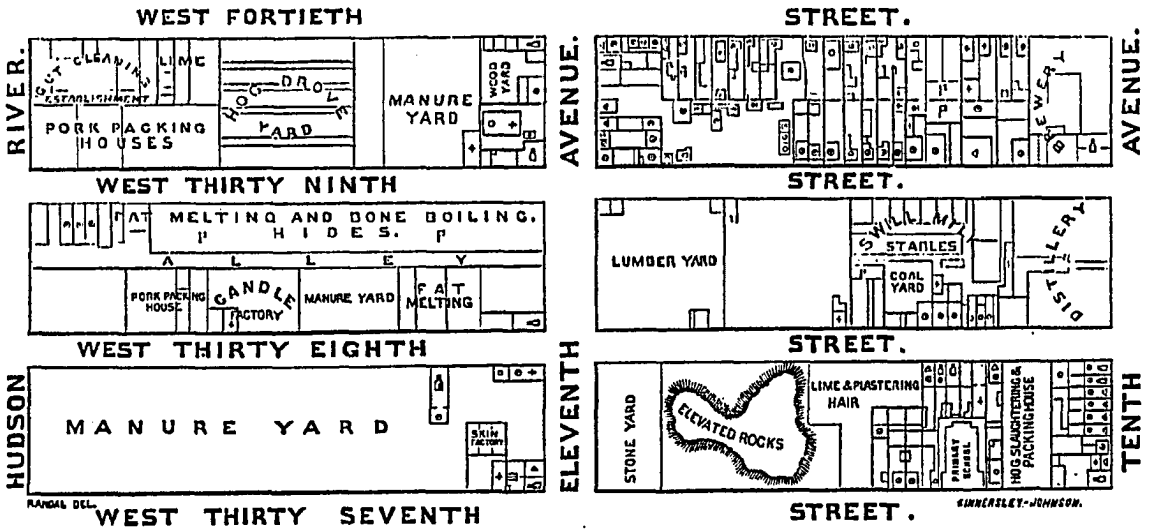
Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

health and social conditions. To make its study more manageable and readable, the Association spent several months condensing the report to one still-impressive volume, which was published in June 1865. Although virtually the entire volume was devoted to those tenement "fever-nests" and public "nuisances" which contributed toward epidemic disease, the Report did make occasional note of the unsanitary condition of meat, and went out of its way to record the existence of swill-milk stables. The Council reported that food articles exposed in the public markets "may undergo spontaneous deterioration, becoming not only unsuited for their purpose, but absolutely poisonous....such food articles are not unfrequently nefariously adulterated by trademen."[6]

Although the Association's health bill was once again stopped in the Assembly by the patronage forces, events were moving toward the ultimate triumph of the reformers. Not only had the bill's opponents virtually exhausted their influence by their repeated efforts to halt the measure, but by August of 1865 the newspapers were warning of an approaching cholera epidemic; by October and November scattered cases began appearing in this country. The election of Tammany's John T. Hoffman as mayor strengthened the determination of the Association to remove, once and for all, control over sanitary affairs from the hands of the city government, and renewed efforts were directed to Albany.

A final push was begun with the publication, in December, of a lengthy pamphlet that stressed the danger of the approaching epidemic, and warned that effective measures could be instituted only if the entire urban area were served by a professional metropolitan health board. The most effective part of the pamphlet was a tour de force: the Committee published the names and occupations of the "health wardens" of the city. These Tammany

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.



REGION OF BONE-BOILING AND SWILL-MILK NUISANCES.

Representative sanitary map from Report of the Council of Hygiene

appointees, theoretically responsible for overseeing the sanitary concerns of New York, were mostly liquor dealers, saloon keepers, or the ne'er-do-well unemployed.[7]

On February 26, 1866, the Metropolitan Board of Health Act became law. The new Board consisted of four police commissioners, the health officer, and four other commissioners appointed by the governor, three of whom had to be physicians. The Board was empowered to appoint a physician as the city's sanitary superintendent, and two assistant superintendents. The Board was granted authority over all sanitary functions in the metropolitan area, usurping all existing agencies, and could call upon the police to carry out its orders and decisions. But the most dramatic fact about the new Board was that it had the authority to create sanitary legislation, without consulting either the city or state governments. The man responsible

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

for this remarkable turn of events was Dorman Eaton.

Almost half a century after the creation of the Board, Stephen Smith reflected that he and his associates had felt that, in order to be effective, the Board had to have "autocratic" powers. To remove the Board from Tammany's influence "it was decided to place the proposed new health organization under the control of the State, by making a Metropolitan Health District, the area of which should be co-extensive with that of the Metropolitan Police District." Smith, of course, was referring to the infamous combat of 1857, between New York City and Albany, when the state legislature disbanded the city's police force, and established its own Metropolitan Police.[8]

In addition, Smith explained that Eaton, as head of the Council of Law, was asked to prepare the final draft of the bill. To elevate the Board beyond the interruptions of legislatures and courts, the bill granted it the power to "create ordinances" on its own authority by the simple expedient of publishing them in the city newspapers, whereupon they became part of the health law of the metropolitan district. This was achieved, Smith gloated, through subterfuge. "The language of that portion of the bill conveying these powers was purposely made very technical, in order that only a legal mind could interpret its full meaning, it being believed that the ordinary legislator would not favor the measure if he understood its entire import."[9]

Acting upon the assumption that New York State's legislators were ignorant of legal niceties, Eaton set out to fool them into surrendering legislative power to the Board through obfuscation. Eaton, Smith argued, believed that a health board "should make its own laws, execute its own laws, and sit in judgment on its own acts."[10] Eaton himself, possibly feeling that it would be impolitic, made no claims as broad as these

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

during his lifetime. But Eaton did note that it was essential that the Board be created "possessing powers partly judicial, partly executive and partly legislative," and rejoiced that it was able "to abate the worst classes of nuisances without a resort to the delay and the expense of a jury trial."[11]

In the same year that Stephen Smith published his reminiscences a commemorative dinner was given to celebrate his service in the cause of public health. Upon this occasion Prof. Charles F. Chandler, the first chemist appointed to the original Board, and later its president, gave a speech in which he noted that the law of 1866:

> conferred powers upon the Board of Health akin to those of martial law. The Board was authorized to make its own laws, and on April 20, 1866, it adopted a sanitary code, embodying sanitary ordinances, rules and regulations, covering everything that affected the public health.
>
> Years afterwards, when the force of these ordinances had been established by numerous judicial decisions, it was suggested that the Shah of Persia should establish a Board of Health, in order to get more power over his subjects.[12]

Perhaps the intervening years had led both Dr. Smith and Prof. Chandler to gloss over the difficulties of their early work, and exaggerate the actual powers they enjoyed. In the area of food and drug adulteration, at least, the work of the Board was not as smooth as its "autocratic" powers should have theoretically made it.

* * * * * * *

There has, perhaps, never been a period when the health authorities of New York City were more active than the first two years of the Board's existence. There were so many sanitary problems facing the new Board that it attempted to sweep the city--literally and figuratively--clean. Obviously its first concern was the approaching cholera epidemic, but to combat this

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

threat, from the perspective of pre-germ theory sanitary science, meant war on the broadest scale. The Board forcibly vacated the worst of the tenement "fever-nests," boarded up cellar apartments, cleaned thousands of water-closets, carted thousands of loads of night-soil, removed thousands of dead animals from the city streets and alleys, and applied tons of disinfectant. From the perspective of both the Board and the public, these activities were rewarded with victory over the epidemic; the final estimate was that "only" 1,214 residents died of the disease in 1866.[13] Criticism that had appeared in the newspapers--particularly the Democratic press, suspicious of a Board appointed by a Republican state administration--turned to praise by the fall of the year.[14]

Much of the credit for the determination with which the Board attacked the entire spectrum of sanitary problems must be given to its first president, Jackson S. Schultz. By law, the president could not be a physician; Schultz was the largest leather dealer in the city, a self-made man who had begun his career as a tanner, and whose wealth was estimated at close to two million dollars.[15] Obviously Schultz and the other members of the Board were swamped with more compelling responsibilities than that of food and drug adulteration. But two sanitary problems the Board immediately addressed were directly related to the quality of food: the slaughter-house and fat-boiling companies; and the public markets. The Board inspectors identified both as prime suspects for harboring miasma-producing disease.

The Board's first annual report noted that "After securing pure air and general cleanliness, nothing tends so directly to promote the public health as a proper supply of food."[16] The public markets were extensively criticized, and a special report on the largest of them, Washington Market,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

was included in an appendix. Located roughly where the World Trade Center now stands, Washington Market had been constructed during the War of 1812, but the original brick building was, by mid-century, surrounded by countless wooden stands and wheelless wagons. Most business was conducted from these shabby stalls, and artificial streets and alleys were created by the crazy-quilt of permanent and transient merchants. Across the street, in even worse condition, West Washington Market dealt to the wholesale trade. The Board estimated that almost 900 tradesmen, most dealing in foods, were located in the two markets.[17]

Within days of its formation the Board began investigating the markets, after market inspectors seized putrid meat at several locations. At first the press was sanguine, though indignant, over these discoveries. The Times blamed the itinerant stall-holders, and believed that no diseased meat was being sold by the "regular" dealers within the Washington Market building proper.[18] After a thorough inspection Sanitary Superintendent Edward B. Dalton reported that Washington Market was "dangerous to life and detrimental to health; and it is also my opinion that this nuisance can only be abated by the removal of the market." The Times was now calling the market "the old ruin on the West Side," and "the city's stenchpen."[19]

Despite Dalton's recommendation, it was clearly impossible simply to demolish all the markets until new facilities could be constructed. Besides the commercial difficulties this would cause, Schultz was concerned about lawsuits against the city, since the legitimate stall-holders held rental contracts. It was decided to serve eviction notices against the illegal stands that obstructed the public streets, and to maintain limited warfare against the worst sanitary offenders. Meanwhile the Board would investigate the possibility of removing the markets to the upper part of the city.[20]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

But the market men were so effectively organized, and apparently paid such substantial contributions to the political coffers, that they soon managed to induce the state legislature to forbid the Board from interfering with their operations before May 1, 1869.[21]

The second major obstruction to the Board's plans, the slaughter-house operators and wholesale butchers, provided the first real legal test of the broad powers granted to the sanitarians. The Board almost immediately declared war against the butchers, though the sanitary complaints dealt with the filth produced in the slaughter-houses, their proximity to residential areas, the ancillary fat-boiling and soap factories, and the practice of driving cattle and other animals through the public streets, rather than with the quality of the meat. The declaration of war was hailed by the press: the Times, for example, encouraged the Board to "beard" the "tyrants," and force them "to obey the common laws of public decency."[22]

A number of meetings were held with representatives of the Butchers' Hide and Melting Association,[23] who believed that their business could readily be conducted within the city limits without endangering the public health. But Schultz quickly made it clear that a general clean-up was only "a temporary expedient," and that ultimately their "business must be moved to some place remote from the centres of population."[24] On March 20 the Board declared that while slaughtering could temporarily continue, under sanitary supervision, no new slaughter-houses were to be constructed south of 40th Street, all existing buildings failing to meet Board standards would be closed down, and by May 1, 1867, all slaughtering would be removed from the populated parts of the city.

What President Schultz had in mind was an imitation of the French

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

abattoir system, which eliminated most of the offal and filth of the butchering process, and simplified inspection of the meat.[25] This system called for the construction of large, centralized slaughtering facilities, with special rooms for the rendering of offal, convenient to the rivers in order to facilitate the herding of stock and the removal of waste. Temporarily, however, the recommendations were tabled, while the Board awaited a legal ruling on the extent of its powers to remove nuisances.[26] The Board temporized by prohibiting the driving of cattle through the streets during the day and early evening, and then brought suit against each slaughter-house below 40th Street.[27]

Meanwhile, at a series of mass-meetings in September 1867 the butchers raised a number of objections to the Board's proceedings. William Lalor, head of the butchers' Association, complained that President Schultz was not only oblivious to the problems of the slaughterers, but that his actions had been motivated by personal reasons. Noting Schultz's position as the city's largest hide and leather dealer, Lalor objected that Schultz stood to gain by undermining the Hide and Leather Association. Lalor suggested, in addition, that Schultz had invested heavily in land between 104th and 106th Streets, and was trying to force the butchers to relocate upon this property.[28] This latter claim, at least, was clearly extravagant, for the Board ruling did not designate any particular location for the proposed abattoirs, merely that they be built north of 40th Street, convenient to the rivers. Since this area was thinly populated, and the land relatively cheap, it is difficult to see how Schultz could have personally profited from the Board decision.

Another objection of the butchers, however, was more to the heart of the matter: if the Board had the authority to remove the butchers from

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

one part of the city, what power could stop the sanitarians from "issuing another ukase a week or a month hence," sending them even further north? Thomas J. Creamer, a leading Tammany figure, harangued the butchers about the excesses of "these phenomena of modern legislation--commissions--institutions which were handling the rights of the people as if they were playthings."[29] A few days later the butchers and drovers met again, where they were addressed at length by ex-mayor Fernando Wood, who excoriated the sanitarians. He argued that in New York, under government by commission, political freedom had been replaced with dictatorship. The butchers resolved to bypass the city courts and the state legislature, and appeal directly to the state court system.[30]

On November 19 the State Supreme Court handed down its decision: the Court ruled against the Board, in favor of the slaughtering interests. Although the Board would be permitted to enforce sanitary codes within the slaughter-houses, it could not arbitrarily relocate them. The Supreme Court ruled that the Board's attempted exercise of "legislative" powers would effect "a revolution in the customary occupation and pursuits within the City limits, of a large number of its citizens."[31] But government by commission was clearly necessary. The normal legislative processes called for by the Court were too slow, too removed from the problems, and too handicapped by politics, to respond adequately to the multiplying complexities of urban society. By rejecting out-of-hand this type of legislative procedure the Supreme Court was falling back upon a traditional, but inadequate, system. Yet, as the Board noted in its annual report, no final decision had been made.

New York is unique among the states in that its "supreme" court is not the highest in the state; the State Court of Appeals is superior, and the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

entire question was immediately appealed by the Board. On June 18, 1868, the Court of Appeals not only reversed the lower court's decision, but ruled that the Board's "legislative" and quasi-judicial powers--the right to hold hearings and render judgments without going through the regular court system--were unassailable. The Board could both enact and enforce its own codes, as well as assign penalties for their violation, and "there is no right to review this decision by a jury trial or to interfere with its enforcement by injunction."[32] The only course open for those accused by the Board was certiorari, a review by a superior court.[33]

Rather than flaunt its victory, the Board worked out an agreement with the butchers, who agreed to remove their slaughter-houses by January 1, 1869. In addition, the court's approval of the Board's broad powers almost certainly aided Schultz in reacting rapidly when a serious problem arose in August. When trainloads of cattle infected with virulent Texas fever were detected in the Communipaw, New Jersey cattle yards the Board declared an immediate quarantine, and Schultz telegraphed the governors of the states along the railroad route from Illinois asking for their cooperation. Within five days the Board could report that all infected cattle had been destroyed, except for a few that had been isolated for observation. This emergency also reinforced the Board's determination to consolidate all slaughtering, and strengthened its hand even further.[34]

* * * * * * *

In its first years of operation the Metropolitan Board dealt with the quality of the food supply only indirectly, through its efforts against the markets and the slaughter-houses. It was not until Prof. Charles F. Chandler was employed by the Board that adulteration itself was attacked.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

In 1867 Chandler was invited by Elisha Harris, the Registrar of Records, to perform some gratuitous analyses of the city's water supply for the Board. Chandler's work so impressed the Board's physicians, who had not realized the potential importance of chemistry for public health, that the position of Chemist to the Board was created for Chandler at the end of the year.[35]

In 1868 Chandler explored the use of disinfectants, and helped the physicians examine the cattle stricken with Texas fever. More significantly, Chandler was authorized to pursue an investigation into "the quality and kinds of burning fluid in common use, and whether any, and if so, what foreign ingredients of an explosive character are added."[36] Kerosene distilled from petroleum, widely used in New York by the 1860's for illumination, was clearly the cause of many explosive fires each year. Yet before Chandler probed into the problem there was little public concern about kerosene safety, the people and the fire department both dismissing the fires as "accidental."

While before the Civil War whale oil was the illuminating fluid of preference, its high price had stimulated a search for cheaper substitutes. A mixture of alcohol and "camphene"--rectified spirits of turpentine--came into common use, despite its volatile nature. After years of accidental fires and explosions caused by this burning fluid, the public came to accept danger as the price paid for using cheaper substances. Chandler was apparently the first scientist to understand that, with kerosene, these risks were avoidable; kerosene, unlike camphene, could be manufactured so as to be perfectly safe. "Accidents" occurred only when naphtha, benzine, or other light petroleum distillates, selling for much less than pure kerosene, were used to adulterate the fluid.[37]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Chandler quickly purchased and tested seventy-eight samples of kerosene from New York City retailers, and found the situation to be even worse than he had suspected: not a single sample was pure kerosene, and some were so adulterated as to be simply naphtha. He submitted his report to the Board on January 11, 1869, and blamed the dangerous situation not only on the greed of the refiners and retailers--all of whom he named in his report--but on the consumers as well. "Consumers should understand that in demanding the cheapest oil they compel the refiners to supply them with a mixture of benzine and kerosene. Competition is irresistible; and if the price is run down below cost, adulteration must follow." Chandler's solution was a demand for legal controls over the manufacture and sale of kerosene.[38]

The report caused a sensation; all the New York papers reported Chandler's findings, and his results were republished throughout the country and in Europe. The Board immediately published a sanitary ordinance forbidding the sale of kerosene that failed to meet safety standards, with the declaration that "there was no excuse for unsafe oil." Some dealers were arrested for violating the ordinance, but the courts threw the cases out with the explanation that illuminating fluids properly lay within the jurisdiction of the fire department, not the Board.[39]

Chandler consoled himself with the belief that the publicity he had given to the danger would result in the sale of purer kerosene, but the facts belie any optimism: in 1869 there were still ninety-eight kerosene fires in the city, and 157 the following year. Chandler did what he could, publishing a fuller report on the danger in 1871.[40] At that time Colonel Emmons Clark, the Secretary of the Board, wrote to Chandler, asking "what action, if any" the Board could take?[41] But there would be no new law

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

regulating kerosene until 1882, and the hands of the sanitarians were tied.

Until 1869 the Board had demonstrated virtually no interest in either the swill-milk problem or milk adulteration, merely arresting a few retailers each year for violating the ordinance prohibiting the watering of milk. In its first annual report, the Board was so confident that the distillery stables no longer posed a danger that Col. Clark could say that this situation "has been almost entirely discontinued in New York." Only in Brooklyn was there a perceptible problem, where, Clark claimed, the Brooklyn Common Council was protecting the swill-milk operators through a special ordinance.[42] The truth was that the Board had virtually abandoned its responsibilities in this area, leaving it instead in the hands of Henry Bergh.

Bergh, called by one biographer an "angel in top hat," was a genteel reformer who was outraged at the casual cruelty with which the city's animals were treated. On April 10, 1866, he organized the New York Society for the Prevention of Cruelty to Animals, becoming its first president. By April 19 he had been invested with the legal power to enforce a new law against such cruelty; the SPCA, though remaining a private organization, was recognized as an arm of the government.[43] It was Bergh's organization that assumed the responsibility for policing the swill stables.

SPCA agents raided seven cow-sheds in upper Manhattan in 1866, and the next year brought suit against the owner of a stable on East 56th Street. But Bergh's main efforts were directed against the Brooklyn dairies that seemed able to defy the authority of the Metropolitan Board. On February 23, 1867, Bergh decided to make a test case of a major Williamsburg stable-owner, Morris Phelan. Based on testimony of SPCA witnesses, Phelan was indicted in June, not just for cruelty to animals, but for the alleged

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

unhealthy nature of the milk produced by his cattle. But when the case dragged on for two years without coming to trial, Bergh wrote to George B. Lincoln, the new president of the Board of Health. Bergh's letter drew a strongly sarcastic response from the Brooklyn District Attorney, Samuel D. Morris, and the correspondence found its way into the Herald and the Times. But, despite the unfavorable publicity, Morris continued to refuse to prosecute.[44]

Indeed, for several years after passage of the milk laws of 1862 and 1864 there seemed little interest generally in legal activity on the milk issue. The public and the press seemed to acquiese in the Board's assumption that the problem had been eliminated. In January 1865 the Times claimed that the pre-war exposé of the swill stables had all but destroyed "that pernicious branch of the business," and that "A careful inspection of the principal establishments supplying the city will convince the most incredulous that the adulteration of milk in this city has its existence more in imagination than in reality."[45]

Although the Times initiated a brief campaign against the dairymen in the summer of 1865, the paper's real complaint was that the high prices caused by the war were continuing without justification. In its campaign the Times made the assumption that the same "monopolistic" forces that kept milk prices artificially high were collaterally responsible for simultaneously watering the product. But the complaint was directed, not at any presumptive health problem, but at watering as simply a further device for defrauding the helpless consumer. The paper urged consumers to form leagues, dealing directly with the farmers, thereby breaking the milk monopoly that kept prices high.[46]

The idea that high prices were closely linked to adulteration had,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

apparently, become widely accepted by this time. Hunt's Merchants' Magazine similarly argued that legislation could never be effective "in any large community" since the unwillingness of consumers to pay high prices induced grocers to adulterate their goods in order to meet competition. Legal restraints were inappropriate for Americans, who "prefer to be cheated...to the alternative of an espionage into our habits and employment."[47] The Times, by 1866, had concluded that "It is easy to get perfectly pure milk...by purchasing from a dealer who is honest and trustworthy."[48]

The Times followed the SPCA's case against Phelan closely, but was otherwise virtually silent about milk adulteration for the next two years, reasserting that the "swill-milk nuisance" had been "entirely broken up."[49] The paper insisted that "the milk-dealers, as a class, have been grossly slandered," and that much of the blame for adulteration rested with the consumer. If people patronized dishonest merchants, or allowed their servants unsupervised control of the family's food purchases, they had only themselves to blame. The paper also explained that consumers could protect themselves by using a lactometer, which sold for as little as $1.50, and was an "infallible" instrument for home testing of suspected milk.[50]

Thus, as late as the winter of 1868 the battle against milk adulteration had been virtually abandoned. Henry Bergh's efforts had come to naught, the Board was inactive and complacent, the press gave little attention to the question, and the public was apparently sanguine. All of this rapidly changed, however, due to a campaign initiated by the New York World. Beginning on December 17, 1868, the World's exposé of "False Measures and Adulterations" continued intermittently until April 13 of the following

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

year, the most extensive treatment of the subject in the public press in this era. The quality of the exposures is questionable, for the articles dealt more with minor frauds in weights and measures than with adulteration, made vague and generalized accusations, were more dependent on "established" claims--such as those of Hassall--than upon chemical analysis, and rarely lived up to the expectation aroused by their alarmist headlines.

It was common, for example, for the paper to devote an entire column to the discovery of a grocer's scale that deviated by 1/8 ounce per pound. The actual chemical examinations conducted for the paper rarely revealed any unusual or dangerous adulterations--merely chicory in coffee, terra alba[51] in cream of tartar, and breadstuffs in spices. Thus, for example, the paper claimed that baked horse liver was widely used to adulterate coffee, yet could offer no specific instance of its detection, relying, instead, on Hassall's statement that this fraud was common.[52]

Yet the impact of the series was clearly great. Throughout the city and the nation other newspapers responded vigorously to the World's assertions. (Indeed, many of the World articles were merely reprints of items from other papers which were themselves reprints of earlier World stories.) Certainly one immediate consequence of these exposures was reawakened interest in milk adulteration. The World began treating this subject on January 19, 1869, and it was at this time that Prof. Chandler was asked by Col. Clark to begin investigating milk for the Board of Health.

Chandler's report, when it was finally submitted the following year,[53] failed to discover any adulterant except for water, though Chandler nevertheless reviewed seven "traditional" techniques for adulterating milk.[54] This slavish recitation was surely responsible for helping to continue the assumption on the part of the public that "chalk," "sheep's brains," and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

other oddities were being employed by devious adulterators. Only a careful reading would dispel the impression that a wide variety of noxious items were being employed by the milkmen.[55] Chandler's conclusion that "for every three quarts of pure milk there is added one quart of water" was also somewhat deceptive, for it was not based on a random sample of all milk sold in the city, but instead included large quantities known to be adulterated. The report also asserted that cow-stable milk was "in every respect poorer than the milk of healthy cows," though Chandler was unable to point to "any specific poison." Certainly the total impression of the report contributed to public outrage concerning milk adulteration, though Chandler conceded that New York milk was free from injurious adulterations or disease.[56]

Even though the milk report was not published until 1870, the effect of the World exposé had been immediate, for the Board was stirred to heightened activity in the area of prosecution. To avoid even the appearance of irresolution the Board voted, on December 29, 1868, to require its inspectors to devote a full eight hours daily to Board work; when an attempt to restore the previous requirement of four hours of actual inspection was defeated, Sanitary Superintendent Dalton resigned. The Times editorialized in sympathy, explaining that the quality, not the quantity, of Dr. Dalton's work should have received first consideration. But at the same time the paper urged more strenuous activity on the part of the Board, in the light of the World exposures, explaining that "such crusades are at least temporarily effective; and should they lead to stricter legislation and better enforcement of existing laws against fraud, public opinion will not have been involved in vain."[57]

With the support of the renewed publicity concerning milk, Henry Bergh also stepped up his own campaign against the Brooklyn stables. Although

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Brooklyn District Attorney Morris remained unresponsive, Bergh returned to the attack, armed with Chandler's condemnation of swill-milk, which had been publicized as early as April 1869.[58] Although the Brooklyn police did not accept Bergh's recommendation that the "milkmaids" "ought to be hung,"[59] they were willing to arrest the offenders en masse. In addition to the employees, several stable owners were arrested, and charged both with cruelty to animals and violation of the milk laws. One pleaded guilty, paying a fine of $50 for each offense, while the others were held for trial.

At the first hearing Board President Lincoln came to Brooklyn to lend support to Bergh. After some weeks of delay the trial finally began, with District Attorney Morris still absent. Bergh, as authorized by state law, appeared as the prosecutor, but Justice Buckley refused to accept his right to appear, even after Bergh procured written authorization from Morris. The cases were dismissed. Bergh, however, refused to acknowledge defeat. He eventually succeeded in getting the Kings County Grand Jury to indict, not only the dairymen, but Justice Buckley as well.[60]

Unfortunately, just as what seemed to be a concerted attack on adulteration was taking shape, disaster struck the cause of sanitary reform. Boss William M. Tweed, having helped achieve a Democratic victory in the state in 1869, and with Tammany's John T. Hoffman now in the governor's mansion, demolished the Metropolitan Board of Health. In 1870, arguing for "home rule," Tweed spent an estimated one million dollars in bribes to obtain a new charter for the city.[61] Jackson Schultz, now president of the Union League Club, presided over a meeting that sent a special committee, chaired by Horace Greeley, to Albany to fight the revision.[62] But the reform effort failed, and the city government reorganization replaced metropolitan commissions such as the Board with corrupt municipal depart-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ments, whose heads were appointed by the mayor.

It may well be, in part, that the Board was a victim of its own success. Many New Yorkers felt that the Board had accomplished its principal public-health tasks, now that the city had been partially "sanitized" and the cholera epidemic was a distant memory.[63] Still, it was primarily the political revolution that set back sanitary progress during the Tweed era. The new Health Department had jurisdiction limited to Manhattan and the Bronx. In addition to Schultz and Dalton, who had already left the Board, Dr. Harris--who had replaced Dalton as Sanitary Superintendent--and Thomas B. Acton, the dedicated police commissioner, both resigned.[64] Prof. Chandler stayed on as the Department's chemist, but his duties were seriously diminished. The new health inspectors were the spiritual brothers of the corrupt place-holders the reformers had worked so hard to eliminate, back in the years of the Citizens' Association.

Although it would be inexact to say that the new Board was totally derelict in its duties, clearly little was accomplished on any sanitary front during the brief tenure of Tweed. As Dorman Eaton noted at the time, "It is painful to turn...to the miserable sanitary methods and the feeble sanitary results which have been the natural consequence of the partisan and dishonest control of our political degradation."[65] The Times complained that "the detection of poisonous and dangerous adulterations is nobody's business, and nothing short of some great and general calamity appears capable of arousing public attention."[66] If the press had become sanguine prior to the adoption of the Tweed charter, the Times now warned about milk adulteration, the growth of the swill business, the sale of "diseased meat," the watering of canned fruits and vegetables, dangerous kerosene, and the "criminal negligence" of the new Board officials.[67]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The publication, in early 1872, of the long-delayed first annual report of the new Board demonstrated that it had continued to pursue the city's sanitary work to the best of its reduced abilities. Although Chandler's part of the report broke little new ground, he continued his attacks on kerosene, milk, cosmetics, and various foods. But Chandler's comments mirrored Eaton's pessimism, and conveyed an air of grudging resignation and disappointment. For example, on cosmetics he noted: "No elaborate examinations have been made during the past year on this important subject." He stated that "it may frequently happen that lead" may contaminate canned vegetables, but failed to pursue the topic, offering merely two brief sentences. He explained that "I have been engaged in making an examination of baker's bread, and am inclined to think it is not adulterated. My investigation is not, however, completed, and I prefer to make a full report when I shall have accumulated more data."[68] The sanitarians, in the Tweed years, were engaged more in holding their own than in aggressive reform.

* * * * * * *

In 1865, thirteen years after the formation of the American Pharmaceutical Association, whatever local and national control existed over the profession continued to reside within the various colleges of pharmacy; no state-wide organizations had yet been formed. Though there were a handful of local laws regulating pharmacy, none of these regulations seem to have been enforced at this time.[69] In the state of New York there was little agitation for pharmaceutical reform; deaths by accidental poisoning, for example, were routinely reported along with drownings and household misadventures.

But in that year Prof. Ferdinand F. Mayer, of the New York College of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Pharmacy, laid the groundwork for the eventual regulation of his profession. The proliferation of small neighborhood drug stores, and of patent medicines, were reducing the College's influence over New York pharmacy. There were many practitioners, Mayer claimed, "who dispense drugs, without understanding their qualities," and inadequately-trained drug clerks were responsible for "many deaths" due to error. Though Mayer could not pinpoint the cure for these problems, he called for a new system of apprenticeship and training.[70]

Perhaps because of this warning, the Times began gradually escalating its coverage of both drug adulteration and pharmaceutical error. By the end of 1866 the paper was claiming "that not one half of the drugs used in a majority of the drug-stores in the preparation of physicians' prescriptions are such as they ought to be." The cupidity of the retail druggists was compounded by their "want of sufficient scientific education." The paper issued the most important challenge to professionalism, one that continued to echo within the medical and pharmaceutical communities: many druggists regarded their trade as would "a jobber of dry goods" or "a dealer in hardware. They consider drugs a merchandize, and dealing them out is, in their eyes, not a scientific pursuit."[71]

By 1867 the Times was regularly headlining druggist errors made, not just locally, but all over the nation. Yet ironically--to take one example--an accusation of a fatal oversight in Mobile, Alabama was surrounded by elaborate advertisements for such products as "Mrs. Winslow's Soothing Syrup," "Phalon and Sons 'Night-Blooming Cereus,'" "Jayne's Expectorant," "Chevalier's Life for the Hair," "Dr. Langley's Root and Herb Bitters," and a full half-column ad for Dr. Von Eisenberg, whose "Aesthetico-Neuralgicon" cured consumption, asthma, diseases of the throat, eyes, ears, etc.[72]

The paper's zeal led it astray the following year. It reported that

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"strychinine enough...to have killed twenty men" was put into some indigestion powders due to a druggist's error. The paper was reprimanded by the attending physician, who explained that the Times should have waited its conclusions until all the facts were in. The coroner's inquest, with R. Ogden Doremus assisting in the post-mortem, supported this objection, concluding that it was highly unlikely that the poison had been added at the drug store.[73] Chastened by its error, the Times continued to headline poison cases, but for a while moderated its tone, explaining in one case that death was the result of "either carelessness on the part of a druggist, murder or suicide."[74] But when the facts bore out the conclusion of druggist error the Times hastened to proclaim "One More Fatal Mistake by a Druggist's Clerk."[75]

If the Times was reflecting a national concern over pharmaceutical safety, the renewed interest of the professionals becomes understandable. In 1868 the American Pharmaceutical Association appointed a committee to draft a law that would regulate the practice of pharmacy and prevent adulteration of drugs. The Association failed to agree upon its committee's report, and did not approve the bill officially, but it did send copies of the proposal to various state legislatures, and encouraged them to act upon it.[76] Similarly, in New York Dr. John I. Gray, president of the State Medical Society, argued that the College of Pharmacy was powerless to control adulteration and incompetence, and called for new legislation. Gray urged the Medical Society to accept the responsibility circumstances had thrust upon it, and draft a new law that would, at a minimum, allow bad drugs to be confiscated and destroyed like bad meat. He particularly lashed out at over-the-counter abortifacients and patent medicines in general, condemning the practice of medicine by amateurs.[77]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

With pressure increasing for new legislation--more than ten deaths a year in New York State were attributed to accidental poisoning[78]--in 1869 the State Assembly introduced a new bill to regulate pharmacy. Though the proposal was not carefully thought out, it was a first attempt to establish minimum qualifications for the practice of pharmacy in New York.[79] But Governor Hoffman failed to approve the bill, and the incoming Tweed forces then set out to create their own version of the law. Tammany, already in the process of perverting existing institutions to serve patronage purposes, turned its attention to new sources of power and profit.

In January 1871 James Irving, a Tammany lieutenant who would soon be forced to resign from the Assembly,[80] submitted a bill providing for the licensing of druggists' clerks in New York City. The bill was soon amended to apply to all those engaged in pharmacy, proprietor and clerk alike, and to establish a board consisting of "one skilled pharmaceutist, one practical druggist, and two regular physicians." Clearly, the intention of the Irving law was to establish a system for reaping licensing fees ($30 per pharmacist), while permitting well-paid Tammany appointees the opportunity to dominate the pharmaceutical profession. The very severe penalty of a $500 fine, and/or six months imprisonment, was established for non-compliance.[81]

Tammany failed to appoint any College of Pharmacy leaders to membership on the Examining Board, and the law provided no "grandfathering"; all pharmacists, regardless of training, experience, or prestige, had to appear for examination before the Board. Thus the "Irving" law provided the incentive for very active organizing on the part of the New York pharmacists, and apparently for their national society as well. APhA not only objected to the "obnoxious" law, but also, for the first time in eleven years, established a Committee on Adulterations and Sophistications. In twenty-one pages

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of discussion of adulteration--the first substantial treatment of the topic by the profession since the debates over the law of 1848--APhA suddenly awoke to the fact that "Mammon still reigns....Drugs are largely adulterated." The Committee place the onus upon the drug wholesalers, though it suggested that the retailers had the responsibility for reforming these culprits by refusing their wares.[82]

But enlightened awareness and high standards could have an impact only upon legitimate drugs and chemicals; when it came to patent medicines and cosmetics, the only hope was to somehow eliminate them entirely. The "quack medicines" were mostly, APhA claimed, the ordinary staples of legitimate practitioners, but "printers' ink and popular credulity" made them a serious threat to the profession.[83] But if APhA was not yet ready to renew its campaign for regulatory legislation, the New York pharmacists were. After seven organizational meetings (for which the members were, of course paid), Tweed's Examining Board, headed by Prof. Doremus, began interviewing pharmacists on July 25, 1871.

Thirty-two leading New York pharmacists, all of whom were graduates of various colleges of pharmacy, issued a remonstrance against the law, and about 300 other druggists, predominantly German, organized The Druggists' Protective Union. The Union emphasized that the Board "was simply another means of serving out Government pap to a few favored individuals," and complained that the Examiners' judgments were entirely subjective. Officials of the College of Pharmacy, understandably, argued that a diploma from their institution should be sufficient evidence of proficiency. All agreed that the druggists and druggists' clerks had to lobby in the forthcoming legislature to seek annullment of the law.[84]

Before the new legislature could act upon the law, however, the Board

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of Examiners presented its report to the mayor. Even the Times, despite its earlier condemnation of the Irving law, was appalled by this evidence of "frightful ignorance." Avoiding all mention of possible bias or insufficiency on the part of the Tammany Board, the paper reported that a third of the 1,000 applicants tested had failed, and that "not one in twenty" of the others had passed all their examinations on the first trial.[85] This poor showing, whatever the law's inadequacy, surely confirmed the pharmacists' suspicion that simple annullment was now impossible. They apparently accepted the inevitability of regulation, and hoped only to acquire a more equitable law.

The Druggists' Union had already met with the Board of Trustees of the College of Pharmacy; a conference committee now completed a draft of a new law. The College presented the bill to the legislature, where it was introduced by State Senator Augustus Weisman, himself a pharmacist and a member of the College. Although their original bill was "disfigured by some amendments" the pharmacists accomplished virtually all they could hope for.[86] The new law, approved by Governor Hoffman on May 22, 1872, granted to the College of Pharmacy the authority to appoint the new Examining Board, which consisted of five pharmacists. Although all practicing pharmacists had to be registered, the act grandfathered-in all graduates of colleges of pharmacy who had at least four year's experience in the drug business. Practitioners who lacked the diploma had to have passed the examination of the Irving Board, or of the new Board of Examiners. The registration fee was reduced to $2.00.

In addition, the new law required each registered pharmacist to be legally "responsible for the quality of all drugs, chemicals, and medicines he may sell or dispense" except for pre-packaged items and patent drugs.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

A conviction for adulteration was punishable by a fine of $100, and the guilty party could lose his license. The law also enumerated poisons which could not legally be retailed, and put restrictions upon the dispensing of other poisons. Penalties collected under the new law would be turned over to the College of Pharmacy's library fund.

* * * * * * *

The Tweed take-over had interrupted sanitary progress in New York, but soon Tweed was gone, and no obstacle remained to a direct response to adulteration. Though no general anti-adulteration law existed, the Board of Health provided the instrumentality for sanitary supervision, and the milk laws were ample legal ground for activity in that most crucial arena. Moreover, the power to create ordinances given to the Board by Eaton lent it theoretical jurisdiction over virtually any threat to the public health. Of course, the courts had ruled against the Board's kerosene ordinance, but at least Chandler had been able to publicize the problem. Though the Board of Health was not granted jurisdiction over the practice of pharmacy, the new drug law had placed the responsibility for drug purity upon the drug retailers. Now the Board should be able to take action against a broad spectrum of food and drug problems.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER II

[1]For an extensive reminiscence of the activities that led to the Board's formation see Stephen Smith, The City That Was (1911; rpt. Metuchen, New Jersey: Scarecrow Reprint Corporation, 1973). The best modern treatment is in John Duffy, A History of Public Health in New York City, 1625-1866 (New York: Russell Sage Foundation, 1968), pp. 540-570, to which much of the summary presented here is indebted. See also Susan W. Peabody, Historical Study of Legislation Regarding Public Health in the States of New York and Massachusetts (Chicago, 1909).

[2]Minutes of the Proceedings of the Quarantine Convention (Philadelphia, 1857), p. 4.

[3]Proceedings and Debates of the Third National Quarantine and Sanitary Convention (New York, 1859), pp. 658-659, 209.

[4]Duncan R. Jamieson, Towards a Cleaner New York. John H. Griscom and New York's Public Health, 1830-1870 (unpublished doctoral dissertation, Michigan State University, 1971), p. 220.

[5]Citizens' Association of New York, Disease and Death in New-York City and its Vicinity (New York, 1864), p. 15.

[6]Report of the Council of Hygiene and Public Health of the Citizens' Association (2nd ed., 1866; rpt. New York: Arno Press, 1970), p. cii.

[7]Address of the Committee to Promote the Passage of a Metropolitan Health Bill (New York, 1865).

[8]Smith, City That Was, p. 44. In 1857, Mayor Fernando Wood, head of Tammany Hall, commanded a thoroughly corrupt municipal police force, which the Republican-controlled state legislature disestablished. The new force was under the control of a state board.

[9]Ibid., p. 45.

[10]Ibid., p. 171.

[11]Dorman B. Eaton, Sanitary Legislation in England and New York (New York, 1872), pp. 32, 34.

[12]Stephen Smith, M.D., LL.D. Addresses In Recognition of His Public Services. 1911. (n.p., n.d.), p. 19.

[13]Wilson G. Smillie, Public Health (New York, 1955), p. 382, estimates that in 1854 twice as many New Yorkers died of the disease; in the great cholera epidemic of 1849 the toll was over 5,000. See New York Times, 7/5/68.

[14]Duffy, pp. 28-29.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[15]Junius H. Browne, The Great Metropolis, A Mirror of New-York (Hartford, Connecticut, 1869), pp. 670-671.

[16]/First/ Annual Report of the Metropolitan Board of Health. 1866. (New York, 1867), p. 29.

[17]Scribner's Monthly, XIV, no. 6 (October, 1877), 729-743; Times, 3/24/66.

[18]Times, 3/15/66.

[19]Times, 3/22, 3/25/66. Dalton was a graduate of Harvard; during the war he had served as chief superintendent of the army field hospital at City Point, New York.

[20]/First/ Annual Report, Met. Bd., p. 31.

[21]Second Annual Report of the Metropolitan Board of Health of the State of New York (New York, 1868), p. 21.

[22]Times, 3/10/66.

[23]The city's dominant association of butchers, leather men, and those who operated the fat-boiling facilities. Incorporated 4/8/65, by state legislative action; Laws of 1865, ch. 330.

[24]Times, 3/13/66.

[25]"Abattoir" comes from the French abats, meaning "offal," those parts of a slaughtered animal which were discarded. A clear distinction was made between "slaughter-house" and "abattoir," since slaughter-houses were places where healthy food animals were received, slaughtered, and cut into wholesale dressed cuts. Abattoirs received diseased animals, or those that died prior to slaughtering, and rendered them into soap or fertilizer. Butchers similarly sent inedible portions of slaughtered animals to abattoirs for rendering. Schultz wanted to combine both functions in the same facility.

[26]Times, 3/22/66.

[27]/First/ Annual Report, Met. Bd., p. 34; Second Annual Report, Met. Bd., p. 289.

[28]Times, 9/3/67.

[29]Ibid.

[30]Times, 9/8, 9/12/67.

[31]Times, 11/20/67.

[32]Times, 7/3/68.

[33]Peabody, Historical Study, p. 105, explains that the right of appeal was included in the various state quarantine laws, but was absent "in regard

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to orders for the removal of nuisances, although since the enforcement of orders can be had only through the courts, except in case of summary enforcement by the board itself when the fact of nuisance is open to determination by the court, and since the matter must be brought into court by the board either by indictment or suit, ample opportunity is given for 'judicial review' which takes the place of and is equivalent to appeal."

[34]Third Annual Report of the Metropolitan Board of Health of the State of New York (New York, 1868), p. 38; Times, 8/13, 8/28/68.

[35]Robert L. Larson, Charles Frederick Chandler, His Life and Work (unpublished doctoral dissertation, Columbia University, 1950), p. 70.

[36]Board resolution, from Emmons Clark to Chandler, 11/11/68, Chandler papers.

[37]Larson, pp. 78-79; Charles F. Chandler, "Report on Dangerous Kerosene," Fourth Annual Report of the Metropolitan Board of Health of the State of New York (New York, 1869), pp. 437-457.
Chandler believed that the minimum safety factor for kerosene was a "flash point" (the temperature at which the oil's vapor is combustible) of 100° F., and a "burning" or "ignition" temperature of 110° F. (at which point the oil itself could be set afire). Today's standard is apparently lower than Chandler's recommendation, since kerosene heaters are designed for an ignition point of 104° F.

[38]Chandler, "Report on Dangerous Kerosene," p. 441.

[39]Stenographer's Minutes of "Address of Charles F. Chandler to the New York City Medical Society, June 3, 1878," pp. 95-96, Chandler papers. New York State laws governing burning fluids were Laws of 1865, ch. 773, Laws of 1866, chs. 872 and 873. On the court decision see Times, 12/31/70.

[40]Charles F. Chandler, "Report on Petroleum Oil," First Annual Report of the Board of Health of the Health Department of the City of New York (New York, 1871), p. 552, notes that kerosene-related fires constituted 11% of all fires in the metropolitan area in 1869, and 18% in 1870. Chandler also complained (p. 541) that "The apathy of the public in regard to this matter is beyond my comprehension."

[41]Clark to Chandler, 3/20/71, Chandler papers.

[42]/First/ Annual Report, Met. Bd., p. 24.

[43]Zulma Steele, Angel in Top Hat (New York, 1942). The SPCA continues to enjoy similar powers today in the City of New York; it is in charge of dog-licensing, and uses the fees to maintain animal shelters, and enforces anti-cruelty legislation.

[44]Steele, pp. 111-113.

[45]Times, 1/22/65.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[46]Times, 8/15/65. Though food prices rose slightly less than the average inflation rate during the war, there were substantial increases across the board. Milk prices went up more than 50% between 1860 and 1865. The Consumer Price Index for milk dropped slightly by 1866, but there was little further decline until the 1870's, which may explain, in part, the continued accusations of "monopoly" in the industry. See National Bureau of Economic Research, Trends in the American Economy in the Nineteenth Century (Princeton, 1960), pp. 143-144, 169.

[47]"Food and Its Adulterations," Hunt's Merchants' Magazine, LIV, no. 5 (May, 1866), 341.

[48]Times, 7/9/66.

[49]Times, 3/8, 3/11, 3/24/67; 1/15, 2/2/68.

[50]Times, 3/22, 8/23/68. Earlier articles on the lactometer were 8/21, 8/25, 9/9/65.

[51]Terra alba was a generic term for cheap, inert ingredients used as fillers. See below, chapter IX.

[52]New York World, 2/15/69.

[53]Chandler was frequently remiss in completing important reports; see below, chapters IX and X. Much of the milk report was composed by others. Elisha Harris investigated the Brooklyn cow-stables, and William Chandler, Maynard Alsberg, and Herman Endemann assisted in the balance of the study.

According to a letter from Harris, frustrated by Chandler's delay, Dr. Endemann was to draw up the final report on the milk analyses, while Harris himself coordinated the various parts of the study. (Harris to Chandler, 11/20/69, Chandler papers.) When Chandler had still not completed his own portion of the report a month later Harris wrote again: "My Dear Professor, I grieve for your pains, and dare not ask 'when will the milk report be ready?' Only let Dr. Endemann know your wishes or plans on any portion /and/ he can finish for you." (Harris to Chandler, 12/18/69, Chandler papers.)

[54]Charles F. Chandler, "Report on the Quality of the Milk Supply of the Metropolitan District," Fourth Annual Report, Met. Bd., pp. 5-6.

[55]The persistence of these accusations, popularized by Hassall, can be demonstrated by looking at two reviews of the Chandler report published in this century. Haven Emerson, "Charles Frederick Chandler 1836-1925, New York's First Public Health Chemist," Science, LXXXVI, no. 2238 (November 19, 1937), 456, claimed that Chandler had actually "found" such adulterants in the milk tested, and even explained that the sheep's brains gave "a sense of thickness and richness to the milk."

Larson, p. 73, reported that "Chandler found that milk could be adulterated with other materials besides water," and never clearly explained that these putative adulterants were completely absent in the samples tested. He ascribed to "sheep's brains" the ability "to thicken watered milk."

[56]Chandler, "Report on Milk," pp. 12-13, 6.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[57]Times, 1/13, 1/14/69.

[58]Times, 4/13/69. The Board declared that, based on Chandler's examination, swill milk was "to be regarded as less healthful and safe for food than milk which has simply been diluted with water, inasmuch as the deficiencies...are caused by pathological or unhealthful conditions in the cows that produce such faulty milk."

[59]Steele, Angel in Top Hat, p. 116.

[60]Steele, pp. 115-119; Times, 2/22/70.

[61]DeAlva S. Alexander, A Political History of the State of New York (1909; rpt. Port Washington, New York: Ira. J. Friedman, 1969), III, p. 229.

[62]William L. Stone, History of New York City (New York, 1872), p. 613.

[63]Duffy, pp. 48-49.

[64]Larson, p. 89.

[65]Eaton, Sanitary Legislation, p. 34.

[66]Times, 9/3/70.

[67]Times, 3/7/71 explains that one of the new inspectors left a bottle of carbolic acid with an illiterate woman, to be used for disinfecting. She drank it and died. Times, 10/25/71 claimed that milk was now being watered to the extent of 50%. See also broad condemnation of "Our Model Health Board," Times, 8/19/71.

[68]First Annual Report of the Board of Health, pp. 312-319. It should be noted that in a speech given in 1871, reported in Galaxy, XIV, no. 5 (May, 1872), 707, Chandler ridiculed concern over the arsenic present in tin-lined lead water pipes. He was, appropriately, pursuing a campaign against the traditional unlined lead pipe, but was perhaps so eager to support any alternative that he argued that people could "consume daily, with impunity," traces of arsenic found in commercial tin.

[69]Glenn Sonnedecker, Kremers and Urdang's History of Pharmacy (Philadelphia: J.B. Lippincott, 1976), pp. 196, 213-214.

[70]Times, 3/18/65.

[71]Times, 12/27/66.

[72]Times, 4/24/67.

[73]Times, 7/20, 7/23, 7/31, 8/6/68.

[74]Times, 9/29/68; see also 10/9/68.

[75]Times, 11/7/68, a poisoning case in Philadelphia.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[76]F. W. Nitardy, "Notes on Early Drug Legislation," Journal of the American Pharmaceutical Association, XXIII, no. 11 (November, 1934), 1125-1126; Proceedings of the American Pharmaceutical Association, XX (1872), 161.

[77]Times, 2/7/68.

[78]Times, 10/11/68.

[79]David L. Cowen, "America's First Pharmacy Laws," Journal of the American Pharmaceutical Association, III, no. 5 and no. 6 (May and June, 1942), 214, reports that there was an 1832 state law, applying to New York City only, requiring either a diploma from a college of pharmacy or a license granted by a county medical society, in order to practice pharmacy. There is no record that the law was ever enforced, however.

[80]Alexander B. Callow, Jr., The Tweed Ring (New York: Oxford University Press, 1965), p. 245, notes that Irving "struck down Smith M. Weed, Republican from Clinton county, on the floor of the Assembly. Even the Ring was powerless in face of public indignation." This was in April 1871.

[81]"An Act to establish a Board for the examination of and licensing Druggists and Prescription Clerks in the city of New York," passed 3/28/71.
A strong bill to regulate the sale of patent medicines was killed in this session by the Tweed forces, Tweed personally submitting remonstrances from over 100 wholesale druggists. See Journal of the Senate of the State of New York (Albany, 1871), pp. 322, 452, 457-458.

[82]Proceedings of the American Pharmaceutical Association, XIX (1871), 330-331, 335.

[83]Ibid., 349.

[84]Times, 7/27, 7/28, 7/30, 8/12/71. The Times was concurrently arguing that the examination for admission to the New York bar was too easy, and complaining that graduates of the Law Department of the University of New York were automatically admitted without examination. See 11/14, 12/6/71.

[85]Times, 1/9/72. Dr. Doremus provided more of the failing grades than the other three examiners together.

[86]Proceedings, APhA, 1872, 163-167. "An Act to regulate the Practice of Pharmacy and the Sale of Poisons in the City and County of New York." APhA complained that apprentices could not, under the new law, put up prescriptions, and that three of the five pharmacists on the new Board had to be medical graduates. APhA stressed that "personal liberty should not be tied by too severe laws," and argued that the only justifiable regulation should be a diploma from a recognized college of pharmacy before entering practice, and "a strict accountability" once in the business. The Association did not explain what it meant by "accountability."

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER III

CHARLES FREDERICK CHANDLER: TESTS OF POWER

The new state government elected in November 1872 quickly revoked the Tweed charter; by an act of April 30, 1873, the Board of Health was reorganized for a second time. The Board's powers were restored to those enjoyed by the Metropolitan Board, though its jurisdiction continued to be limited to Manhattan and the Bronx. Its key members were Prof. Chandler, the new president, his medical associate Stephen Smith, and Col. William P. Prentice, the Board's counsel. Chandler's intention was to re-establish the power and respect formerly held by the health authorities; to this end he attacked those sanitary problems he regarded as the unfinished business of the Metropolitan Board.

Though initially successful in many of these efforts, Chandler made enemies and alienated supporters; by 1878 the Board was under fire for failing to solve vital health problems. Chandler also intensified the Board's attack on milk adulteration, but--though successful--committed the Board to very questionable policies and practices. By 1879 Chandler was involved in the first intensive controversy over a food adulteration other than milk, and inadvertently drew the Board into a very dubious position because of the commercial ramifications of his actions.

* * * * * * *

In the Board's assault upon epidemic disease, the markets, slaughter-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

houses, and other "nuisances," there was at first little time, money, or devotion for the problem of adulteration. The Board, for example, prepared competitive examinations for those reapplying for their positions as sanitary inspector and assistant sanitary inspector. Of the twenty-three questions asked of the first group, only one question--the last--dealt with adulteration: "What is the composition of pure cows' milk, and how would you detect adulterations?" None of the nineteen questions asked of those reapplying for the job of assistant inspector related to adulteration, nor were new applicants for either job asked such questions.[1]

In those sanitary contests Chandler chose to enter, probably his clearest triumph was against the marketmen. It will be remembered that the Metropolitan Board's attack had been cut short when the state legislature forbade any further interference before May 1, 1869; the Tweed Board had virtually ignored the markets. When the new Board reinitiated the attack Thomas DeVoe, an ex-butcher, and since December 1871 Superintendent of Markets, defended them. DeVoe argued that, considering the age of Washington Market, it was in as good a condition as possible.[2] A few days later Chandler and Stephen Smith paid a personal visit to the market, and refuted DeVoe's claims of cleanliness. DeVoe, with the support of Mayor Havemeyer, insisted that the merchants be given the chance to improve the condition of their wooden stalls even further, but Chandler was determined to see these health menaces finally destroyed.[3]

Chandler gave legal notice of his intentions, whereupon the marketmen sought an injunction on July 23, restraining the Board from destroying the stands. Col. Prentice suggested to Chandler that the court would surely issue the injunction the following day, and that the Board's last legal opportunity must be taken before 10:00 a.m. Chandler immediately arranged

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

with a housewrecking firm for the demolition of the stalls, and persuaded the police to provide protection for the sanitarians. The stands were destroyed in a midnight raid upon Washington Market. Under the threat of similar action against the other markets, butchers quickly complied with Board orders.[4]

With equal fervor and drama Chandler set out to eradicate the most visible of the "stench" nuisances. The New York Rendering Company had, since 1865, held the contract for disposing of the city's animal carcasses and offal. Though the company had for years been rendering these waste products within the city limits, in violation of the terms of its contract, it had proven immune to attacks by the preceeding Boards. When it persisted in these activities, despite the vehement protests of offended citizens and the order of the Board, Chandler took swift action.

On July 11, 1873, Col. Prentice reported to the Board that, after certain evidence as to non-compliance had been collected, the company's contract could be legally rescinded. Within weeks the contract was formally annulled and assigned to a different company. All the movable property of New York Rendering was forcibly seized and towed over to New Jersey.[5] Similarly, the barge Algonquin was rendering the offal of the slaughter-houses in an illegal manner. The owners refused to desist, and moved their vessel into the Hudson River, out of the Board's jurisdiction. Chandler, with questionable legality, had a tugboat tow the Algonquin to Barren (now Ward's) Island at the owners' expense.[6]

An even more difficult target selected by Chandler was the city's meat industry. The most glaring abuses of the slaughter-houses had been abated by the Metropolitan Board, and virtually all of the meat business had been moved north of 40th Street. The Tweed Board had offered lip-service to

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

total removal, but had taken no action.[7] But Chandler decided that the compromise measures accepted by his predecessors were inadequate. His determination to assault this powerful and entrenched interest may have been encouraged by concurrent alarms raised by members of the humane organizations, upon which he was eager to capitalize. In 1873 Henry Bergh turned from his war against cruelty to beasts of burden and the swill stables to the condition of meat animals shipped in railroad cars. Bergh based his attack not only on the inhumanity of their treatment, but on the fear that the meat of such animals became damaged and diseased. He was successful in obtaining federal legislation, put into effect on October 1, 1873, regulating interstate livestock shipment.[8]

Bergh's cause was strongly aided by the activities of George T. Angell, founder and president of the Massachusetts SPCA. In 1870 Angell had toured the Chicago stockyards, and published his discoveries in the Illinois press with such effectiveness that he succeeded in founding a sister organization in that state, and was assured by the packers of better treatment for the cattle prior to shipment. Angell, like Bergh, explained that inhumane treatment made the meat "not only less nutritious, but actually dangerous."[9]

Early in 1874 Chandler announced his intention to halt the continuing expansion of the slaughtering business, either by the construction of one giant abattoir or by the complete elimination of slaughtering within the city limits. Either measure would, of course, destroy the investments of the more than fifty independent wholesale butchers, and perhaps result in the destruction of even the two great abattoirs built within the city limits at the instigation of the Metropolitan Board. Chandler's abattoir scheme would also violate the promises implicitly made by his predecessors, who had succeeded in moving the butchers uptown with the understanding that

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

they could operate without further molestation. Not only the butchers, but even Jackson Schultz, protested the Board's resolution, Schultz accusing Chandler of "a breach of faith."[10]

These protests notwithstanding, in April the Board proceeded against the butchers by revising the Sanitary Code to restrict the routes that could be taken by the men driving animals to slaughter, and to reduce sharply the times when cattle or swine could be herded.[11] Clearly Chandler wished to make the day-to-day operation of the independent butchers more difficult, as a preliminary to banning cattle-driving altogether. To demonstrate to the slaughterers that it was serious, the Board conducted intensive inspection of all such establishments, even though the Board's personnel and finances were limited. In the twenty months from May 1, 1874, to December 31, 1875, the Board made over four thousand inspections of slaughter-houses, as well as hundreds of visits to related establishments, such as rendering, cleaning, and bone-boiling businesses.[12]

Chandler's war received reinforcement from Angell, who spoke to the American Social Science Association, of which he was a director, in the summer of 1874. Angell condemned the mistreatment of animals in cattle-pens, railroads, and slaughter-houses. His speech, filled with graphic and gory descriptions, brought him wide attention in the popular press. The Times, for example, concluded in an editorial which cited Angell's speech, that "there is probably nothing in the markets that comes to us in a more unfit state....It is not to be expected that the meat, under such circumstances, can be wholesome."[13] Later in the year Angell published his speech in a pamphlet financed by his Massachusetts organization, and publicized by sister associations, which received national distribution.[14]

In October the Board of Health published a report on the Concentration

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and Regulation of the Business of Slaughtering Animals, having assigned Stephen Smith to the chairmanship of a special committee investigating the problem.[15] The Board set July 4, 1876, as the deadline for new ordinances on slaughtering to take effect. The abattoir concept would be imposed and all conventional slaughter-houses were to be abolished.[16] The butchers brought political pressure to bear, and Mayor William F. Havemeyer sent several of the men representing "the slaughtering interest" to Chandler, with letters of introduction.[17] But the legal powers of the Board made it difficult to stop Chandler. In addition, the Board's hand was accidentally strengthened when a number of wild cattle broke loose and tore and mangled a number of citizens.[18]

Early in 1875 the Board amended the Sanitary Code to provide the legal basis for the abattoir system. It prohibited slaughtering or driving cattle south of 40th Street, and required a special written permit from the Board even north of that line, unless the slaughtering "shall be done in buildings located directly upon the water-front, each having a capacity sufficient for the yarding and slaughtering daily of one-half of the entire number of cattle, or hogs,...slaughtered in the city."[19] Thus conventional slaughter-houses survived at the sufferance of the Board.

Mayor Havemeyer's political opposition had ended when he died suddenly in November,[20] and the new mayor, William Wickham, appeared at first to promise reform and conciliation. But in fact Wickham allied himself with uptown real estate interests, and fought to prevent the construction of Chandler's massive abattoirs.[21] Chandler defended his policies against Tammany's attacks from the point of view of pure meat, explaining that slaughtering must not be banished from the island, for only by "examining the animal on foot" could the inspectors detect diseased beasts. And only

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by concentrating the business in a few central locations could this be done effectively, for "Now only the foulest varieties of meats can be detected and condemned in the markets, because there are not Inspectors enough to examine all the cattle to be slaughtered."[22]

Though Chandler staved off a Tammany attempt to legislate against the abattoirs,[23] they were never built. Chandler himself later blamed "the influence and misrepresentation of the Roosevelt Hospital people, and other West Side property-owners" for killing his scheme.[24] But Chandler's associates on the Board had already warned him to be satisfied with the new sanitary ordinances, and not to push any further. In a letter marked "Private," and signed with a second notation "This is personal and private," Col. Prentice had warned Chandler to stop the Board's involvement in "this butcher business" "for the present":

> Popular sentiment is against all slaughtering in the City of New York and some of your friends say you can go too far. So you see there is danger on both sides....Meanwhile your Bd. of H has passed its July 4th 76 Resolutions and its Manhattan Market Ordinance and can afford to stop.
>
> I judge from what I hear and read, and I write to you because you know that though not a radical I am not timid or a timeserver....and the discussion has gone quite as far as the Bd. of H can wish.[25]

Board Secretary Emmons Clark similarly warned Chandler that he might "agitate the abattoir question very much," and suggested delaying a new appointment to the Board until "that was over."[26]

But the warnings came too late. The deepening national depression contributed to broad budget cut-backs, and Mayor Wickham cut the Board of Health's budget more deeply and sooner than that of other departments. The Board had been allocated $250,000 in 1872, and for the next few years its budget steadily increased, coinciding with its reorganization and expansion. Yet Chandler's 1876 request of $328,000 was cut down to $220,000.[27]

Tammany also used other devices to harass Chandler. The Police Department

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

had, for years, been "leasing" rooms to the sanitary inspectors who worked alongside the police, but no rent had been charged since 1872. Suddenly, in January 1876, the Police Department presented Chandler with a rent bill, and tried to evict the inspectors. Policemen who worked with the sanitary corps were unilaterally removed from that duty, and certain powers of the Board of Health were taken away through administrative reorganization.[28]

The election of a new mayor in 1876 did not help the Board's cause. A tenuously-united New York Democratic Party supported Tammany's John Kelly in his choice of Smith Ely to replace Mayor Wickham.[29] Ely had been an important hide and leather merchant, whose interests had long been tied to those of the butchers and to the Hide and Melting Association. Even before his election he had written a revealing letter to Mayor Wickham, which Wickham had sent on to Prof. Chandler:

> I am considering a proposition to make a further investment in the Hide and Slaughtering business in East 45th St. and I should accept the proposal if I was confident that the Board of Health would not drive the business from that locality. I once lost $20,000 when the business was driven from the 17th Ward to its present location, and I do not want to be caught again.
>
> Please do me the personal favor to talk with your friends in the Board of Health and let me know what probable action will be: whether they will repeal their order or endeavor to enforce it.[30]

While mayor, Ely sent letters instructing Chandler to grant friends of his special permits to conduct their slaughtering business outside the boundaries set by the ordinances and codes of the Board.[31] Chandler, already plagued by a drastically-reduced budget, asked Ely's Board of Apportionment for an "absolute minimum" of $232,000, explaining that the department could afford only one milk inspector for the entire city. The Board received a mere $116,000 for its 1878 appropriation.[32]

As a result of the severe budget cuts and mounting political opposition--and perhaps also because many sanitarians felt that the really crucial

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sanitary problems had either been solved or at least controlled[33]--there was little constructive Board activity after 1874. The decade of Chandler's presidency has been called "the quiet years"; obviously there were still activities on a number of sanitary fronts, but in general the Board seemed "barely able to hold its own."[34] Even a great admirer of Chandler admits that after 1875 the Board's annual reports "contain no new subject-matter of other than formal administrative concern."[35]

The nadir of sanitary reform in post-war New York took place in 1878, when the entire Board of Health was indicted for nonfeasance.[36] The specific accusation was that the Board had neglected its duties in regard to a "stench nuisance," which Chandler claimed to originate in near-by Brooklyn, rather than within his own jurisdiction. The Brooklyn Board of Health had inadequately responded to Chandler's complaints by claiming that "It is not at all probable that /the odors/ find their way across the East River."[37] In addition, at the very moment that Chandler was being charged with this misdemeanor for willful neglect of duty, sentence was being pronounced against one of the nuisance factories, and trial was about to begin against several other offenders.[38]

If Chandler was correct about the origins of the odors, and if such legal action was proceeding, with all indications favorable that the stench nuisances were being eliminated, why were the indictments brought against the Board? Clearly there was broad feeling among the public and the press that for the last several years the Board had not been doing its job; the stench nuisance was merely the straw that broke the camel's back. Even while the indictments were only rumors the Times had editorialized that:

> It is only charitable to say that they have simply neglected their duty through inertness, ignorance, and indifference. If we were disposed to be less charitable we might charge that the palpable and notorious disregard for the public comfort which has been exhibited by the Board of Health was due to interested motives.[39]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Complaints were raised in the press regarding Chandler's salary of $6,500, and he was criticized for devoting insufficient time and attention to his duties as president of the Board.[40] There was justification for this charge, for Chandler held teaching positions at three institutions: the Columbia College School of Mines, the New York College of Pharmacy, and the New York College of Physicians and Surgeons. He was active in several other organizations as well, particularly, at this time, the American Chemical Society. Chandler also appeared frequently as a chemical expert testifying in private court cases, and he permitted his name to be used in testimonials for various products. Receipts in the Chandler papers clearly indicate that his fees from private consulting work exceeded his wages from the Board.

One recent author has speculated "It is debatable how sincere a reformer Chandler was," noting that after 1883, when Chandler left the Board, he abandoned public health work entirely, "and turned exclusively to industrial chemistry. In this work he defended large companies against these same reformers he had formerly led."[41] In 1878 even the medical community was divided on the indictments, many doctors pointing to problems that had received little attention from the Board. Though Dr. Willard Parker, "the Nestor of the profession," and one of the leaders in the formation of the Metropolitan Board, defended Chandler, he later became one of Chandler's harshest critics.[42]

Members of the Board, and especially Chandler, spent a good deal of time in May and June defending themselves. Chandler excused the Board's inactivity by citing problems of inadequate manpower and funding, cumbersome laws, and legal restraints. Chandler also claimed that the complaints "emanated from persons who have selfish personal ends to gain," but he

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

never specified which persons, or what personal ends. On the day the indictments were presented "circles friendly" to Chandler claimed a "conspiracy... to oust" him from office. The next day Chandler himself claimed that evidence to be used in his defense had been stolen by "burglars."[43]

Chandler prepared an elaborate defense of his activities, in excess of 200 manuscript pages. This statement was presented to the New York County Medical Society on June 3, 1878, Chandler speaking for over two and a half hours.[44] But very little of his speech dealt with the stench nuisances; primarily Chandler reviewed the achievements of the Metropolitan, and the present, Boards of Health, and devoted much time to adulteration. He implied that the Board had virtually eliminated milk adulteration, swill milk, unsafe cosmetics, and dangerously adulterated kerosene.

In a speech to the Public Health Association of New York ten days later--apparently his next public appearance--Chandler spoke exclusively on the adulteration question. In circuitous language he expressed satisfaction that an investigation "had not resulted in the discovery of positive proof that unhealthy ingredients were mixed with the ordinary articles of food." Chandler stated that the city's milk supply "was in a fair condition," and that he had never found any harmful ingredients in sugar, though some "deleterious substances had been found in candy." The main impression given by the speech was that the basic foods consumed in New York, with the possible exception of bread, were unadulterated, but that much more money needed to be appropriated before firm conclusions could be reached.[45]

Although for the next several months there was virtually no further public debate on the indictments, behind-the-scenes maneuvering must have taken place; in December the indictments were quashed. Judge Josiah Sutherland,[46] in an exercise of judicial legerdemain, explained that since

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the Board had the sole authority to declare something a public nuisance, and since it had not done so, the "nuisance" simply did not exist. The charge of "willful neglect of official duty" accused the Board of failing to abate a nuisance, not of failing to meet to determine whether one existed, therefore the indictment brought by the grand jury had no legal validity.[47] This was precisely the argument made by Chandler back in May and June, when he reasoned that "the determination of what constitutes a nuisance was vested in the Board of Health."[48] Judge Sutherland retired from the bench a few days after rendering his decision.

Although the newspapers generally let the issue rest, once the ruling to quash had been made, some were not so forgiving. In an editorial in its next issue the Journal of Commerce took one last riposte: "The removal of the entire Board was what a disgusted public had long wanted....The failure in this instance should not deter other grand juries from testing the accountability of the Commissioners who reign over us."[49]

* * * * * * *

The professional sanitarians had shown consistent interest in only one area of food adulteration: the sophistication of milk. Yet, even here, it can be argued that that interest had been precipitated by the activities of amateurs, and by the continuing publicity given to the problem. These activities--especially those of Henry Bergh--were directly reflected in the reports of the Board of Health of Brooklyn. In 1874-1876 Bergh once again descended upon that unregenerate city.

The Brooklyn Board of Health, never renowned for unexampled efficiency, had been reorganized in 1875. While its reports defended this reorganization with resulting in greater sanitary success, in reality the Brooklyn Board

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

had merely become more highly politicized.[50] Although the Board played down fears of contaminated milk, finding the large majority of the Brooklyn stables "good," it dutifully recommended more stringent enforcement of the sanitary regulations. Echoing Chandler's belief that slaughtering not be removed from Manhattan, so that his Board could continue to regulate it, the Brooklyn Board opposed the removal of offending swill-stables, arguing with dubious logic "if they were driven from the city and beyond our jurisdiction, all restraint would be removed."[51] In reality, if the cattle were removed to rural Long Island, distillery-waste feed would no longer be economical, and the swill-milk problem in Brooklyn would probably have vanished.

To defuse Bergh's criticisms the Brooklyn Board glowingly declared that "Clean, sleek and healthy cattle now ruminate where dirty, diseased, and stump-tailed animals formerly chewed the cud of discontent, and tidy, well-ventilated and sewered stables have taken the place of the reeking, crowded and disgusting sheds that once abounded throughout the city."[52] Chandler suspected, despite these assurances, that there were still cattle in Brooklyn chewing "the cud of discontent." During his defense against the 1878 indictment Chandler would argue that swill milk "is all manufactured on the other side of the River. All that could be done on this side to check it has been done."[53]

Yet, in 1875-1878, Chandler's Board failed to pursue investigations into local distillery stables. Rather, the Board's pursuit of pure milk was almost entirely confined to the prosecution of retail milk distributors. In this venture the Board received at least public support from farm organizations, and from the largest of the wholesalers, the Orange County Pure Milk Dealers' Association. In contrast, the German Milk Dealers' Association,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the largest organization of retailers, felt they received all the unsolicited attention of the sanitarians. The retailers argued that the farmers, the creameries, and the wholesalers did all the skimming and watering, and pleaded their own innocence.[54]

Though chemical analysis could irrefutably establish the purity of a sample of questionable milk, the Board needed something that could indicate the most common adulterations--skimming and watering--quickly, cheaply, and in the field. Such a device would enable the sanitary inspectors to punish the milkmen not only by prosecution, but by confiscating and dumping the alleged impure milk upon discovery, for this was how Chandler interpreted the milk laws of 1862 and 1864. In his search for a weapon to be used against the adulterators Chandler came back to an instrument he had earlier disparaged, the lactometer.

Chandler had used a "galactometer" for his milk report of 1870, but had not relied upon it; all of the milk he tested was subjected to at least partial chemical analysis. Then in 1871, in an article in the American Chemist, a journal he and his brother had just begun publishing, Chandler denounced the lactometer as "a very unreliable guide, as skimming causes the milk to appear better, while watering exerts the opposite effect. By resorting to both forms of fraud at the same time, the normal gravity of the milk may be preserved."[55] Despite this pessimistic conclusion, in 1875 Chandler instructed his inspectors to begin using the lactometer as the standard field-test for skimming and watering, in response to increased publicity about milk adulteration. Debate over the lactometer's reliability now became heated.[56]

Chandler then sought to establish a legal precedent for this test, which only a conviction for adulteration based upon the lactometer exclu-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sively would accomplish. Yet when the Board managed to obtain a conviction on this basis the State Supreme Court overturned the ruling on appeal, declaring that the lactometer, when used alone, "furnishes only questionable evidence of adulteration."[57]

In this lactometer war R. Ogden Doremus quickly emerged as Chandler's arch-opponent. Whether on scientific grounds, for reasons of personal enmity, or simply because he was employed by the milk dealers to represent them in court, Prof. Doremus set out to totally discredit Chandler's tool.[58] For his part, Chandler was now firmly committed to the lactometer, and could not admit that some of Doremus' objections were valid without undermining his own position. Chandler finally succeeded, in February 1876, in sustaining a conviction based on the lactometer, but only because he presented testimony of an independent chemical analysis that verified the accuracy of the instrument readings.[59]

By this time it was doubly important that Chandler establish the credibility of the lactometer, for the courts were refusing to convict accused adulterators due to the loop-hole of the law--that it was illegal only if one "knowingly" sold adulterated milk. How could Chandler prove that dealers "knew" their wares were adulterated? If he persuaded the courts that the lactometer was a reliable tool, he could argue that dealers could no longer plead ignorance or innocence, for they could employ lactometers themselves, before selling milk to consumers. Moreover, Chandler had a deadline approaching, for his term of office expired the next spring, and there was little likelihood of reappointment if the milk issue was still unresolved.

Without completely conceding defeat on the 1864 law, Chandler decided to provide an additional basis for conviction by amending the Sanitary Code.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The new ordinance simply declared that (with or without "knowledge") the sale of watered or skimmed milk was illegal.[60] Doremus responded in an address to the New York Medico-Legal Society in April; one of the authorities he cited was Chandler's 1871 denunciation of the lactometer. As the Herald commented:

> This last quotation, from the pen of Dr. Chandler, who is now so hot an advocate of the efficacy of the lactometer as a scientific instrument, elicited derisive and prolonged laughter. Broad hints were made, in fact it was asserted during the debate...that corruption influenced the Board in the use of the lactometer.[61]

Undeterred, Chandler waited only long enough for the milk dealers to learn of the new ordinance, then ordered his inspectors to conduct a series of raids, lactometers in hand. Over thirty retailers were arrested that summer; the case selected to be the test of the new ordinance was the People vs. Daniel Schrumpf, which came to trial in December. The trial was a battle-ground for the war between Chandler and Doremus, both men testifying at length on the virtues of the lactometer, for clearly it was the measuring device that was on trial, as much as Schrumpf, and with it Chandler's entire approach to the milk problem.

At the trial Prof. Doremus frequently made telling points against the lactometer, while Prof. Chandler apparently told less than the "whole" truth about its reliability, and pretended ignorance of some independent scientific literature that cast doubt upon it, while being well-versed in the studies that defended it. Chandler, of course, was confronted with his 1871 statement; he admitted to writing it, and rather weakly added that he "should write it again if I had occasion to write to an audience that did not entrap every word I uttered." He refused to answer the question "Is the lactometer an unreliable guide for milk?," finally responding that he could not "give a simple negative or affirmative answer."[62]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

After three times denying that there was any test for watering more accurate than the lactometer, Chandler was asked whether he had not, in an earlier trial, responded that chemical analysis was a "surer test"? To this he admitted, but added "I entertained an opinion of that kind at that time....I have learned a great deal since then. My confidence in the lactometer has been increased ten-fold since that case was tried."[63] Chandler's testimony was made even less credible when it was demonstrated that very subjective sensory judgments had to be made by the milk inspectors performing the lactometer tests. For example, they had to visually evaluate the extent to which the milk adhered to the instrument.

The heart of Doremus' argument rested on two propositions: that the mere specific gravity of milk, which the lactometer indeed measures, was useless for determining the purity of the milk; and that healthy cattle could be found whose milk, unquestionably pure and unwatered, tested considerably lower than the standard set by the Board. But Col. Prentice managed to weaken Doremus' credibility by revealing that, when he went upstate to test a herd of cows in an effort to prove his contentions, Doremus was accompanied by representatives from two milk-dealer organizations. Doremus foolishly compounded the implication of collusion by insisting that, at the time, he did not know who the two men were.[64]

The defense made an additional error by insisting that the chemical analysis of milk was a simple procedure, which the Board should be forced to follow in all cases of alleged adulteration. But Prof. Doremus' courtroom demonstration of chemical analysis took so long, and was so clearly a laboratory procedure, impossible to apply in the field, that it certainly helped convince the jury of the justice of Chandler's demand that the Board be allowed to rely upon a simpler test.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Judge Sutherland's behavior must further have inclined the jury to conviction. Sutherland, the same judge who two years later would quash the indictments against Chandler and the Board, consistently overruled defense objections, even when well-taken.[65] He refused to permit the defense's most important challenge--a demand that the Board inspectors test a white liquid, provided by the defense, to prove the lactometer's accuracy on an unknown substance.[66]

Sutherland instructed the jury to acquit Schrumpf on the first count against him--violation of the law of 1864--since it could not be proven that he knew the milk to be watered. But on the charge of violating the Sanitary Code Sutherland's instructions to the jury were clear: guilty knowledge need not be proven; it was irrelevant to what degree the milk was watered; it was irrelevant whether analysis might be a better test than the lactometer. All the jury had to believe, to render a verdict of guilty, was that the lactometer, as used by the Board's inspectors, correctly indicated the presence of added water.

Under these conditions it was almost mandatory that the jury find Schrumpf guilty. In his sentencing Sutherland was quite severe, clearly agreeing with Chandler that this was a precedent-setting case, and declaring that unless the Sanitary Code "can be enforced I do not see how the Board of Health is going to protect the public against watered milk."[67] The judge sentenced Schrumpf to a fine of $250 and ten days in jail.

The Doremus family, however, refused to surrender the field; Prof. Doremus' son Charles--who had also testified at the trial--decided to beard the lion in his own den. At the March 1, 1877, meeting of the American Chemical Society, which Chandler had helped found the year before, Prof. Henry A. Mott, a close friend of Chandler, presented a paper on "Testing

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Milk for Adulterations." But Mott succeeded merely in preparing the ground for a thorough rebuttal by Doremus, who presented the second paper. "This paper called forth a lively discussion...numerous remarks of a rather personal nature" were made.[68]

Doremus repeated the testimony his father had given at the Schrumpf trial, appending additional independent scientific documentation that supported his attack on the lactometer. He noted that since the Schrumpf trial over forty other milkmen had been convicted of adulteration, without the substantiating evidence of chemical analysis. Though Prof. Chandler then presented a paper "On The Use of the Lactometer in Milk Inspection," the Society decided not to print it, or Mott's paper, in its Proceedings, possibly to avoid further embarrassment.[69] In April 1878 the State Supreme Court sustained Schrumpf's conviction.

* * * * * * *

Aside from the milk question, in 1878 little was being written about adulteration, with one major exception, which occupied both the newspapers and the commercial press. In the late 1870's Congress had initiated a debate on the method of taxing sugar imports. The existing tariff was on a sliding scale, pegged to the purity of the sugar, which was determined by the "Dutch" standard, which gauged purity by the color of the sugar. This system resulted in a unique practice: the one instance of reverse adulteration. Some importers and exporters colored high-grade sugar to make it appear less pure, and thus paid lower duties. Some members of Congress suggested that a different test be used, employing an instrument called the polariscope, to determine the actual, rather than the apparent, purity of the sugar.[70] The heated arguments in the press concerning this

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

issue are irrelevant to the present study, but it is important to understand that the debate continually brought sugar purity to the public's attention, preparing the ground for an entirely separate accusation.

In October 1878 a large sugar refinery, De Castro and Donner, brought suit against a sugar wholesaler, Earle and Co., both of New York, for refusing to pay for sugar sold to them.[71] Earle and Co. claimed that sugar they had purchased in June had been adulterated by De Castro and Donner to appear to be a higher grade than it actually was, and that over the summer it had gradually darkened to its original color. They claimed that De Castro and Donner had used a process employing salts of tin to temporarily bleach the sugar.[72]

Mr. Earle brought his claims to the attention of the press which, since the sugar tariff controversy was at its height, made much of the case, even though one accusation tended to refute the other. After all, this was clearly not a case of reverse adulteration to avoid taxes. To the public, however, the Earle claims apparently seemed one of a piece with the Congressional hearings. The accusations spread throughout the nation, and began to affect all the New York refiners; if people were suspicious of sugar in general, they were especially suspicious about sugar refined in New York. Wholesalers in other cities began to cancel orders; sales were sharply affected.

The New York Chamber of Commerce, justifiably alarmed, accepted the advice of one of its leading members, Francis B. Thurber, head of the city's largest wholesale grocery house.[73] It called upon the Board of Health to investigate the accusations immediately, to "ascertain the facts, and report whether or not adulteration, injurious or otherwise, exists," so that business could return to normal.[74]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

But the Chamber's effort backfired disastrously. Exactly what happened is not clear. Certainly Chandler had never gone out of his way to make life more difficult for reputable businessmen; not only did he feel a responsibility for the smooth operation of commerce but, as already mentioned, he was actively employed by many large companies as an analytical chemist. In fact, he worked for at least three of the sugar refiners: Havemeyer and Elder, New York Steam Sugar Refining Co., and Booth and Edgar.[75] A reasonable assumption is that Chandler was simply careless, or perhaps preoccupied with the pending decision on the motion to quash the indictment against him.

In any case, he assigned an assistant, the chemist Dr. P. deP. Ricketts, to conduct the analyses. The examination was completed by December 17, and sent to the Chamber of Commerce by Secretary Clark on the 24th, signed by Chandler:

> In several of these sugars we have found tin salts and free acids, probably muriatic, and in two of them artificial glucose. While the amount of tin and acids found in some of these samples was small, yet in one a globule of metal was taken from two ounces of sugar. In any case there is no excuse for the addition of tin salts to sugar. They are used solely for the purpose of defrauding the consumer by deceiving him as to the grade of the sugar; and while in some cases the quantity added may be too small to be injurious, in other cases it may be sufficient to cause derangement of the system.[76]

Not only was this discovery exactly the opposite of that expected by the Chamber of Commerce, but the entire procedure was questionable, for it was soon discovered that Ricketts was precisely the wrong man for Chandler to have assigned to the job.

Ricketts had already been hired by Earle and Co. to represent them in the suit brought against them by De Castro and Donner. Moreover, Ricketts had procured his samples from barrels long in the possession of Mr. Earle. These circumstances cast strong doubts about the validity of his findings.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Yet Chandler could not very well admit that it was improper for his assistant to accept such outside employment, for Chandler himself wore many hats. Nor could he repudiate the analyses and still save face, both for himself and the Board.

Even leaving aside the questionable assignment of Ricketts to the job, the report was shamefully inadequate and quite unprofessional, as the press quickly pointed out. Even papers normally very friendly to Chandler had no choice but to strike out at him, for a bad situation had been made much worse. The American Grocer, the country's largest grocery trade-paper, covertly owned by Thurber--who had counted on a very different result--said:

> It is a very strange and unsatisfactory report for a Board of Health to make to the public....It alludes to a "globule" of metal being taken from two ounces of sugar, but neglects to state its size or weight; it may have been as big as an egg or as small as a pin point. It is equally as instructive and explicit where it says, "And while in some cases the quantity added may be too small to be injurious, in other cases it may be sufficient to cause derangement of the system." The public want to know if it is sufficient--not that it "may not" or "may be."[77]

The Sanitary Engineer, owned by Henry C. Meyer, a friend of Chandler and Thurber's brother-in-law,[78] responded in a similar vein, adding "It is about time that names were given, so that honest refiners need not rest under a false imputation, but that if wrongly accused they may have an opportunity of proving their innocence."[79] Obviously, the business interests of the city could not let things stand as they were, for even if De Castro and Donner were guilty (which it is clear the Chamber of Commerce did not believe), the vagueness of the Board report had tarred the entire industry with the same brush.

Things were not made easier by the less sympathetic papers, like the Tribune. The Grocer, the bitter chief competitor to Thurber's paper, not only taunted Thurber to have the Board tell "'the truth, the whole truth,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and nothing but the truth' about the sugar business,"[80] but in the same issue published a long report on "Table Syrup" by Prof. Robert C. Kedzie of the Michigan State Agricultural College. Of seventeen table syrups tested by Kedzie, fifteen had been adulterated with glucose. Kedzie's report was made particularly biting because he stressed that "In making my selections for examination I obtained specimens only from those who are regarded as first-class tradesmen."[81]

At the next meeting of the Chamber of Commerce Thurber tried to get the situation under control. Some members of the Chamber obviously wished to avoid any further involvement, and were willing to simply thank the Board for its report. Thurber made sure that a more comprehensive resolution was adopted. He asked the Board of Health to provide the type of information that the press was already demanding. Some members accused him of attempting a "whitewashing" but Thurber responded that "on the contrary, the resolution was designed to make the guilty parties known."[82] Actually Thurber, with the aid of the refiners, was trying to clear all the people in the industry, and side-step the difficulty Chandler had inadvertently gotten them all into.

On January 5 Theodore Havemeyer, chief owner of the city's largest refinery, and an associate of Thurber, took two steps to clear the air. After conferring with Chandler, and working out a technique that would be above reproach, Havemeyer sent $500 to the Chamber of Commerce, so it could pay the Board of Health to investigate all the sugar refineries in the city in a scientific and proper manner. Apparently Chandler and Havemeyer decided that a sugar man could not simply pay the Board to investigate the sugar industry; to avoid any appearance of collusion, it was safer to go through Thurber and the Chamber of Commerce. Secondly,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

1

SUGAR.

These prices are those of Thursday morning, Jan. 22, and are liable to change at any moment. All orders will be filled at prices of day when received.

Loaf Sugar, in 7 lb loaves, 18 loaves in box.

½ lb	—@14
Cut Loaf	10½@10½
Crushed	—@10½
Powdered	—@10½
Powdered XXX for Confectioners	—@11
Granulated, Standard	9½@9½
Granulated, Fine	—@10
Standard A	9½@9½
Steam Refined A	9¼@9¼
Extra C White	8½@9
Coffee C	8½@8½
Yellow	7½@8¼
Brown	7¼@7¾

Sugar packed in bags for frontier trade.

SYRUPS.

OUR STANDARD GRADES.

Riverside Extra White Drips, bbls	90
" " " " half bbls	93
Riverside White Maple Drips, bbls	55
" " " " half bbls	58
Star Drips, bbls	50
Riverside Standard Drips, bbls	49
Thurber's No. 1 Syrup, bbls	44
Thurber's No. 2 Syrup, bbls	41
Thurber's No. 3 Syrup, bbls	36
Thurber's No. 4 Syrup, bbls	—
Common Syrup (in hhds 22), bbls	24

Maple Syrup and Sugar—See column 10.

SYRUP IN SMALL PACKAGES.

Thurber's Brands.	In 10 gall Kegs.	In 5 gall Kegs.	In 5 gall Cans.
Extra White Drips	93	97	101
Riverside Stand. Drips	53	57	61
No. 1 Syrup	50	52	56
No. 2 Syrup	47	49	53
No. 4 Syrup	—	—	—

All of the above in one gallon cans at 15 cts., and in half-gallon cans at 25 cts. per gallon *over barrel prices*, packed 12 and 24 cans in case. No charge for packages.

MOLASSES.

New Orleans, New Crop, Fancy in bbls	—@56
" " Choice in bbls	—@54
" " Good in bbls	—@52
" " Fair in bbls	47@48
" " Sundry Brands	46@47
Porto Rico, Ponce in hhds	—@—
" Mayaguez in hhds	—@—
Demerara in hhds	33@35
St. Croix in hhds	—@—
Barbadoes in hhds	—@—
English Island in hhds	—@—
Mixed Molasses, Fancy Ponce in hhds	—@39
" Arroyo, in hhds	—@36
" English Island in hhds	—@33
" Cuba hhds	25@28

All the above grades of Mixed Molasses in bbls 2c. per gallon more than hhd prices.

Thurber's Best Porto Rico in bbls	—
Thurber's Prime Porto Rico in bbls	—
Thurber's Good English Island in bbls	—

2

TEAS.

We were fortunate enough not to believe in the late speculation, and consequently have no Tea bought at high figures to work off upon the trade. Parties ordering good, delectable Teas from us will find them as cheap as they were this time last season.

We do not deal in dusty, stinky, weedy or inky kinds. We guarantee all Teas bought of us to please the consumer.

OOLONG.

Medium	22@25
Superior	28@35
Fine	38@55
Finest	60@75

JAPAN.

Medium	1—@30
Superior, Crop 1879	35@38
Fine, Crop 1879	45@45
Finest Pickings, Fancy April Crop 1879	50@55
BASKET FIRED Japans—	
Fine, crop 1879	1—@40
Finest, crop 1879	1—@45

GUNPOWDER.

Medium	1—@35
Superior	38@45
Fine	50@55
Finest	70@1 00

IMPERIAL.

Medium	25@30
Superior	33@40
Fine	45@50
Finest	80@80

YOUNG HYSON.

Medium	25@30
Superior	32@35
Fine	40@50
Finest	60@80

HYSON.

Medium	1—@—
Superior	28@35
Fine	50@65
Finest	65@80

TWANKAY.

Medium	1—@—
Superior	1—@20

ENGLISH BREAKFAST.

Medium	1—@—
Superior	30@35
Fine	50@55
Finest	65@75

TEAS IN JARS.

THESE TEAS ARE PACKED IN HALF-GALLON AIR-TIGHT, WIDE-MOUTHED FRUIT JARS, EACH JAR CONTAINING 1 LB. OF TEA.

24 one-pound Jars in case no charge for Jars or Case.

	Per lb	Retails at
Oolong	50	80
Japan	50	80
English Breakfast	50	80
Young Hyson	60	1 00
Gunpowder	60	1 00

GRAPE SUGAR.

For Brewers', Confectioners' and Wine Manufacturers' Use.

	Per lb
Grape Sugar, Confectioners', in boxes 125 lbs	4½
" " in bbls 420 lbs	4½
" Brewers' in bbls 420 lbs	4

GLUCOSE.

	Per lb.
Glucose, A, Domestic, in bbls about 600 lbs	3½
" B, " " " 600 lbs	4½
" B, " in 10 gall kegs (kegs free)	6½
" Imported in casks about 1000 lbs	6

A section of the H.K. & F.B. Thurber & Co. price list for January 1880. The Thurbers built their reputation on the purity of their merchandise, but note, not only the varieties of sugars and syrups offered, but also the glucose and grape sugar (a granulated form of glucose). There is little doubt that retailers purchasing these products used them to adulterate sugar and table syrup, or that Thurber was aware of this activity.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

since Chandler himself could not disown Ricketts' analyses, Havemeyer, in a letter to the Times, explained exactly why the original analysis was questionable. Thus, without blaming Chandler more than necessary, the public was made to understand that Mr. Earle might have tampered with the sugar before it was tested.[83]

At the same time Thurber sent a carefully-worded letter to J.O. Donner. Superficially the letter was a polite demand for answers to the accusations made against Donner's company. Actually Thurber was simply giving Donner the opportunity to defend himself in public. Both Thurber's letter and Donner's reply were published in Thurber's American Grocer. Thus, Thurber explained that the public deserved to know "if injurious adulteration of sugar did exist," but that the Chamber of Commerce resolutions, "owing to their being hastily and imperfectly written," had not succeeded in drawing out the whole truth.[84]

Donner's reply stressed the fact that Ricketts had been "retained by Earle and Co. in a private suit," and that the tests had been "made upon a limited number of samples furnished by them from sugars which have now been for seven months in their sole possession." Although Donner did not specifically mention the planned investigation by Chandler, paid for by Havemeyer, the content of his letter reveals that he was aware of this strategem, for he said he felt confident "that Prof. Chandler will... not permit the public mind to identify one report with an other."[85] Thus both the Havemeyer letter in the Times and the Thurber/Donner letters in American Grocer worked cooperatively to resolve the problem.

The final official word came from Chandler on January 21. He implicitly admitted his error in allowing Ricketts' analyses to be published, and advised everyone to ignore Ricketts' findings: "In the opinion of this

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Board there is not at present sufficient cause to justify apprehension on the part of the public of ill effects from the use of refined sugar...." Considering the content of the Ricketts report to which Chandler had signed his name, and the fact that no new tests had been run, Chandler's reversal must be credited to the furor created among the business interests of the city. Hoping to lay the issue to rest, Chandler announced that further analyses would be made "from time to time," but that it would not "be proper to use private funds for this purpose."[86]

Apparently Chandler had decided that "sugar" money, even supplied through the Chamber of Commerce, might look suspicious, considering how the entire situation had been mishandled. The Board of Health, Chandler explained, would protect the public health, "while by the action which the Chamber of Commerce may think it wise to take the great interests of trade and commerce will be sufficiently guarded."[87] Chandler was inviting the Chamber to spend Havemeyer's $500 for private analyses, if it wished. Having inadvertently enmeshed the Board in private business matters, Chandler now sought to divorce the two interests, at least publicly.

Chandler's "solution" certainly did not satisfy the press. Sanitary Engineer called his decision "A Lame and Impotent Conclusion," and once again challenged Chandler's original report: "if there is no cause for apprehension" Chandler's earlier carelessness "seems like trifling with the public fears, and is wholly inexcusable."[88] The Grocer noted that the Board's original report to the Chamber of Commerce had "placed both Prof. Chandler and Dr. Ricketts in an unenviable light," which the latest message did little to expunge, and once again questioned the Board's procedures, objectivity, and honesty.[89]

Through either charity or forgetfulness the Grocer neglected to remind

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Prof. Chandler of the statements he had made before the Public Health Association the previous June. At that time Chandler said he had gathered and tested seventy-five samples of sugar, "and had not found a deleterious substance in one." He had even declared "that there existed no substance by which sugar could be adulterated with profit to the person using it."[90]

* * * * * * *

In the years from 1873 to 1878 Chandler's Board, though it made some notable sanitary progress, was generally considered to be unresponsive to the city's health problems. Certainly in terms of food and drug purity the only area Chandler chose to enter was milk adulteration. And here his policy must be considered to be unrealistic. Though he successfully defended the use of the lactometer--at some cost to his prestige and credibility--his victory was for the purpose of employing this unreliable instrument in a questionable war against those petty tradesmen who delivered milk door-to-door. Though some of these men were surely guilty of watering their wares Chandler's one-sided campaign ignored the milk producers and wholesalers, whose dishonesty could be practised on a far broader scale. He also managed to avoid waging war against the owners of the swill stables by the simple expedient of arguing that they all operated in Brooklyn.

When he became entwined in the sugar controversy the most charitable appraisal of his behavior would be that he was careless and unprofessional. His efforts to extricate himself and his Board from this quagmire were complicated by his desire to protect the influential businessmen with whom he regularly dealt, and for whom he often did private work. Indeed, his ethically-questionable practice of working for private employers at the same time that he was empowered with the public responsibility of enforcing

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the sanitary laws can be argued to be the cause of the entire contretemps. Ricketts' employment with Earle and Co. was not different in its nature from many of Chandler's activities; it was simply a more intimate violation of propriety.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER III

[1]New York Times, 6/18/73.

[2]Times, 7/12/73.

[3]DeVoe, though appointed during the reign of Tweed, was not corrupt. He was, however, inordinately loyal to his fellow butchers, and believed that the atmosphere of slaughter-houses possessed remarkable healing powers, improving the health of even those who lived near-by. William H. Rideing, "How New York is Fed," Scribner's Monthly, XIV, no. 6 (October, 1877), 729-743, tells the story of DeVoe, as a sickly child, being bathed in warm steer entrails regularly by his mother. See also Times, 12/16, 12/17/71.

Despite his loyalty, DeVoe was critical of the haphazard condition of much of the meat sold in the city, especially during the Tweed era. See his "Report upon the Present Condition of the Public Markets of the City and County of New York," (New York, 1873), and Alexander B. Callow, Jr., The Tweed Ring (New York: Oxford University Press, 1965), pp. 190-192.

[4]See manuscript of speech by Chandler, given in 1911 in honor of Dr. Stephen Smith (21 pp., unnumbered), in Chandler papers; Robert L. Larson, Charles Frederick Chandler, His Life and Work (unpublished doctoral dissertation, Columbia University, 1950), pp. 99-104; Times, 6/28, 7/12, 7/17, 7/18, 7/23, 7/24/73.

[5]Times, 7/12, 8/9/73; Larson, pp. 104-105.

[6]Larson, p. 105; John Duffy, A History of Public Health in New York City, 1866-1966 (New York: Russell Sage Foundation, 1974), p. 132.

[7]See statement of Sanitary Inspector Augustus Viele, First Annual Report of the Board of Health of the Health Department of the City of New York (New York, 1871), p. 143: "I am of the opinion that all /slaughter-houses/ should be concentrated at one point or section, instead of being scattered over so many different portions of the city, as at present--one large and grand 'abattoir.'"

[8]Zulma Steele, Angel in Top Hat (New York, 1942), p. 104. This was the so-called "28-Hour Law," requiring rest and refreshment for meat animals, after 28 hours in transit.

Naturally Bergh's Society did not abandon its earlier activities; by 1878 the New York SPCA had prosecuted over 6,000 cases of cruelty to animals. See C.C. Buel, "Henry Bergh and His Work," Scribner's Monthly, XVII, no. 6 (April, 1879), 872-884.

[9]Steele, p. 103.

[10]Times, 2/26, 3/4, 3/11, 3/18/74.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[11]"Sanitary Code" of the Board of Health, section 55, amended 4/28/74.

[12]Fifth and Sixth Annual Reports of the Board of Health of the City of New York (New York, 1876), p. 67.

[13]Times, 8/30/74.

[14]George T. Angell, Protection of Animals (Boston, 1874), pp. 8-9: "Old sores were so neatly cut out, that the unskilled eye would never suspect they had existed. Some of these sore bruises were more than a foot in diameter....cruelty always injures the meat."

[15]Report of the Sanitary Committee of the Board of Health on the Concentration and Regulation of the Business of Slaughtering Animals in the City of New York (New York, 1874), pp. 12-13, where Smith argues that the abattoir's purpose was not, as the butchers contended, "a monopoly designed to benefit the few."

[16]Times, 9/3/74.

[17]Havemeyer to Chandler, 7/28/74, Chandler papers.

[18]Times, 10/11/74.

[19]"Sanitary Code," section 56, amended 1/19/75; section 60.

[20]DeAlva S. Alexander, A Political History of the State of New York (1909; rpt. Port Washington, New York: Ira J. Friedman, 1969), III, pp. 318-319, claims that Havemeyer died of "apoplexy" in the midst of a confrontation with Tammany's John Kelly. Alexander felt that Havemeyer "had made a fair record" as mayor.

[21]Seymour J. Mandelbaum, Boss Tweed's New York (New York: John Wiley & Sons, 1965), pp. 114-115.

[22]Times, 4/16/75.

[23]Tammany's anti-abattoir bill was defeated in the State Assembly, twenty-eight Democrats and twenty-one Republicans voting against it. The bill had received some liberal support because it was believed that the New York Central Railroad wished to construct the proposed abattoir. See Times, 5/3, 5/20/75.

[24]Times, 6/4/78. The Chandler papers contain the full manuscript of Chandler's speech, which the Times summarized. See also Sanitary Engineer, 5/17/83.

[25]Prentice to Chandler, 4/7/75, Chandler papers.

[26]Clark to Chandler, 4/30/75, Chandler papers.

[27]See Annual Reports; Duffy, p. 72.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[28]Duffy, pp. 73-74.

[29]Mandelbaum, pp. 137-139.

[30]Ely to Wickham, 3/24/76, Chandler papers.

[31]Notes from Ely to Chandler, Chandler papers.

[32]Duffy, p. 72; Larson, p. 119.

[33]Board Reports consistently stressed the absence of epidemics, the reduction of infant mortality, and the prosecution of milk adulterators.

[34]Duffy, p. 70.

[35]Haven Emerson, "Charles Frederick Chandler, 1836-1925. New York's First Public Health Chemist," Science, LXXXVI, no. 2238 (November 19, 1937), 459.

[36]Chandler, Edward G. Janeway, the health commissioner, William F. Smith, the president of the Board of Police, and S. Oakley Vanderpoel, the health officer of the Port of New York, were indicted. Emmons Clark, the Board's secretary, was not indicted. Stephen Smith was no longer a member at that time.

Fifteen of the twenty-two Aldermen were indicted at the same time, on a separate matter. The joint indictments, however, clearly demonstrate that the specific issues were not as important as the general sense of anger and frustration that led to the bills of misdemeanor.

[37]Report of the Board of Health of the City of Brooklyn, 1875-1876 (Brooklyn, 1877), p. 56.

[38]Times, 5/25/78.

[39]Times, 5/24/78.

[40]Larson, p. 123.

[41]Margaret W. Rossiter, "The Charles F. Chandler Collection," Technology and Culture, XVIII, no. 2 (April, 1977), 224.

[42]Times, 5/29/78, quotes Parker as regarding Chandler "not only as one of the ablest chemists in the world, but as a man above and beyond the imputation of bribery or neglect of duty." Three years later Parker was president of a group of physicians who appealed to the State Legislature to oust the Board: "...the appointed guardians of the public sanitary condition...have been found to be apologists rather than denunciators of the neglect and inefficiency which have produced the frightful condition of our highways and the noxious vapors which have entered our houses." See New York State Senate Document 63 (April 18, 1881).

[43]Times, 6/1, 6/2, 6/4/78.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[44]Times, 6/4/78; manuscript is in Chandler papers.

[45]Times, 6/14/78; Sanitary Engineer, July, 1878, 163.

[46]Although it cannot be established that Judge Sutherland was biased in favor of Chandler, his rulings in an earlier trial (the Schrumpf case, discussed below) were so consistently in favor of Chandler and the Board as to leave little doubt that--in at least that trial--Sutherland sided with Chandler and Col. Prentice.

[47]Times, 12/27/78.

[48]Times, 6/1/78.

[49]Weekly Journal of Commerce, 1/2/79.

[50]Report of the Board of Health of the City of Brooklyn, 1875-1876, pp. 11-13. Dr. John Shaw Billings notes, in a manuscript draft of a planned history of American boards of health, that the "Brooklyn code of 1875 has a larger scope than that of New York City," such as the power to require a permit in order to sell milk. See Billings papers, Box 41, p. 5 of notes on Brooklyn. The New York City Health Department did not add milk-dealer permits to its sanitary code until 1896. See Duffy, p. 136.

[51]Report...Brooklyn, p. 36.

[52]Ibid.

[53]"Address of Charles Frederick Chandler to New York City Medical Society, 6/3/78" (manuscript in Chandler papers), pp. 81-82.

[54]Times, 4/28/75, reports that the wholesalers' association sent the Board a petition, signed by twenty-three of the largest dealers in the city, urging inspection of the milk as it arrived at the railroad station. They argued that neither they nor the retailers performed any watering, and placed responsibility at the hands of "farmers and producers." The wholesalers would later help the retailers in their court battle with the Board. See manuscript petition, Chandler papers, which includes the signatures.

[55]Charles F. Chandler, "Condensed Milk," American Chemist, II, no. 1 (July, 1871), 26. See below, chapter IX.

[56]Times, 3/28/75.

[57]Times, 12/3/75.

[58]Times, 1/27, 1/29, 1/31, 2/1, 2/6/76.

[59]Times, 2/17/76.

[60]"Sanitary Code," section 186, adopted February, 1876.

[61]New York Herald, 4/6/76. See Chandler's response, Herald, 4/7/76.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[62]The People vs Daniel Schrumpf. Misdemeanor, Adulteration of Milk. Record, Testimony and Proceedings (New York, 1881), p. 78.

[63]Ibid., p. 83.

[64]Ibid., pp. 204-206.

[65]For example, the defense tried to ask the Board's expert witnesses whether the Board's standard of 1.029 s.g. might not be considered to be too high, if it could be proven that some healthy cows produced milk below that figure. Judge Sutherland excluded this line of cross-examination.

[66]The Times, 12/22/76, headlined this controversy as "More Scientific Testimony Regarding a Mysterious White Fluid Which The Learned Professors Are Afraid to Pronounce Upon." See also 12/19-23, 12/27-31/76.

[67]People vs Schrumpf, p. 269.

[68]Proceedings of the American Chemical Society, I, no. 4 (March 1, 1877), 226-227.

[69]Doremus' paper was printed; the Index to the Proceedings twice shows that Chandler's paper was printed also, beginning on p. 252, immediately after Doremus', but the Proceedings contains merely a blank half-page at that point. Apparently the decision not to print was made at the last moment, and Chandler can be presumed to have known of this decision, considering his importance in the Society.

After the Supreme Court sustained the conviction Charles Doremus reprinted his Chemical Society speech in a pamphlet, "Contributions to the Literature of Milk Analysis" (New York, 1879), as a parting gesture.

[70]The Treasury Department requested the National Academy of Sciences to conduct a study of the use of polarized light to determine the value of sugar, as well as a confidential report "On Artificial Coloring of Sugars to Simulate a Lower Grade" (1876-1879). See A History of the First Half-Century of the National Academy of Sciences, 1863-1913 (Baltimore, 1913), pp. 204, 264-267.

[71]Times, 5/24/78, says there were fifteen refineries in New York City. Richard O. Cummings, The American and His Food (Chicago, 1940), p. 111, estimates that there were twenty-seven refineries in the nation in 1880. Obviously New York was the sugar-refining center of the country.

[72]American Grocer, 1/16/79, 195, printed a letter from J.O. Donner, in which he claimed that the discoloration of the sugar proved that tin had not been used, and that unadulterated sugars of lower grades, such as that purchased by Earle, will naturally turn darker in warm weather.

[73]Thurber was intimately involved in many important economic and political reform movements. Lee Benson, Merchants, Farmers, and Railroads (New York, 1955), p. 119, credits Thurber with controlling both the New York Board of Trade and Transportation and the New York Chamber of Commerce.

[74]Times and New York Tribune, 12/6/78; American Grocer, 1/2/79.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[75]See Chandler papers, folder of work on chemical analysis; Times, 1/7/79.

[76]Times, 12/25/78; American Grocer, 1/2/79, 69.

[77]American Grocer, 1/2/79, 69.

[78]Times, 7/5/07, (obituary). It may be that it was not widely known that Thurber and Meyer were related by marriage.

[79]Sanitary Engineer, 1/79, 33.

[80]Grocer, 1/4/79, 5.

[81]Ibid., 7. Kedzie became president of the Michigan State Board of Health, and was elected president of the American Public Health Association in 1881.

Glucose is a sugar manufactured from starch. In the period under consideration some commentators suspected it of being a poison. Although perfectly harmless, glucose has only from 40% to 60% of the sweetness of cane sugar, and therefore should certainly be considered as an adulterant if sold as "pure" sugar.

[82]Times, 1/3/79.

[83]Times, 1/7/79. Havemeyer's own company placed a full-page advertisement in Thurber's American Grocer each week. Under a large engraving of the refinery came this text: "Pure Sugar vs. Spurious Sugar. We hereby inform the public that our Refined Sugars consist solely of the product of Raw Sugars refined. Neither Glucose, Muriate of Tin, Muriatic Acid, nor any other foreign, deleterious or fraudulent substance whatever, is, or ever has been mixed with them. Our Sugars and Syrups are absolutely unadulterated."

The Havemeyer family controlled at least three New York refineries. Theodore A. and Henry O. Havemeyer were brothers, and partners in Havemeyer and Elder, which later absorbed De Castro and Donner. They were grandnephews of William F. Havemeyer, the former mayor, who had been involved in the sugar business with his brotner, Frederick C. Havemeyer, Theodore's grandfather.

[84]American Grocer, 1/16/79, 195.

[85]Ibid.

[86]American Grocer, 1/23/79, 249-250.

[87]Ibid.

[88]Sanitary Engineer, 2/79, 62.

[89]Grocer, 1/25/79, 114.

[90]Sanitary Engineer, 7/78, 163. These statements are consistent with Chandler's studies of sugar while Board Chemist, in 1871 and 1873.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER IV

"UPON RELIABLE AUTHORITY"

The two men who prepared the ground for the creation of general anti-adulteration laws held no official position in the sanitary establishment, and neither wrote, legislated, nor enforced the laws that came into being. George T. Angell publicized the need for supervision over the food supply, aroused the professional sanitarians and chemists--even if only in an attempt to refute his statements--and generated a popular demand for protection against adulteration. Edward R. Squibb provided a rational, professional format for the debate, aroused respectable support among physicians and pharmacists, and demonstrated that a potentially effective law could be drafted.

* * * * * * *

The Board of Health's pronouncement that there was no "cause to justify apprehension" may not have reassured many New Yorkers about the safety of their sugar, but the entire controversy surely led many to suspect that there was much more adulteration afoot than the authorities would reveal, except inadvertently. Moreover, the revelation of the commercial connections of Chandler and Ricketts may have awakened the suspicion that some scientific experts were more interested in the fees paid them by businessmen than in protecting the public health. If chemists, physicians, and pharmacists were coming to be regarded as mere businessmen, and businessmen

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

were seen as constantly looking for the main chance, and willing to cover up each other's missteps, the public had been prepared to believe new revelations about food and drug adulteration. And, in the midst of the sugar controversy, a unique revelation was being presented, by a unique protagonist.

George Thorndike Angell was a native of Massachusetts, born in 1823. His father died when Angell was only four, and his mother worked as a teacher to support her son. He put himself through law school, and was admitted to the Massachusetts bar in 1851. After practising until 1868 he retired, "with sufficient capital for his ordinary needs and enough to spare to enable him to contribute largely to the philanthropic enterprises which from now on engaged most of his attention."[1]

His work on the behalf of animals occupied most of his energies. He was the founder of several state and local SPCAs, and president of the American Humane Education Society, which gained fame for publishing Black Beauty, considered in its time to have been the animal equivalent of Uncle Tom's Cabin. The Society's magazine, Our Dumb Animals, had a moderate subscription for many years.

Angell was an intimate of most of the Massachusetts reformers of his time, such as Henry Houghton, senior partner of Houghton, Mifflin, and Edmund Bennett, dean of the Boston University Law School, both of whom were members of the Humane Society. He was also very active in the American Social Science Association, was an associate of Edward Atkinson, and a close friend of Frank Sanborn, ASSA's permanent secretary and editor of the Journal of Social Science, the Association's periodical.[2] Angell was also intimate with Benjamin Ware, master of the Massachusetts State Grange, and with George Noyes, who frequently published articles

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by Angell in his agrarian newspaper, The Massachusetts Ploughman. In addition to the respect he was given in his native state, Angell had many powerful friends throughout the nation, for his interest in reform took him on journeys to many states; his influence was taken seriously by politicians and businessmen.

Angell published an autobiography, which he twice updated, reporting on his year-to-year activities on behalf of reform. He was an extraordinarily dedicated and energetic man, and intemperate in his enthusiasm. He believed strongly in providence and miracles. Over and over, in his autobiography, Angell related perfectly ordinary incidents and coincidences which he attributed to something akin to divine intervention.[3] A highly sympathetic author has commented that "He believed his life was divinely guided."[4]

He was also firmly convinced, not only that he was on the side of the angels, but that the sinners would stop at nothing to discredit or deter him. On one occasion, for example, he observed that "Friends expressed to me their wonder that I was not assaulted, and declared that I was taking imprudent risks." On another occasion: "Every move I made seemed to be watched. I found that among those working against me was a man who had once been tried for murder. I detected him following me in the evening, and was warned by friends that I had better be careful on the streets after dark."[5] There is no way to determine how much these dangers were figments of Angell's imagination, but there is no record that his enemies were reckless enough to assault him physically.

For his own part, Angell was certainly reckless in the techniques he employed against his opponents. He commonly issued a broad accusation, and then "proved" it by citing countless arguments, statements and mis-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

statements, quotations (both attributed and anonymous), and diverse items from a wide selection of printed sources, often spanning a number of years. Though his accusations always contained elements of truth, they were sometimes so broad as to resemble burlesque, if it were not for his deadly seriousness--for Angell was a man with no discernible sense of humor. Angell's technique might be described as "the multiple half-truth";[6] the public was always left with the feeling that there must be some truth in what Angell claimed, because he claimed so many things.

In 1878 Angell began his campaign against adulteration with a series of articles published in sympathetic newspapers. Although his attention had been drawn to the whole spectrum of adulterations, he began with an assault upon a particular brand of iron-ware which, he claimed, contained soluble lead and was in such wide use "that I had narrowly escaped having my own buckwheat-cakes cooked in a similar utensil. It was clearly my duty to attack it."[7]

According to Angell, people by the thousands began returning the cookware to the stores. In response to the insistence of the manufacturer's chemist that the iron-ware was harmless Angell obtained a statement from "the Harvard University chemist" (unnamed) that it was "alive with poison." Angell claimed that his campaign was so effective that the factory was forced to close its doors.[8]

By 1879 Angell had gathered sufficient evidence to initiate a campaign against all adulteration, and once again sensed the "calling" that led him to battle. "I knew that I should attack large amounts of capital, and probably incur misrepresentation and abuse. Nevertheless, I thought it a duty." Angell presented his attack, "Public Health Associations," to a sympathetic audience at the annual meeting of the American Social Science

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Association, in Boston, on January 8th: "It was in the highest degree sensational. I intended it should be. I wanted to bring on a war of discussion, which should wake the nation."[9]

This speech aroused unequaled excitement, and initiated the debates that finally led to the passage of the first anti-adulteration laws. Though no exact transcript of the speech remains, since it was not printed in the ASSA Journal,[10] a very complete summary of the speech was published by Dr. A.N. Bell, in his public-health periodical, The Sanitarian.[11] Angell's paper began with an attack on the lack of licensing and professional certification for practitioners of medicine and pharmacy, and blamed these problems on an excess of "freedom" in America, in contrast to European nations. The bulk of the paper dealt with adulterated food and drugs, poisonous fabrics, and explosive kerosene.

In typical Angell style, the paper was a mixture of prudent, provable accusations, rash statements by anonymous "experts," unconfirmed newspaper stories, and exaggerated generalizations. His most valid accusations were that adulterated and dangerous kerosene was being widely sold, and that arsenical and other poisonous coloring matters were being used in fabrics, wallpaper, and colored papers. But even here Angell's zeal led him to stretch the truth: "In railroad, lecture, and concert tickets there is frequently enough arsenic to kill a child." Other claims were even more exaggerated:

> One of the most eminent chemists of Massachusetts tells me that almost every class of articles now sold in this country for food is more or less adulterated, and that many of these adulterations are extremely poisonous.
>
> Coffee is not only adulterated, but a patent has been taken out for moulding chiccory into the form of coffee berries, and I am told that clay is now moulded, and perhaps flavored with an essence, to represent coffee.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> Several mills in New England, and probably many elsewhere, are now engaged in grinding white stone into a fine powder for purposes of adulteration. At some of these mills they grind three grades--soda grade, sugar grade, and flour grade.
>
> I am assured, upon what I believe to be reliable authority, that thousands of gallons of so-called milk have been, and probably are, sold in this city which do not contain one drop of the genuine article.
>
> A gentleman recently purchased from a prominent Boston firm a cask of pure sherry wine for his sick wife. His wife grew worse. He had the wine analysed, and found there was not a drop of the juice of the grape in it.[12]

Angell's claims about adulteration aroused opposition, not only from business people, but from professional sanitarians, chemists, and physicians. What most stimulated these antagonists, it is reasonable to assume, was Angell's proposed "remedy." He argued that anti-adulteration laws, though necessary, were insufficient; what was most needed were voluntary associations of influential citizens, separate from government, who would enforce these laws.

Angell claimed that this work was beyond the power of "boards of health": "If they should earnestly undertake it they would be opposed at once by combinations of capital and political influences which would either secure their removal or paralyze their efforts." His voluntary "public health associations" would employ "officers who cannot be bribed or removed by outside influence."[13] Though his opponents could not argue with the need for laws, and for their strict enforcement, Angell's contempt for the present laws and sanitary codes, and for the governmental agencies that helped enact and enforce them, was sure to infuriate the professionals he criticized.

Many newspapers and magazines printed summaries of Angell's speech in their next edition, but it was not a story that was immediately ubiquitous. The Times and the Grocer covered the speech, selecting some of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

most outrageous claims, without editorial comment or evaluation. The Tribune merely mentioned that an ASSA meeting had taken place, and did not pick up the story over the next few weeks. The Journal of Commerce devoted one very brief paragraph to the session, never mentioned Angell by name, and merely reported that "Papers were read on Health Associations."[14] Understandably the Boston papers gave the fullest coverage, especially the Herald, which Angell had used the previous year to initiate his campaign against poisonous cookware. Angell acted as his own press agent, noting that he "sent printed copies of it very widely over the country to newspapers and others, and then waited the storm."[15]

The "storm" indeed broke. Thurber's American Grocer, a weekly, could not cover the story in its issue of January 9th, but next week devoted its entire front page to Angell. Although the story admitted the existence of "harmless" adulteration, and the need for some sort of national legislation, most of the space was taken by condemnation of Angell's more extraordinary claims, calling the speech "sensational and unreliable.... one feels pity for the man who has to sustain his arguments with such improbabilities....calculated to create needless alarm."[16]

American Grocer tried to play down even this "harmless" adulteration. For example, the paper admitted that "coffee is mixed with chicory," but argued that the "quantity of adulteration" must be low. It cited importation statistics to demonstrate that the amount of chicory entering the country was only about 1% of the amount of coffee imported. Even if these figures were accurate, however, the paper ignored the existence of native chicory, and did not speculate on how much of other adulterants were mixed with coffee. The paper repeated the old argument that the public compelled producers and grocers to adulterate through the demand for cheap goods,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

even though it admitted that present food prices were very low.[17]

The paper suggested "the English law" as the model for American legislation. This proposed law would restrict only "harmful" adulterations, and require the labeling of harmless additives. It was this compromise proposal which Thurber would continue to pursue as the pressure for legislation grew. American Grocer hoped that with such a law:

> the people will be amply protected in health and pocket, and responsible dealers will be relieved from the annoyance and loss occasioned by exaggerated charges of adulteration made by interested parties for the purpose of alarming the public, in order that they may accomplish some scheme of legislation calculated to benefit their own pockets.[18]

By this time, however, the Boston Herald had decided to reopen the topic; it conducted "interviews with manufacturers and chemists," in order to "unravel" the truth of Angell's claims. The Herald's chief witness against Angell was Prof. Stephen Sharples, State Assayer of Massachusetts. Although Sharples, like the Herald itself, was polite about Angell's good intentions, he was extremely critical: "In my opinion there is less adulteration in matters of food and of medicine at the present time than was ever known before....Most adulterations nowadays are harmless extensions, and in no way injurious to health."[19]

After refuting, one by one, all the claims made by Angell (except his statements about kerosene and arsenical colors), Sharples argued that these "sensation stories come up every few years, but, after making a great outcry, and instituting numberless investigations, the investigators usually come out of the same hole they went in at." There was no need for new legislation on adulteration; current laws were "comprehensive enough to serve all purposes, if they are only properly enforced."[20]

This interview provided the opening Angell had been waiting for: "The battle was on for which I had been two years preparing."[21] He immediately

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

dashed off a letter to the editor of the Herald, inviting their reporter to come to his office for the proof of his claims. Thus began a series of articles, running through the end of the month, in which Angell reiterated and expanded all the statements he had made at the ASSA meeting. Although he made Prof. Sharples his chief victim, the series essentially accused all those who opposed or disagreed with Angell of being scoundrels, probably in the pay of the adulterators.

The Herald was consistently respectful, and published Angell's statements verbatim. Indeed, the condition imposed upon the paper by Angell for the continuation of the series was his satisfaction with their presentation of the previous day's interview. From Angell's point of view, the paper could not be given control over content, for the problem transcended journalistic freedom: "If there is anything that will help send the Herald and all its staff to heaven, it will be this work of exposing the nefarious adulterations of food."[22]

A careful reading of the articles clearly reveals that most of the "facts" Angell presented were merely culled from newspaper and magazine clippings, and were at best of dubious value and authenticity. Angell also used encyclopedia entries, cited Dr. Hassall's outdated material, and took even the wildest claims as gospel. He continually credited anonymous men, who often had been "told" the "truth" by yet another anonymous person.

Nevertheless, Angell was achieving his goal: he was keeping the debate alive. The Boston papers treated him with kid gloves, whatever they may have thought of his claims. The Springfield Republican printed a series in his defense, written by his close friend Frank Sanborn. The Massachusetts Ploughman, owned by his friend George Noyes, actively

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

supported him. And throughout the nation magazines and newspapers either repeated his claims or denounced them. To Angell, denunciation was almost as satisfactory as support, for in either case the whole topic of adulteration was being kept before the public's eyes.

Perhaps the best index of his success was the publicity given to other stories about adulteration, now that interest had been awakened. The question of alum in bread, raised by the publication of a questionable medical study conducted by Dr. Henry A. Mott, became a hot topic, reported and distorted in countless papers.[23] Harper's Weekly, for example, ran a major story called "What We Eat," which documented merely the presence of alum in some baking powders, yet used the occasion to declare that "The adulteration of food and drinks has become almost as general as the use of these articles themselves. Scarcely an article used by men in civilized countries has escaped this process."[24]

Totally outrageous stories saw the light of day, to satisfy the growing public appetite for more "poison" material. The Times seriously reported on an English manufacturer supposedly caught in the act of producing "coffee" made of equal parts of coffee, chicory, and ground date-stones. Another story reported the "formula" by which French champagnes were counterfeited, adding: "Truly, science is a wonderful thing." A Belgian company was supposedly marketing sewer water as a tooth-wash. Probably the most bizarre stories, printed in both the Times and the Grocer, reported on a California plot to sell artificial chicken eggs, and a London "incident" wherein certain sacks of flour were found to be "not flour at all, but /solely/ an admixture of plaster of Paris and China clay."[25]

Over the next few months the adulteration question continued to be agitated in the light of the Angell "revelations," not only in the popular

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

press, but in the grocery-trade publications as well. The Grocer never seriously questioned any of Angell's statements, and several times re-printed material from other papers, apparently for the purpose of repeating his claims without actually re-running the same story. Though the Grocer argued that adulteration abounded, and that legislation--especially national legislation--was needed, it insisted that no law would be a cure-all. The fault lay with the greed of the manufacturers, and with the ignorant desire of the consumer for a "bargain" at all costs. In this situation the retail grocer was an innocent victim. The manufacturer, the refiner, and the wholesaler adulterated; the grocer merely bought and sold, and "would gladly cease to traffic in" fraudulent goods.[26]

It's counterpart, Thurber's American Grocer, took a more sophisticated position. It consistently condemned Angell, and all those who repeated his claims: "The American Grocer cannot afford to join in an outcry, however popular, if it is unfounded, or not substantially true."[27] While agreeing that legislation, particularly on the national level, was needed, the paper put much of the burden for preventing adulteration upon the retailers: "If the retail dealer does not know the quality of the articles he offers for sale, he is in fault; it is a part of his business to inform himself."[28]

The paper was also more circumspect concerning the character of any proposed legislation: "What constitutes adulteration must be so defined that a person is not subject to arrest and fine for selling...coffee mixed with chicory or peas, or butter or cheese colored artificially." The paper maintained its interest in legislation on the "English" model--prohibiting only specifically dangerous adulterations--and hoped "to see our larger merchants taking an active interest in this matter and taking steps to

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

secure the draft of a law that will meet the exact wants of this difficult case."[29]

Henry Meyer's Sanitary Engineer also attacked Angell several times in the next months, and was presumably referring to its competitor, Dr. Bell's The Sanitarian, when it criticised "the readiness of some newspapers to publish the twaddle of any ignoramus provided it looks sensational...." Sanitary Engineer concentrated on ridiculing Angell, and suggested that he was only qualified to arrest "a drunken teamster for abusing his horse," and not to make scientific judgments. It dismissed his arguments as "buncombe," and commented that the ASSA "had better review papers to be read at their meetings, especially those from men who have no scientific attainments or position."[30]

In this attack Meyer had many allies in the sanitary and chemical professions, almost all of whom were as eager to chastise Angell for his effrontery as for his lack of expertise. The paper published critical material from Prof. Sharples, H.W. Vaughan, State Assayer of Rhode Island, Prof. J.M. Merrick, a well-known Boston chemist and a leader of the Massachusetts College of Pharmacy, Prof. Henry Morton, President of the Stevens Institute of Technology, and Prof. William Ripley Nichols, of the Massachusetts Institute of Technology.

* * * * * * *

At the height of the controversy over Angell's "Public Health Associations" speech a very different proposal was being made by Dr. Edward R. Squibb. Squibb, who had long been in the forefront of the fight for pure drugs, for radical revision of the United States Pharmacopoeia, and for regulation of the practice of pharmacy, had made a number of enemies

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

within the pharmaceutical profession, largely because of his intransigence. But even his opponents recognized and admitted both his professionalism and his dedication. There is little doubt that Squibb was the most respected manufacturing pharmacist in the nation.[31]

At the annual meeting of the Medical Society of the State of New York Squibb presented his "Rough Draft of a Proposed Law to Prevent the Adulteration of Food and Medicine and to Create a State Board of Health." The proposal was read to the convention on February 5, 1879, but was dated January 10th. Is it significant that the proposal was apparently completed within two days of Angell's speech in Boston? Dr. Squibb did not produce this carefully-reasoned document in a matter of hours, but it may indeed be that the publicity surrounding the Angell talk persuaded him that the time was ripe for him to present a plan upon which he had been working for some months.

In 1878 a blue-ribbon committee had been organized to consider the adulteration problem in New York State. Dr. Squibb's "Rough Draft" begins:

> The subject of a law to prevent the adulteration of Food and Medicine has, through the past year, been under consideration by a joint committee made up of representatives from the New York Academy of Sciences, the New York Academy of Medicine, the New York County Medical Society, the Therapeutical Society, New York College of Pharmacy, New York Medico-legal Society, the Public Health Association, and the American Chemical Society, and considerable time has been devoted to the examination of the subject, and two or three drafts of laws besides this have been prepared and submitted to discussion.[32]

The Council of the New York Academy of Medicine, at its meeting of April 27, 1878, received a letter from Thomas Egleston, of the Columbia College School of Mines, requesting that the Academy appoint a committee to meet with "a joint committee already in existence" to consider a law to prevent adulteration.[33] At its regular meeting of May 2, 1878, the Academy appointed Drs. Fordyce Barker, Willard Parker, and E.R. Squibb

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to the joint committee.[34] But in none of the histories of the member organizations, nor in available proceedings or transactions, is there any discussion of the operation of this joint committee. The "two or three drafts of laws" Squibb mentions cannot be discovered.[35]

The Times' coverage of the "Rough Draft," appearing the next day, says that "This draft is the result of a thorough consideration of the subject by a joint committee," making it sound as if Squibb was the committee's spokesman.[36] But there is no evidence of this, and later discussions of Squibb's "Rough Draft" avoid mentioning the joint committee.[37] A reasonable assumption is that Squibb was troubled by the inactivity of the committee to which he had been appointed, and decided to act on his own.

After all, he chose to present his paper to the State Medical Society, rather than to any of the organizations directly represented on the committee. In preliminary discussion at the Medical Society meeting Squibb explained that, if the Society did not wish him to present his paper, he would withdraw it, and place it "at the disposition of the Joint Committee having charge of the subject of such a law in the City of New York."[38] Squibb may also have chosen to act at this time because he felt that the publicity given Angell's paper was dangerous, not only because of its exaggerated claims about adulteration, but also because he felt that Angell's solution--voluntary "public health associations"--was wrong-headed.[39]

Squibb's primary consideration was not to punish, but to prevent, adulteration. To this end he proposed a clear definition of adulteration, arguing that if specific practices were proscribed the potential violator would be forewarned, and hopefully deterred. Secondly Squibb sought to eliminate the question of intent from the law. Intentions to defraud "are

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

often entirely wanting in the adulterator, and are always difficult to prove."[40] Since harm is done by adulteration, even if caused by mere carelessness, potential adulterators should be admonished to be cautious. Lastly, Squibb wished to create a State Board of Health for the enforcement of the law.

Squibb rejected out-of-hand two alternative enforcement procedures. He did not wish to leave prosecution of adulterators to their victims, "because it has been found that very few persons have either the inclination, time or money to give to such prosecutions."[41] Secondly, Squibb directly attacked the device proposed by Angell in his ASSA address: "Neither has it proved more effective to place the duty of prosecuting upon institutions or societies, giving them the fines or other emoluments, in compensation, because in this way the work has rarely if ever been effectively done."[42] A few weeks later Squibb added a more explicit attack, and made clear his contempt for the Bostonian:

> without a very careful selection and control of the experts to be used /for enforcement/, there would be a liability to fall upon enthusiasts...who see offenses everywhere, and so misapply their indiscriminate zeal as to bring up erroneous and unwise and unimportant issues, in which they are repeatedly and very properly beaten, very much to the discredit and injury of the law.[43]

The text of Squibb's proposed act contained, however, weaknesses of both technical and commercial natures. On medicinal adulterations Squibb was on firm ground; the existence of the USP, the use of which he recommended, and the fact that the drugs of that era were "natural" and relatively uncomplicated, permitted simple definitions within the law. Even here, however, one prominent weakness was Squibb's surrender on the question of patent drugs: "In the case of proprietary or private compounds the constituents of which are legally held as secrets, the testimony of the owners of the private formulas shall be accepted as evidence of the char-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

acter of the compound."[44]

Aside from the patent medicines, a simple standard for pure drugs might have worked, but a similar standard for foods ignored the realities of the marketplace. It was simple enough for Squibb--in the examples in his draft--to outlaw alum in baking powder, or condemn skimmed milk sold as whole, but such rigid standards would be extremely difficult to apply to coffee, mustard, spices, and a hundred other commonplaces of the grocer's trade. Moreover, Squibb left no room for discretion on the part of the proposed board of health; the draft did not allow for definitions of commercial standards, nor for exemptions or exceptions. Such hard and fast rules would be strongly opposed by business interests of all sorts. These men would also find the penalties suggested by Squibb quite extraordinary: while a first offense could be punished by a $200 fine, each succeeding conviction called for imprisonment for six months "with hard labor."[45]

Without detailing the structure and operation of Squibb's proposed state board of health, a few points are worth noticing. Positions on the board would be filled by gubernatorial appointment, but selection would be made from among men nominated by professional organizations such as the State Medical Society. As a sop to the business interests, Squibb would have the governor "select and appoint one business man" to the board.[46] Inspectors and prosecutors would be selected by competitive examination. And it is likely that the accusations raised in 1878 against Prof. Chandler inspired Squibb to insist that his inspectors "shall be prohibited from entering into any other business or other occupation than that of the State Board of Health; and...shall receive no perquisites nor fees, nor any other compensation of any kind whatsoever."[47]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The press reaction to Dr. Squibb's paper was markedly different from the treatment accorded Angell. Though Angell received a "mixed press," he remained newsworthy throughout the rest of 1879. Dr. Squibb, whose proposal was far more carefully drawn, was virtually ignored. The Times, for example, carefully recited Squibb's main points and then politely concluded that "while it seems at first glance cumbersome and complex in its provisions," Squibb's proposal "will no doubt elicit considerable discussion."[48]

The only follow-up that appeared in the paper was one editorial in the next edition. This editorial, although consistently courteous, rejected Dr. Squibb's entire proposal. The Times suggested instead a law to help consumers bring their own suits against adulterators, using the services of analysts who would receive a share of any penalties upon conviction. The paper's principal objection was to Squibb's proposal that a state board of health be created to fight adulteration: "Our own Board of Health in this City, for instance, has competent jurisdiction to deal with this question in most of its aspects; and yet, even as concerns milk adulteration, one of the simplest of them all, it has lamentably failed."[49]

The Tribune does not appear to have made any editorial comment at all on Squibb's proposal, and the trade papers had little to say. The American Grocer, though it ran articles on the adulteration question throughout the year, never mentioned Dr. Squibb by name. The Grocer, in all of 1879, referred to Squibb only three times, once making an editorial comment:

> Among the most earnest advocates of State legislation is Dr. Squibb, of Brooklyn. He has a very clear perception of what constitutes the offense, but we think him at fault in asking the State to correct it, and in the machinery he proposes for doing it....It is simply impossible to put a stop at once to adulteration by legislation.[50]

Even in the pharmaceutical and medical press there was little attention paid to the proposal. Neither the New York State Pharmaceutical Association

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

nor the American Pharmaceutical Association discussed Squibb's bill at their regular meetings. The American Public Health Association's Public Health published no articles on it, and even The Sanitarian and Sanitary Engineer completely ignored him.

Of the more important professional publications, only New Remedies gave any notice to Squibb, printing two pieces of correspondence related to the proposal. One letter mostly cautioned about people like Angell: "Sensational alarms divert the public attention from the real work to be done. It is to be hoped that no chemist will ever again mention to a reporter of the daily press that it has been stated that milk might be adulterated with sheep's brains."[51] The second letter mostly deplored the changing times, reflecting the growing complaint that professionals were becoming mere businessmen: "I found more haberdashers in the drug business than I had any idea of."[52]

In March Dr. Squibb published an expanded version of his proposal, adding a new preface, an extensive discussion of the British adulteration laws, and some notes relating to press comments and criticism. Squibb's rather peculiar conclusion, in the new preface, was that although prevention of adulteration should be national in scope, the Constitution prohibited such a federal law. He recommended that each of the states, "starting from some large State like New York, where it is most needed," should pass identical laws. "In this way the effect of a general law would be easily and finally obtained, while the objections to an United States law would not be encountered."[53]

The press criticisms to which Squibb responded consisted of only a brief comment in the Journal of Commerce, questioning his estimation of the monetary losses to New York because of adulteration, and the Times

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

comments already discussed. As of March 4, the date of the revision, those were apparently the only comments in the press--other than strictly reportorial--that Squibb had found. He rejected out-of-hand the Times' plan for consumer participation for two interesting reasons:

> Every consumer is not entitled to have his complaints investigated without expense to himself, for if he was, the complaints would be too numerous and too frivolous for any reasonable number of experts ....And if the adulterator be as able and as wealthy as they often or generally are, and if the consumer and the expert be as poor in knowledge and in money as they generally are, the proceeding must be abandoned or can only be settled by the highest court.[54]

Why was there so little reaction to Squibb's proposal, in contrast to Angell's? It seems obvious that the popular press was delighted to explore the sensationalism of Angell's claims, while there was little they could do to exploit Squibb's sober recommendations. The trade papers had no choice but to respond to outrageous claims that clearly impacted upon the business community, while they could safely give merely polite mention to Squibb. Much of the professional press, on the other hand, tried to ignore members who were rocking the boat. Pharmacists and physicians were busily engaged in cleaning their own houses, and in further professionalizing their occupations, even while perhaps becoming more like "haberdashers."

What of legislative reaction to Squibb's proposals? There was little activity in Albany in response to the "Rough Draft." Two bills for a state health board were presented in the Assembly, but both died there, and though a board would be created the following year it would bear little resemblance to Squibb's vision. One bill on adulteration was introduced on February 17 in the Assembly by Daniel Tallmadge, Squibb's Brooklyn neighbor. It covered only foods, not drugs, and would have prohibited only "unhealthful" adulterations, and therefore more closely resembled the bill suggested by American Grocer, than that proposed by Squibb. It was referred

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to the committee on agriculture, where it was quickly and permanently buried.[55]

The Tallmadge bill, like Squibb's essay, received almost no press attention. The Journal of Commerce published an editorial that gave just enough faint praise to the Squibb proposal to enable the paper to condemn the Tallmadge bill: "a coach and six could be driven through the Talmage /sic/ bill. We advise every member of the Legislature to read Dr. Squibb's essay and draft before hearing what less competent advisors have to say about action."[56]

* * * * * * *

By the latter part of 1879 the public had been treated to the accusations of George Angell, who was intemperate, inexact, even incompetent as a public health spokesman. But he stood alone against his critics in the professions and the commercial world who did their best to ridicule and condemn him. The one thoughtful proposal of this period, that of Dr. Squibb, was largely ignored, but Squibb had at least proven that a responsible plan to control adulteration could be drafted.

The public was ready for new revelations about adulteration, and was beginning to distrust the experts who assured them that the claims of men like Angell should be ignored. The Journal of Commerce editorial on the Tallmadge bill had explained that "It has never been difficult to hire men pretending to be chemical experts to certify to the purity and harmlessness of food, drink, drugs and cosmetics, in which noxious ingredients lurk."[57]

Since its formation in 1866, the sanitary and medical experts of the Board of Health had been publicizing, not only the vast scope of the city's

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sanitary problems, but also their own competence to apply remediation. It was predictable that public expectations would rise. The old Metropolitan Board, born into "an age of genial corruption and inefficiency," had earned the faith men placed in it, and "was held in a public esteem far exceeding that of any other city department."[58] The Tweed take-over in 1870 had shaken that faith, perhaps irrevocably, and the Chandler regime had failed to restore public trust and optimism. The stench scandal, the sugar controversy--so clumsily handled--and then the Angell accusations, undermined confidence, not just in the Board, but in "experts" in general.

It should not have been surprising that adulteration, even if perhaps the lesser of many sanitary evils, received more than its share of this apprehension and anger. There was something peculiarly personal about adulteration; it was not something that threatened the "community," but was something that happened, perhaps daily, to oneself.

The sudden ubiquity of canned and packaged foods, "the ready sale of myriad food products brought from all parts of the world by means of ever swifter transportation and improved methods of refrigeration,"[59] was a revolutionary change for the city dweller. But the concurrent concentration of food production and distribution into fewer and fewer hands had begun to take control over quality away from the local grocer and merchant. Even a trusted milkman was at the mercy of the creameries and the milk wholesalers. And careless and venal slaughter-houses distributed to one's butcher the meat one bought.

The post-war assumption of the press that it was largely the pressure of high prices that led grocers to adulterate, and that lower prices would ameliorate the evil, could no longer be posited with prices at a two-decade low, and adulteration seemingly at a new peak. Instead, the press began to

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

react with an excess of moral outrage. Even in the months before Angell's speech condemnation that had once been reserved for the adulterator of milk was being directed at far less serious offenders. One respectable journal declared that "The miller who palms off on his customers Graham flour made from anything but the choicest of wheat is one of the meanest of villains."[60] Another normally restrained periodical went much further:

> for merely pennies...a great number of manufacturers and tradespeople are after us....Some of these gentry are satisfied with betraying thousands of the hope of regaining their health...others gradually, but directly, systematically, and surely ruin the health of thousands by adulterating their wares with some more or less strong poison... still others suffer themselves to be betrayed by their lust of gain into a wholesale slaughter.[61]

By 1879 the public was ready to accept even the most outrageous and improbable accusations. What Angell's speech contributed to this renewed suspicion was not merely a proliferation of accusations, but the belief that the guardians of the public health--if not murderously corrupt--were at least failing in their duty. Expert reassurances were suspect, and no accusation of adulteration could be denied; anything was possible. Only new laws and new guardians could mediate between a helpless public and those who were willing to see them poisoned "for merely pennies."

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER IV

[1]Dictionary of American Biography (New York, 1928).

[2]Thomas L. Haskell, The Emergence of Professional Social Science (Urbana, Illinois: University of Illinois Press, 1977), pp. 53, 55-56, credits Sanborn with being the mainstay of the ASSA: "the day-to-day work of the Social Science Association fell almost exclusively on his shoulders." Sanborn has gained some notoriety as the bowdlerizing editor of the letters of Henry David Thoreau.

[3]George T. Angell, Autobiographical Sketches and Personal Recollections (Boston, 1892), especially pp. 2, 15.

[4]Sydney H. Coleman, Humane Society Leaders in America (Albany, 1924), p. 90.

[5]Angell, Autobiographical Sketches, p. 62 /1879/, p. 71 /1880/.

[6]Parallel to what Richard H. Rovere, Senator Joe McCarthy (Cleveland, 1960), pp. 109-110, has dubbed "the multiple untruth."

[7]Angell, Autobiographical Sketches, p. 51.

[8]Ibid.

[9]Ibid., p. 59.

[10]Like many other learned and professional societies during these depression years, the Association was experiencing severe financial difficulties. The cost of printing the Journal was now in excess of half the income of the ASSA, and cut-backs were made. See Haskell, pp. 130-131.

[11]This was not a verbatim copy, for excerpts of the speech printed in various newspapers differed slightly from it in some wording, but it is more complete than any one of these excerpts. Dr. Bell is discussed below, chapter V.

[12]George T. Angell, "Public Health Associations," Sanitarian, VII (1879), 126-131.

[13]Ibid., p. 131.

[14]New York Journal of Commerce, 1/16/79.

[15]Angell, Autobiographical Sketches, p. 60.

[16]American Grocer, 1/16/79, 189.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[17]Ibid. It is clear from the Board of Health reports of New York and Massachusetts, and the reports of the National Board of Health, that at this time ground coffee was commonly heavily adulterated, especially with chicory. It is extremely doubtful that, with possibly a rare exception, coffee beans were counterfeited, as Angell claimed, although poor quality beans were sometimes "faced"--colored and polished--to make them appear better. See also Francis B. Thurber, Coffee: from Plantation to Cup (New York, 1881), pp. 20-21, 162-165.

This was a period of deflationary depression; food prices were markedly affected, and reached bottom at just this time.

[18]American Grocer, 1/16/79, 189.

[19]Boston Herald, 1/17/79.

[20]Ibid.

[21]Angell, Autobiographical Sketches, p. 61.

[22]Herald, 1/24/79.

[23]This study is discussed below, chapter X.

[24]Harper's Weekly, 1/25/79, 74.

[25]New York Times, 2/22, 6/28, 6/29, 2/16/79; Grocer, 2/22/79, 258.

[26]Grocer, 1/11/79, 43.

[27]American Grocer, 1/23/79, 253.

[28]American Grocer, 3/6/79, 610.

[29]American Grocer, 3/13/79, 673.

[30]Sanitary Engineer, 2/79, 62, 64.

[31]C. Lewis Diehl, "Report on Deleterious Adulterations, and Substitutions of Drugs," National Board of Health Bulletin, Supplement No. 6 (Washington, 1880), p. 19, said "Perhaps no single individual...has had more abundant opportunities to observe the various characters and conditions of inferiority in drugs than Dr. Edward R. Squibb, of Brooklyn, and certainly no individual on this side of the Atlantic has given the subject of adulterations more attention than he."

[32]Transactions of the Medical Society of the State of New York (Syracuse, New York, 1879), p. 209.

[33]Proceedings of the Council of the New York Academy of Medicine (manuscript), p. 305.

[34]Minutes of the New York Academy of Medicine (manuscript), p. 412. Dr. Barker was elected chairman of the NYAM Council in 1879, and president of the Academy in 1882.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[35]In addition to materials directly related to the member organizations, a search was made of the Times, Tribune, American Grocer, Grocer, The Sanitarian, Sanitary Engineer, New Remedies, Journal of Commerce, the Proceedings of the New York State Pharmaceutical Association, the American Pharmaceutical Association, and the American Public Health Association, along with a number of popular magazines. The manuscript Minutes of the Medical Society of the County of New York fail to so much as mention the committee.

[36]"The Adulteration of Food. A Proposed Act to Punish It," Times, 2/6/79.

[37]Nonetheless, this first impression that Squibb was acting as the official spokesman for the joint committee has had remarkable persistence. Carl L. Alsberg, "Progress in Federal Food Control," in Mazyck P. Ravenel, ed., A Half Century of Public Health (1921; rpt. New York: Arno Press, 1970), pp. 211-212, makes Squibb's proposal the work of "a joint committee of representatives...." F.W. Nitardy, "Notes on Early Drug Legislation," Journal of the American Pharmaceutical Association, XXIII (November, 1934), 1126, does not link Squibb with the committee, yet uses the "Rough Draft" as the only citation for the existence of the committee. Lawrence G. Blochman, Doctor Squibb (New York, 1958), pp. 271-273, not only makes Squibb the "spokesman for a joint committee," but claims that "the Squibb bill was enacted into law by both the New York and New Jersey legislatures, with a few minor changes." Blochman obliquely credits Squibb with fathering the 1906 food and drug law.

[38]Transactions of the Medical Society of the State of New York, p. 209.

[39]Edward R. Squibb, Proposed Legislation on the Adulteration of Food and Medicines (New York, 1879), preface.

[40]Transactions of the Medical Society, pp. 26-27.

[41]Ibid., p. 211. Squibb may have been thinking of the New York skim-milk law passed the previous year. Under this law (Laws of 1878, ch. 220) private citizens could sue milk adulterators, and upon conviction receive half of the penalty imposed.

[42]Transactions of the Medical Society, p. 211.

[43]Squibb, Proposed Legislation, pp. 29-30.

[44]Transactions of the Medical Society, p. 215.

[45]Ibid., p. 217.

[46]Ibid.

[47]Ibid., pp. 220-221.

[48]Times, 2/6/79. (The article mistakenly reported the estimated cost of the proposed board at $800,000, instead of $80,000 per year.)

[49]Times, 2/7/79.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[50]Grocer, 2/22/79, 257.

[51]New Remedies, VIII, no. 5 (May, 1879), 152.

[52]Ibid.

[53]Squibb, Proposed Legislation, pp. 3-4. (Published as "Putnam's Economic Monograph No. XIV.")

[54]Ibid., pp. 27-29. Blochman, Doctor Squibb, p. 273, cites a diary entry to the effect that the fifty-seven page version published by Putnam was completed on 2/15/79.

The manuscript Squibb journals for this period are not in the possession of the Squibb Archives. Blochman was given access to them by a member of the Squibb family, but both he and the family member are deceased, and the diary's whereabouts unknown. Squibb Archives made available xeroxes of Blochman's notes from the diary entries.

[55]Journal of the Assembly of the State of New York (Albany, 1879).

[56]Weekly Journal of Commerce, 2/27/79.

[57]Ibid.

[58]John Duffy, A History of Public Health in New York City, 1866-1966 (New York: Russell Sage Foundation, 1974), pp. 19, 620.

[59]Arthur M. Schlesinger, The Rise of the City, 1878-1898 (Chicago: Quadrangle Books, 1971), p. 131.

[60]Scientific American, XXXIX (November 9, 1878), 295.

[61]The Nation, XXVI (February 21, 1878), 129.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER V

FORGING AND USING NEW TOOLS

By the late 1870's a number of voluntary medical, pharmaceutical, scientific, and public health associations, and a network of public and quasi-public organizations had been created in New York and throughout the nation. Henry Bergh's SPCA had been granted extraordinary police powers as early as 1866. Philanthropic organizations, such as the Association for Improving the Condition of the Poor, often exercised substantial political power. Business organizations like the Chamber of Commerce and the New York Board of Trade and Transportation now had dramatic input on issues of public concern. By 1880 local boards of health had been created in twenty-one New York communities,[1] and state-wide health boards existed in the District of Columbia and in nineteen different states.[2] The culmination of the professionalization of the public health field--the formation of a National Board of Health--took place at this time.

Most of these professional voluntary organizations and public agencies published journals or reports, which treated not only their own transactions, but also served to disseminate research papers, policy statements, and scientific and social experimentation. These publications also helped build the reputation of both the organization and the profession, becoming the voice by which the experts reached out to the public; even Dr. Squibb, for example, had been careful to receive the approval of the Medical Society of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the State of New York before linking its name and reputation to his anti-adulteration proposal. A specialized public press dealing with many of the same issues also came into being at this time.

Though it was Angell's agitation that led to new legislation to control adulteration, the men who shaped that legislation were Francis Thurber, Prof. Chandler, Henry Meyer, and Dr. John Shaw Billings. These men, in contrast to Angell, represented the "establishment," and by the late 1870's it was the established professional organization that was in a position to control insurgency and innovation.

* * * * * * *

Chandler's staunchest supporter was probably Henry C. Meyer. When only eighteen Meyer had enlisted in the cavalry, emerging from the Civil War with the rank of major, the Congressional Medal of Honor, and a job in his uncle's business, the New York Shot and Lead Company.[3] In 1868 Meyer began his own business, in water, gas, and steam supplies, presumably with capital advanced him by his uncle. Although Meyer never had any formal training to prepare him as either a plumber or a sanitarian, his business thrived, and by 1877 he was known and respected as being expert in both fields because of a new plumbing system he had designed.

As Meyer tells the story, he and his family contracted diphtheria in that year. Meyer decided that despite his profession, like the tailor whose children wore rags, his own home's plumbing was defective. This was at the latter part of the period in which an invisible miasmatic "sewer gas" was erroneously believed to be one of the greatest causes of death. After designing a plumbing and drainage system that vented sewer gas to the exterior of the building Meyer began to promote it, showing the drawings to sanitary

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

experts, and even taking his first trip to Europe, where he tried to interest British sanitarians in his plans.[4]

At a party given for him upon his return Meyer once again demonstrated his new system. Francis Thurber, who had married Henry's sister Jeanette in 1869,[5] suggested that Meyer begin "a high-class paper devoted to explaining these matters." With Thurber's assistance and the advice of Watkin T. Jones, editor of American Grocer, Meyer set out to publish a monthly paper, at first called Plumber and Sanitary Engineer.[6]

Upon Jones' recommendation Meyer hired Charles F. Wingate as editor of his new venture. Though Wingate "at that time had no technical knowledge or any experience in the matters to be discussed" in a paper devoted to sanitary engineering, he had had editing experience, which is what Meyer was seeking.[7] Wingate later complained that "I never assumed to be the editor but was content to let Mr. Meyer run the machine as he saw fit.... and tried to make myself less prominent."[8] But it is an interesting commentary on professionalization in this era that Wingate, after working on Meyer's paper for three years, and with no other training or experience, promoted himself as a "sanitary engineer," and soon built up a profitable consulting practice.[9]

Meyer did not want to create a "house" paper, one that existed merely to "puff" his own company's products; he was interested in sanitary reform projects, and sought the support and cooperation of both sanitarians and his colleagues in the plumbing industry. The paper almost immediately attempted to involve itself in the sanitary reform movement. Meyer published synopses of Board of Health reports, reported on the meetings of a wide variety of public health organizations, and reprinted sanitary information from papers throughout the world. Very quickly Meyer's paper was in con-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

tention with The Sanitarian for leadership in the field. Meyer soon changed the title of the paper to Sanitary Engineer, though most of his advertising revenue continued to come from the plumbing industry.

It was Meyer's paper, not Dr. Bell's, that would soon sponsor, in co-operation with business and sanitary leaders, the anti-adulteration bill that became law in New York and other states. The method used to publicize this bill was a nation-wide competition for the best draft of such legislation. Meyer had hit upon this "competition" promotion back in 1878, as a technique to increase circulation and advertise his paper's commitment to sanitary reform. The first of these contests was a competition for a plan for improving tenement houses.

Meyer quickly realized the potential for publicity in a campaign for tenement reform when Wingate, whose relative was the secretary of the AICP, first called his attention to the topic. It can be assumed that he also saw potential personal profit in legislating the installation of plumbing in all new tenement construction. The response to some material on tenements in the first issue of Sanitary Engineer was very encouraging; when Daniel W. James and Henry E. Pellew, well-known New York philanthropists,[10] expressed enthusiasm Meyer decided to go ahead with the project.

By 1878 interest in the tenement problem had already resurfaced, and the AICP and the State Charities Aid Association began a special investigation of the situation.[11] A new organization, James Gallatin's Sanitary Reform Association, mobilized public opinion.[12] The Tenement Reform Act of 1879 was the result of this agitation, but the shape of that law was determined by the contest run by Henry Meyer, for the law was designed to conform with Sanitary Engineer's rules and prize-winning design.[13]

Over two hundred entries were submitted to the paper, competing for

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the prize money put up by James, Pellew, Robert Gordon, and Thurber. The panel of judges selected by Meyer consisted of Prof. Chandler, an architect, a manufacturer, and two ministers. The terms of the contest required that the "model" tenement be constructed on a lot of 25 X 100 feet, because this narrow parcel of land was the standard New York city lot, favored by landlords. A truly healthful apartment house could not, of course, be constructed within these dimensions, but Meyer was more concerned with getting the active cooperation of the property-owners and businessmen than in promoting a radical change in the housing of the poor. Thus, the winning entry, the infamous "dumbbell tenement" of James E. Ware, condemned hundreds of thousands of New York's poor to living with the air-shaft.

By giving such great weight to the desires of the landlords, while claiming to simultaneously improve sanitary conditions, Meyer's contest helped to "sidetrack" the reformers away from more thoroughgoing demands.[14] The AICP reluctantly accepted Ware's design as an improvement over existing conditions, and when the law was being considered the legislature accepted the terms Meyer had imposed, instead of demanding greater improvements.

Perhaps the harshest critic of Meyer, and of the Sanitary Engineer competitions, was Dr. Agrippa Nelson Bell's The Sanitarian, apparently the earliest American periodical devoted to public health, which antedated even the Reports and Papers of the American Public Health Association. Bell was a Virginian who had attended Harvard and received an M.D. from Dr. Squibb's alma mater, Jefferson Medical College. Although a neighbor of Squibb, and a fellow member of the select Brooklyn Medical and Surgical Society,[15] Bell's professional and political intrigues alienated many of his associates, even within the Society. Dr. Squibb, although he claimed

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to "have no personal enmity against" Bell, felt that his ambitions overreached his medical capabilities. When the Brooklyn Society was reorganized in 1872, reduced in membership, Dr. Bell was not included.[16] Shortly thereafter he began publication of The Sanitarian.

One of the most important publications of the sanitary movement, Bell's periodical is noteworthy because he often set himself up as an anti-establishment spokesman. It is not at all curious that it was Bell who published George T. Angell's "Public Health Associations" speech in 1879, nor that Angell prepared a version specially revised for The Sanitarian, nor that Henry Meyer's Sanitary Engineer, Bell's chief rival, attacked both Angell and the papers that published such "twaddle." There is little doubt that Bell knew Angell's speech would upset his own enemies, and delighted in the prospect.[17]

Although Bell supported governmental control over sanitary matters--especially federal control--he apparently saw himself as an opponent to "entrenched" power. He often went out of his way to attack Meyer, Thurber, and other "respectable" reformers. Although somewhat more cordial to Prof. Chandler, Bell often viewed him as a tool of the business interests. Thus, though Bell would sympathize with Chandler's failure to secure reappointment to the Board of Health in 1883, he supported Chandler's opponent.

The Sanitarian, whose position as the leading public health periodical was now seriously threatened by Meyer, attacked the tenement competition, justifiably concluding that "the prizes were won by the most ingenious designs for dungeons,"[18] and benefited landlords, not tenants. After the 1879 law was passed Bell intensified his criticism. He ridiculed Meyer's dropping the word "Plumber" from the title of his paper, and, in an article titled "The Tenement-House Murderers of New York," blamed Sanitary Engineer

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

for encouraging the construction of the dumbbell tenements. Bell also accused the AICP of concealing the identity of the owners of the death-traps they condemned: "Does it belong to some member of the Association or some member's particular friend?"[19]

* * * * * * *

By the time Meyer's Sanitary Engineer had taken its place in the forefront of the sanitary movement the American Grocer had become an important voice on the adulteration question. "Business" periodicals, many of them with long continuous runs, predate the Revolutionary War, and by 1860 a number of papers had begun that catered to more specialized aspects of commerce; there were business papers representing the dry-goods trade, tobaccos, drugs, and the wine and liquor industry.[20] But, as the American Grocer pointed out in its first issue, in 1869, there was no business press representing the grocery trade.

As part of its first "Prospectus," the paper argued that "This is the day of specialties"; the birth of American Grocer represented the "professionalization" of the grocery trade. As part of that sense of professionalism, one of the first targets of the new journal was the adulterator. Just as those who organized the pharmaceutical, medical, and chemical associations attempted to oust colleagues who gave their trades a bad name, American Grocer attacked the adulterator as the scourge of the grocery trade:

> Our editorial corps includes some of the best scientific talent in the country, capable of submitting every article of the trade to the test of scientific analysis, enabling us to stand as guardians of the public health, on one hand, and as protectors, on the other, of honest dealers from fraudulent and mischievous imposture.[21]

The founder and first editor of American Grocer was W.H.C. Price, a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

southerner who, after some experience as a wholesale grocer and journalist in Alabama, enlisted in the Confederate army. After the war he came to New York, and soon started American Grocer. He ran it until 1875, "until circumstances occurred which necessitated either a change in the independent and unbiassed attitude of the paper, or his entire severance from it."[22] What happened was that the Thurber family, prominent stockholders in the corporation which owned the paper, bought it out completely. There was clearly a conflict between Price and the Thurbers, and he was either fired, or forced to resign at that time.[23]

Price immediately started all over again with a new paper, the Grocer. With backing from prominent businessmen who were not--it may be assumed--close allies of the Thurbers, Price's new venture was an instant success, and both papers were, by 1879, the leaders in the field, and in intense rivalry with one another. Price's accusation against his old paper was that F.B. Thurber had made it into a "house organ" for his grocery business, using the "Thurber Price List" in each issue as the paper's own "official" price list for wholesale goods. But Price did the same thing in his new paper, using the price list for Frederick H. Leggett, a Thurber competitor, until March 1881. At that time the Grocer, while continuing to carry the Leggett prices (now included as an advertisement), added its own "official" prices, separate from Leggett's. This, Price argued, made his paper more "independent" than his competitor's.[24]

The conflict between the two papers was most vocal at the Price end. Shortly before his death Price's argument climaxed with a front-page editorial: "Papers that represent certain personal business interests are inevitably shorn of the influence a newspaper should have...they cannot come to be regarded as anything else than the mouthpieces of the personal

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

influences behind them."[25] For its part, American Grocer ignored its competitor so conspicuously that when it printed Price's obituary it never mentioned the Grocer by name, referring to Price's activities since 1875 as "several journalistic enterprises."[26]

The enmity between the papers was so strong that the Thurber interests sued Price for copyright infringement, claiming that Price's title was too similar to its own. Only weeks after Price's death the new editor reluctantly reported that the courts had decided in American Grocer's favor, and that his paper's new name would henceforth be the Merchants' Review. From this time on the attacks on American Grocer intensified, with the Merchants' Review frequently issuing bitter invectives against editor Frank N. Barrett and Thurber, name-calling from which Price had refrained. Leaving the tone of the criticism aside, however, it would seem that many of the accusations were justified.

The policies of American Grocer unquestionably changed after Thurber took over. In the Price years the paper had campaigned vigorously against adulteration, though not always impartially. Price had made a practice of reviewing, one by one, each of the basic grocery-trade items: what they should be like in their unadulterated form, and how they might be adulterated or otherwise injured. Though these reports were sometimes a device for "puffing" specific firms, the information was still probably helpful to the retail grocers. After the change of ownership there were subtle differences. Not only did the paper indeed "puff" Thurber consistently, and frequently act as his spokesman on a number of issues (not all of which were "grocery" topics), but its attitude toward adulteration also changed.

The best example of this change is Jabez Burns. After the Thurber takeover Burns wrote a series of articles on adulteration for the paper. Later

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

these articles were reprinted in a booklet, the title of which indicates Burns' philosophy on the subject: "The Right and Wrong of Adulteration: The Benefit and Injury of Adulterating: The Use and Abuse of Adulterations...."[27] In other words, Burns argued that adulteration was not universally bad; sometimes deception was useful and permissable. Burns explained that he would answer "the perpetually complaining public... First, by giving a good reason for adulterating, rather than to deny it; and second, to expose such frauds as are unwarranted, and which deceive the public by gross misrepresentation."[28]

He obviously ruled out "poisonous" adulterations, but found many admixtures which he did not consider to be "gross misrepresentation." Burns saw nothing wrong with baking powder that was half flour, or goods artificially colored "to suit taste and standards," or adulterated coffee, tea, mustard, or spices. He felt that milk was not a necessity, but rather had mostly "become a habit." He argued that it wasn't adulteration that caused "the brayings of stupidity and ignorance," but rather that people resented discovering they had been deceived:

> If I were in the manufacturing business I would willingly put my name on any goods I moved that were not adulterated more than 50 per cent...I pity the really poor, but you cannot secure for the poor pure goods any more than you can secure residences for all alike on Fifth avenue.

Burns warned that "If we begin to legislate as to what we shall eat and drink, injurious compounds and poisons excepted, and what we must pay for the same, we will soon be the most ruled, and probably the worst overruled country in the world."[29]

Although American Grocer never disavowed these arguments, by 1878 the paper was toning down this type of talk. It began to argue for the virtue and commercial necessity of "pure goods," and frequently stressed that

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

such grocery items were readily available, pointing to the house of Thurber, whose advertisements consistently stressed:

> RELIABLE
> FOOD PRODUCTS.
>
> As the largest Manufacturers and Dealers in the world in this line, we consider it to our interest to manufacture only PURE and WHOLESOME goods, and pack them in a tidy and attractive manner....[30]

Though American Grocer continued to approve of many of the types of adulteration Burns had advocated, it did so without Burns' arrogance. It unobtrusively defended artificial food coloring, adulterated coffee and tea, and even ran a letter from F.B. Thurber explaining why certain additives and artificial colorings in Thurber's Pure Mustard did not really constitute adulteration.[31] Thurber's "Price List"--addressed to the retail-grocer subscribers--revealed his argument for adulterated coffee:

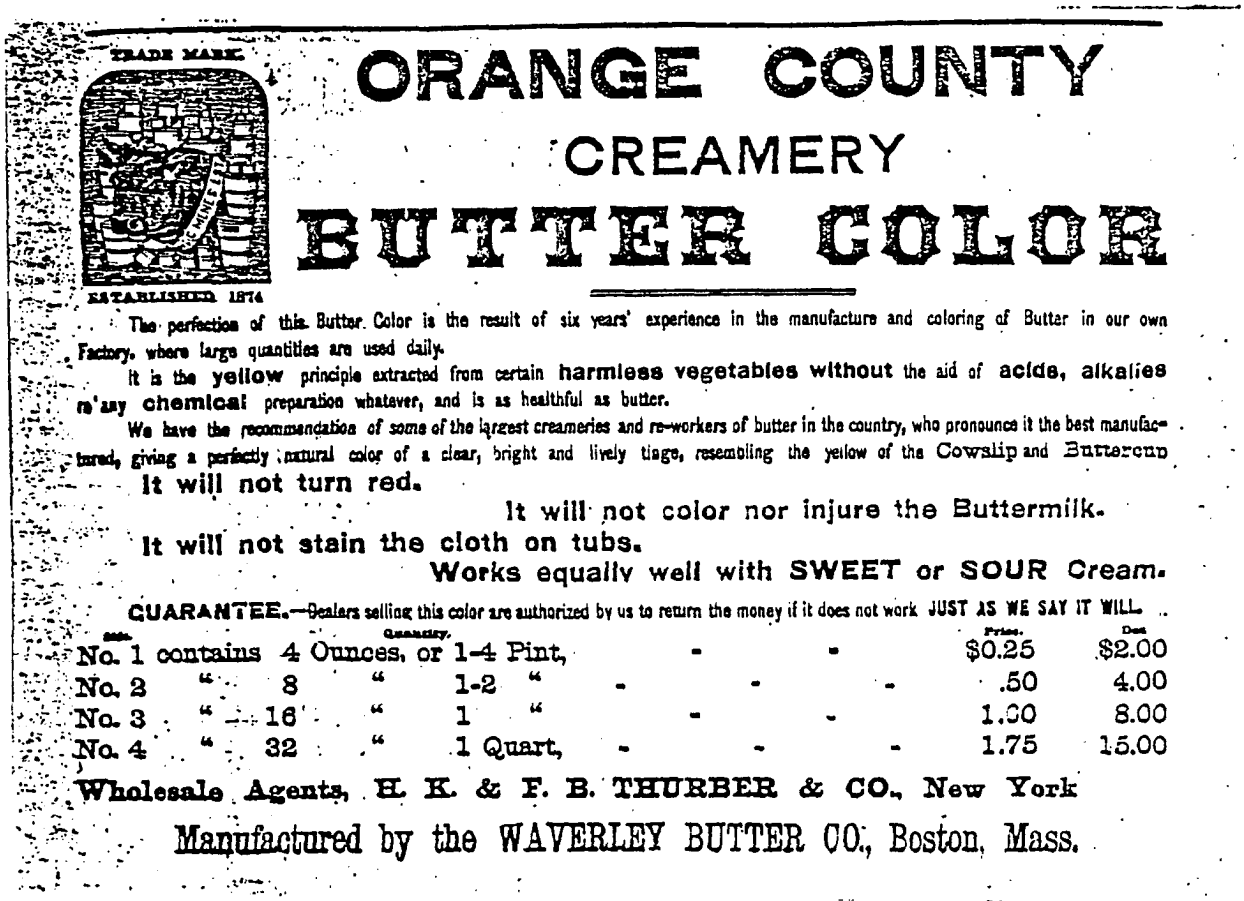
> There is a large class of consumers to whom pure Ground Coffee is too stimulating; consequently there are many who for this reason do not drink Coffee at all or prefer it diluted with wholesome Farinacous substances. In order to supply the wants of the latter class we grind the finest Roasted Coffees together with wholesome Roasted Grains, Cocoa, Chicory and an article to clear the Coffee....The Costa Rica is a strictly pure Ground Coffee, selected for its fine flavor. The other grades have a large proportion of Coffee for the price charged, except the Rye Coffee, which has none of the genuine Coffee berry in it. We guarantee these goods to please consumers, or they may be returned at our expense.[32]

These arguments take on a peculiar odor when it is remembered that Thurber was the author of a monumental book on coffee, dedicated to George Wilson, Secretary of the New York Chamber of Commerce, and to editor Frank Barrett. It warned that "The adulteration of coffee and the vast scale on which it is practised, are well-known facts....the evil still flourishes in the United States, although, so far as I am aware, nothing worse than ground peas, rye, and chicory are used." Thurber also blamed any increase in adulteration on the "foolish demands of the people," and on the high

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sale of ground coffees, which the consumers preferred to whole beans.[33]

Thurber and American Grocer defined adulteration differently in different instances, and took no responsibility for the uses to which grocers put Thurber's products. Thurber's coffee was "unadulterated"--even if retailers sold all the "Farinacous" mixtures as pure coffee. It will be remembered that Thurber also advertised varieties of grape sugar and glucose; presumably it was never his intention for the retail grocer to mix these with Thurber's pure sugar syrups. Thurber was also a major distributor for "natural" butter and cheese dyes, and became the world's



TRADE MARK.

ESTABLISHED 1874

ORANGE COUNTY CREAMERY BUTTER COLOR

The perfection of this Butter Color is the result of six years' experience in the manufacture and coloring of Butter in our own Factory, where large quantities are used daily.

It is the **yellow** principle extracted from certain **harmless vegetables without** the aid of **acids, alkalies** or any **chemical** preparation whatever, and is as healthful as butter.

We have the recommendation of some of the largest creameries and re-workers of butter in the country, who pronounce it the best manufactured, giving a perfectly natural color of a clear, bright and lively tinge, resembling the yellow of the Cowslip and Buttercup

It will not turn red.

It will not color nor injure the Buttermilk.

It will not stain the cloth on tubs.

Works equally well with SWEET or SOUR Cream.

GUARANTEE.—Dealers selling this color are authorized by us to return the money if it does not work JUST AS WE SAY IT WILL.

No.		Quantity.		Price.	Doz.
No. 1	contains	4 Ounces,	or 1-4 Pint,	$0.25	$2.00
No. 2	"	8 "	1-2 "	.50	4.00
No. 3	"	16 "	1 "	1.00	8.00
No. 4	"	32 "	1 Quart,	1.75	15.00

Wholesale Agents, H. K. & F. B. THURBER & CO., New York

Manufactured by the WAVERLEY BUTTER CO., Boston, Mass.

Advertisement from American Grocer, January 1880. Note that the coloring was recommended by "re-workers of butter." Re-worked butter was rancid butter which was reprocessed, deodorized, and colored to resemble fresh.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

largest distributor of oleomargarine oil, which was used in the manufacture of oleomargarine "butter." These practices make it impossible to accept at face value Thurber's constant declaration that he sold only "pure" goods.

All of this notwithstanding, by 1880 Thurber had become the arch-advocate of anti-adulteration legislation; for the next few years American Grocer and the Sanitary Engineer became the organs through which Thurber publicized his campaign. But, just as Meyer had influenced the shape of the new tenement law, Thurber, through these two papers, and through a number of organizations which he controlled, would determine the shape, the scope and quality, of adulteration legislation.

* * * * * * *

By 1880 Francis B. Thurber had become the driving force in a number of important organizations and political/economic movements, but his home base was H.K. & F.B. Thurber & Co., the nation's largest wholesale grocery firm. When he was sixteen Thurber had moved to New York City from upstate, working as a clerk in the warehousing and lighterage firm of Thomas M. Wheeler.[34] In 1864, when Thurber was twenty-two, he had saved enough capital to buy into the firm of Pupke and Thurber, in which his older brother Horace K. Thurber was a partner. By 1866 he had become a full partner himself, and from this time on the company made rapid strides.

Thurber introduced a wide variety of new food lines, and the company began its own manufacturing and processing plants, opened canning plants--at a time when that industry was just beginning[35]--a coffee-processing plant, its own cigar company, a complete line of pharmaceutical supplies, and offices in England and France. After the company was reorganized as

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

H.K. & F.B. Thurber & Co. in August 1875 it became one of the largest glucose distributors, and Thurber for a time held a monopoly in oleomargarine, having acquired the American rights from the French company holding the patent. In 1878 it was estimated that the net worth of the Thurber company was at least $1,500,000, and that it was doing over $1,000,000 a month in gross sales.[36] Sales seem to have reached a peak in 1879, with an October figure of over $2,000,000, probably due to increased sales of oleomargarine in that period.[37]

H.K. & F.B. Thurber letterhead, 1880's (reduced)

In 1884 Horace Thurber retired, and the company was reorganized as Thurber, Whyland & Co.[38] The company offered for sale virtually anything that was edible, "while from the firm's laboratory and drug department come a full line of essences, flavors and syrups." The Thurber "Price List," published in each issue of American Grocer, often ran to twenty pages of fine type, and much of what was sold was manufactured by, or specially for, the company. The contemporary commercial appraisal of the firm was that "Their praise of their own goods is merited because honest;

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

they know whereof they speak."[39]

Despite Thurber's vigorous leadership of his grocery firm, it is apparent that he devoted even more time and energy to other activities. Though the present study cannot detail those activities some intimation of their nature and scope is important, for Thurber's purposes and philosophy can be assumed to have carried over--at least to some extent--into his position on adulteration. Thurber's best-known "non-grocery" activity was in the anti-monopoly movement, directed against the railroads.[40] In this campaign Thurber used his fertile pen,[41] his influence, wealth, and incredible drive to gain leadership, or at least some degree of control, in an amazing variety of organizations.

These include the American Cheap Transportation Association, and its local auxiliary, the New York Cheap Transportation Association. Thurber has been credited with being the leader of the Importers' and Grocers' Board of Trade,[42] ran the New York Board of Trade and Transportation, and assumed the helm of the National Board of Trade immediately upon admission to that organization, in 1875. Thurber controlled the New York Chamber of Commerce, and not only instigated the 1879 investigation of New York railroads by Assemblyman William P. Hepburn, through his influence in the Chamber and in the Board of Trade, but actually conducted the investigation himself, at the request of the Hepburn Committee.[43]

In addition, Thurber had great influence in the New York Produce Exchange, apparently bankrolled the New York farmers' Alliance, and was its vice-president, arranged a temporary political union of merchants and farmers in New York in 1878, and was very influential in the New York Dairymen's Association and the International Dairy Fair Association, as well as serving as president of the American Dairymen's Association. All

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of these activities, and others, engaged Thurber between 1873 and 1880.[44]

What motivated--perhaps "drove" is more appropriate--a man like Thurber? Certainly his reform activities were not simply directed toward personal material gain. The railroads would surely have been willing to grant him favorable rates if he had called off his crusade against them. Although his firm was thriving, despite the depression, Thurber's outside interests kept him from giving full attention to the business. His older brother Horace advised Thurber a number of times to reduce his reform activities because not only the firm, but Thurber's own health, were suffering from his "strenuous regime of mixing groceries with agitation."[45]

Thurber was not completely altruistic; his activities in the grocery trade were certainly intended to make money, and sometimes, perhaps often, he was not shy about bending the truth in order to promote sales. In some of his activities in the adulteration agitation he stood to gain, yet in others he was sure to lose money. Of course the motives of a reformer need not be--as the phrase of the time went--"Simon pure."

Part of the answer, for Thurber at least, must rest in his philosophy, which subsumed his motivation. It has been speculated that men like Thurber "felt that the traditional structure of American institutions was threatened by a 'vulgar plutocracy,' [and] received greater satisfaction from thwarting the designs of railroad magnates than they did from more humdrum business activities."[46] In a pamphlet written by Thurber there is perhaps a key to his broader vision, encompassing not only his war against the railroads, but adulteration as well:

> The American Republic has survived the storms and troubles of a hundred years. Whether or not it will exist for another century will depend largely upon the making and execution of our laws. It is, perhaps, not strange that legislation for the protection of the public interest should have failed to keep pace with the enormous changes which steam, electricity and machinery have wrought....[47]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Thurber, and the reform movements in which he participated, were in this sense basically "conservative." Thurber was attempting to protect certain American traditions and values which were threatened by the rapid changes the society had been undergoing, the most visible of which was the aggregation of capital into large corporations, dominated by the railroads. Thurber explained that "if we would preserve the principles upon which our Government is founded, there must somewhere be lodged a superior power to protect the people."[48] Thurber "persisted in the belief that it was possible to harness the new forces within the framework of an older society."[49]

The necessary device for the reconstruction of American society, Thurber believed, was the law, and government intervention. "The time for a laissez faire policy is past. Our civilization is constantly growing more complex and the forces which now control it must themselves be controlled and directed or disastrous collisions will surely result."[50] For men like Thurber, "to preserve Jeffersonian social ideals amidst the centralizing tendencies of the Communication Revolution, it was necessary to stand Jeffersonian...laissez-faire political economy on its head."[51] As Thurber himself put it on another occasion, speaking, aptly enough, to the Thomas Jefferson Club of Brooklyn: "I am opposed to the centralization of power either in the hands of Government or of corporations, but centralization is a fact staring us in the face and we must see if we cannot make one form of centralization neutralize the other."[52]

* * * * * * *

The first centralized public health instrumentality was the National Board of Health, a short-lived, but serious commitment of the federal gov-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ernment, constructed from the blueprint of Dr. John Shaw Billings, a remarkably talented man of wide abilities and interests.[53] Billings was graduated from the Medical College of Ohio in 1860, took the examination for the Army Medical Corps (passing first on the list), and served in the field until he suffered a partial paralysis of his left leg. In December 1864 he was transferred to the Surgeon-General's Office. In addition to the routine tasks assigned to him after the war, Billings became an expert microscopist. He used money left over from a war-time hospital fund to vastly enhance the Surgeon-General's Library, and in 1880 began publishing the Index-Catalogue of its holdings, and the monthly Index Medicus, which together constitute the premier bibliographic effort of the century.[54]

It was to Billings that the job of redesigning the federal health services was given by the Secretary of the Treasury. The first permanent national medical service was the Marine Hospital Service, established in 1798 to provide hospital care for members of the merchant marine. But by 1869, after successive epidemics had swept the nation, Secretary George S. Boutwell asked Billings to investigate and report on the operation of the marine hospitals, whose mismanagement had become notorious. Billings reported that "The Regulations of the Treasury Department are a dead letter, each port being more or less a law unto itself."[55] As a result of the Billings report Congress, which had previously rejected proposals for broader health plans,[56] passed a law reorganizing the Service.

It had been Boutwell's intention to have Billings appointed to head the reorganized Service,[57] and had this come about much of the later destructive competition within the public health profession might have been avoided. But the Senate amended the bill so as to rule out a military

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

medical officer from the post, and Dr. John M. Woodworth, a highly competent, but very politically active, civilian surgeon was appointed.

The Marine Hospital Service remained the principal federal health agency until 1878, when a savage yellow-fever epidemic tested its capabilities. In September a special Commission to study the disease was created with private funds, run jointly by Dr. Woodworth and the American Public Health Association. But with only six weeks in which to work before it was due to report to the APHA, the Commission was doomed to failure. A letter written by Billings also makes it evident that any consensus was unlikely, because of political maneuvering among the sanitary leaders:

> I distrust the proposed Yellow Fever Commission under Woodworth--for I distrust him and his motives. But there is no doubt that in consequence of the present epidemic the coming winter will afford an unusually favorable opportunity to secure legislation and funds for promoting Public Hygiene, and that those really interested should try to prevent this enthusiasm from being wasted by being seized on and converted to the benefit of ambitious and scheming medical politicians.[58]

APHA's members were already sharply divided, not only on the possible cause of yellow fever, and what steps should be taken to combat it, but also upon what type, if any, of national organization should be formed. APHA finally decided to form a special Advisory Committee to draw up legislative proposals for the formation of a federally-funded national health service. Billings, chairman of the APHA committee assigned to examine the results of the Yellow Fever Commission's work, also headed this special committee.[59]

But on December 10, before the APHA committee had met, Senator L.Q.C. Lamar of Mississippi introduced a bill to establish a bureau of public health. Stephen Smith had drafted this bill for Lamar, acting, apparently, in concert with Dr. Woodworth.[60] The Lamar bill would have converted the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Marine Hospital Service into the new national bureau, enlarging its powers, and leaving Woodworth in control. Smith, though the founding father of APHA, was not on its Advisory Committee, or even on the APHA executive committee, at this time. Though Smith seems to have thought well of Woodworth, the leadership of APHA responded negatively to the bill, Billings commenting to a friend that Woodworth was "a pretty shrewd politician and wirepuller--very ambitious--not at all of any scientific or professional reputation, a very agreeable and polished gentleman, but in no manner qualified to hold the power he seeks."[61]

By this time President Hayes had requested Congress to consider legislation for a national sanitary administration, and both houses of Congress responded by forming committees to investigate the yellow fever epidemic. On December 16, 1878, the two Congressional committees met jointly, and appointed a board of experts to investigate the epidemic. Though this board underwent some changes, it consistently remained under the control of Dr. Woodworth.

The Lamar bill and Woodworth's special Congressional board forced APHA to act decisively, at a time when much of the leadership was hesitant about creating a national board that might supercede the authority of the state boards. After all, most of the APHA leaders were medical men who derived their official power from membership on local and state boards, and they were very conscious of their prerogatives.[62] Largely due to the influence of Billings' APHA Advisory Committee, the Lamar bill never emerged from committee, and in January 1879 APHA came up with its own bill. Although a variety of bills were proposed in both houses of Congress, it was the APHA bill, drafted by Billings[63] and introduced by Congressman Jonas McGowan of Michigan, that was finally passed into law, on March 3, 1879.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Although the McGowan bill has been heavily criticized for its inadequacies by historians of public health[64] Billings did not consider it a compromise, but the bill that best reflected APHA's concepts at that time. He triumphantly wrote to a friend:

> It has been a hard struggle and I am half sick from loss of sleep and mental wear and tear, but the result repays me.
>
> Now I am doing my best to secure proper appointments to begin with. Everything depends on the way the Board is first organized.... Every bummer in the country is applying--with his testimonials....
>
> Don't you think on the whole I have done pretty well, for strictly between you and I I wrote that McGowan Bill literature--and in an awful hurry--late at night. There are two or three omissions in it due to this haste, but we can fix them easily.[65]

The National Board of Health (NBH), created by the McGowan bill, avoided the possibility of Woodworth's ascendancy by establishing a board of seven members, plus representatives from related federal departments.[66] Members were appointed by the President, a change from Billings' original plan. He had hoped to depoliticize the Board by having the nominees selected by the National Academy of Sciences. In practice, however, APHA controlled the Board's membership. Dr. James Cabell, then president of APHA, became president of the NBH, and the real moving force on the Board was Dr. Billings, who became its vice-president. Billings, who has been called "the greatest American physician of his day,"[67] was elected to serve as APHA's president for 1880. APHA members dominated both the Board itself and the quarantine inspection force the NBH established.[68]

The primary functions of the Board were to prevent the recurrence of epidemics such as that of the previous year, to obtain information on all matters affecting public health, and to advise federal, state, and local authorities on public health problems. From the point of view of the APHA leadership this last was the most important provision, and the NBH soon exceeded the Congressional mandate of "cooperating" with local boards,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and set as a major goal the establishment of such boards throughout the nation.

From Billings' point of view the only serious defect of the McGowan bill, as passed, was the elimination of the appropriation clause by the Senate. Both Drs. Cabell and Billings believed that "the clauses omitted were omitted by the mistake of an engrossing clerk."[69] But, whether "by accident or design,"[70] the law provided only $50,000 for salaries and expenses. A second act, passed in June, restored the original appropriation request of $500,000 for the operation of the Board, but also attached a four-year time limitation to its powers. Congressional sentiments were that the NBH was experimental,[71] and APHA members perhaps agreed with this position.[72]

There are complicated political reasons for the ultimate failure of the NBH--and perhaps the prejudices of the period foredoomed it--but probably the basic flaw was identified quite simply by Dr. Jerome Cochran in a letter to Dr. Billings: "The convenient epidemic of yellow fever did not make its appearance."[73] Billings had seen this as a central problem of public health, in an essay written immediately after passage of the McGowan bill:

> Sanitary measures, to be effective, should be carried out at those times when most people see no special cause for anxiety, and often, therefore, appear to involve unnecessary worry and expense...."If the expected disease does not appear, the warnings are considered to have been a false alarm, and the precautions taken to have been excessive."[74]

One of the issues that continued to engage Billings' attention while he served on the NBH was the nature of expertise and professionalism required on boards of health at all levels of government. The dependence of government on the abilities and training of "experts" was beginning to be

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sharply felt. In the years to come government officials would come to understand that they must employ their "own" experts, but for the time being civilian professionals, and the voluntary associations they represented (and which represented them) played a vital role. It is clear that the American Public Health Association, and to a lesser extent the National Academy of Sciences, the American Medical Association, and the various pharmaceutical associations, were vital to Congressional committees and state governments.

In a parallel manner, it has already been seen that when New York Assemblyman Hepburn wanted to conduct hearings on the state's railroads he was forced to rely on Thurber and his associates on the Chamber of Commerce and the Board of Trade to conduct the investigation, for the state legislature lacked the necessary expertise and information. This delegation of responsibility "to the merchants points up a fundamental problem of the period....Few, if any, 'experts' on the subject could be found who were not closely identified with some interested party."[75]

* * * * * * *

If Thurber had pursued a restoration of traditional middle-class values through membership in a wide variety of voluntary associations, men like Prof. Chandler, Dr. Squibb, and leaders of APHA like Dr. Billings pursued it through professionalism, through organizations of experts. All these men, in their different ways, and for somewhat different purposes, were reacting to the technological and material changes taking place in America, changes which made old values seem inconsistent with the new society. They were trying to formulate appropriate compromises between the ideal and the business-like reality; they were responding to the new America

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in terms of the old.[76]

Perhaps even more than Thurber, the businessman-as-reformer, these health professionals--and men like Meyer who saw themselves as health professionals--took their cues, built their reputations, tested their competence, from the associations of "experts" to which they belonged. More and more, in this period, the expert was known by the company he kept. These new organizations were closely-knit, their membership small, their allegiances strong. When Chandler and a few fellow chemists sent out invitations to potential members of the new American Chemical Society in 1876, they could find only 220 men in the entire country who they felt were qualified to join.[77]

To the new middle-class professional the worst insult was to be called "amateurish," for this new word "connoted faulty and deficient work... the pursuit of an activity for amusement and distraction."[78] This was exactly the accusation these professionals tried to fix upon George T. Angell, for men like Angell challenged the esteem, the purpose, the power, the very foundations of professional science and public health. They called him an amateur, a "so-called Sociologist." For if Angell chose to speak through, of necessity to employ, professional organizations like the American Social Science Association (in contrast to the SPCA or the Humane Society, which the experts would ridicule),[79] he was nonetheless a lone warrior.

Although Angell was an old hand at forming and using associational power--witness his activities on behalf of animals--he was still less a "joiner," less the organization man than Chandler or Billings. Angell thrilled in picturing himself as the champion in single combat, opposed by dark and powerful forces, challenging the corrupt power of the pro-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

fessionals, as well as that of the businessmen and the merely ignorant. Angell saw himself as a man who, with a few noble and selfless friends, stood as the voice of the people, virtually alone against the corruptionists--and he would shortly rejoin his noble battle when the ASSA met once again, in 1880.

Nor, really, were there such vast differences between the intent of the ASSA and associations of plumbers, chemists, and businessmen. Order meant morality; chaos signified immorality. Men like Meyer felt that professionalism among "sanitary engineers" could not only establish competency in plumbing, but operate to ameliorate the bewildering social problems of tenement life that he and his contemporaries recast in terms of morality. Professionalism among physicians, pharmacists, and chemists could help to restore order to the confusing, modernizing society. Commercial organizations attempted to restore business stability. So too, the ASSA attempted to deal with the vast changes taking place. Expertise in the broad field of "social science," of human relationships, was an attempt to understand the entire scope of changing morality and to gain control through science.[80]

Men like Angell were attempting to confront these new social tendencies and reconcile them with values that were becoming casualties of modernization. He was trying, perhaps more than Chandler, Thurber, Billings, or Meyer, to maintain a grasp on conventional morality, on the values of his--and America's--past, and re-establish it once again. Angell saw these other men not just as <u>symptoms</u> of these changes, but as <u>agents</u> of change, conspiring to hasten the collapse of traditional morality, while mouthing maxims to disguise their corrupting influence.

If Dr. Squibb was, unlike Angell, a true "expert" in the new sense,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

he too stood apart from men like Thurber, Meyer, Chandler and Billings. Though he chose to speak through the State Medical Society, he too spoke in the tradition of the independent individual. Though he was a member of several medical and pharmaceutical societies, Squibb was known in the profession as a die-hard individualist, a man who would not compromise, who refused to play his colleague's games, and stood his ground against all comers. In an older America this had been a noble stance, but in the new society, where the professional assured his status and power through his organizations, Squibb was sometimes a voice in the wilderness.

Nonetheless, all these men were attempting the same thing: to restore a lost morality. They sought, through publicity and through legislation, to re-establish fair play in the marketplace. But those who succeeded, and thus shaped anti-adulteration legislation to their perceptions, were those who had learned best to use the new tools of the new society: the professional organization and the professional publication. In the 1880's the new State Board of Health, under Chandler's control, and the new National Board of Health, largely because of Dr. Billings' temporary involvement with Chandler, Thurber, and Meyer, would play a vital role in these efforts.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER V

[1]National Board of Health Bulletin, no. 47 (May 22, 1880), 373.

[2]Wilson G. Smillie, Public Health, Its Promise For the Future (New York, 1955), p. 309. See also Robert D. Leigh, Federal Health Administration in the United States (New York, 1927), pp. 10-12.

[3]The National Cyclopaedia of American Biography (New York, 1936), XXV, p. 67.

[4]Henry C. Meyer, The Story of the Sanitary Engineer (New York, 1928), pp. 3-4. NYPL also has the typewritten manuscript of this privately-printed autobiography, but the content is identical.

[5]New York Times, 7/5/07. The National Cyclopaedia reports that Meyer named his second son Francis Thurber Meyer.

[6]Story of the Sanitary Engineer, pp. 5-6.

[7]Ibid., p. 8; Wingate had edited two or three periodicals, such as the Paper Trade Journal and the American Stationer. See Frank Luther Mott, A History of American Magazines, 1865-1885 (Cambridge, Massachusetts, 1957), p. 291.

[8]Wingate to Billings, 11/20/80, Billings papers.

[9]In 1880 Wingate tried to promote himself to a vacant position on the New York Board of Health, arguing "There are many reasons why a sanitary engineer is desirable rather than a medical man." (Wingate to Billings, 11/8/80, Billings papers.) In January 1881 Wingate quit his job on Sanitary Engineer, and took up "house examination as a 'biz.'" His new stationery read "Consulting Sanitary Engineer." (Wingate to Billings, 1/22/81, 3/3/81, Billings papers.)

By 1882 he had become secretary of the "Citizens' Sanitary Society... to organize and stimulate private effort" in public sanitation. (Wingate to Billings, 9/2/82, Billings papers.) In the 1890's he was organizing suburban housing developments and cottage resorts, acting as manager and sanitary engineer. (Handbills dated 1890 and 5/1/93, Wingate papers.)

[10]The first issue of Sanitary Engineer was published in December 1877. Both James and Pellew were born in England. James arrived in America in 1849, was a merchant, and became a partner in Phelps, Dodge & Co. He was especially interested in the Children's Aid Society. Pellew came to New York around 1873, married the granddaughter of Chief Justice John Jay, and helped organize the Charity Organization Society.

[11]John Duffy, A History of Public Health in New York City, 1866-1966 (New York: Russell Sage Foundation, 1974), pp. 220-229.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[12]Seymour J. Mandelbaum, Boss Tweed's New York (New York: John Wiley, 1965), p. 163, points out that Gallatin's board of directors "included many of the wealthiest men in the city." The Association's opponents were "more genuinely middle class," including most of the tenement landlords.

[13]In Story of the Sanitary Engineer, p. 15, Meyer argued that his contest was the central factor in first creating public interest in tenement reform. Meyer also believed that he was instrumental in getting the law through the New York State legislature, "but never appeared in the matter by name, only as the proprietor of the Sanitary Engineer, my reason being that in any attempt of this sort the movement might be crippled if my personality was made prominent and the natural charge made that I had some business interests to serve."

[14]Duffy, p. 229.

[15]This was a professional and social organization, completely separate from the much larger Kings County Medical Society. In the 1860's, when Squibb and Bell belonged to it, membership was limited to twelve, with monthly meetings in the members' homes. See Lawrence G. Blochman, Doctor Squibb (New York, 1958), pp. 181-182.

[16]Blochman, pp. 181-189.

[17]See Duffy, pp. 77, 229; Sanitarian, VII (1879), 180-181, VIII (1880), 225, XI (1883), 428-429.

[18]Sanitarian, VII (1879), 226.

[19]Sanitarian, VIII (1880), 183, 225.

[20]David P. Forsyth, The Business Press in America, 1750-1865 (Philadelphia: Chilton Books, 1964), p. 277, discusses the early drug press.

[21]American Grocer, 9/15/69, 16.

[22]Grocer, 10/1/81, 311.

[23]The information about Price comes from obituaries run in American Grocer, 9/29/81, and Grocer, 10/1/81. Neither paper was specific about the events of 1875. Lee Benson, Merchants, Farmers, and Railroads (New York, 1955), pp. 63, 266, indicates that by 1872 the Thurber family "controlled" American Grocer, and by 1876 owned it outright. Benson cites a letter from Horace K. Thurber to F.B. Thurber, which detailed their business activities in relation to the paper and the grocery trade. This letter, dated 12/25/86, like all the Thurber papers, has been destroyed.

Prof. Benson, the last historian to use the Thurber papers, has advised the present author (personal communication, 6/10/81) that he had recommended to Thurber's son that the papers be given to the New York Historical Society. But this was not done, and Thurber's grandchildren have informed this author (personal communications) that after their father's death the papers were destroyed.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[24]Grocer, issues for March, 1881.

[25]Grocer, 8/6/81, 119.

[26]American Grocer, 9/29/81, 708. This author has been in contact with the most recent editor of American Grocer, Mr. Sid Kocin, who had no additional information on the history of the paper before the turn of the century. (Personal communication, 12/22/81.)

A brief history of American Grocer, published on 9/15/09, and supplied by Mr. Kocin, never mentions F.B. Thurber. It indicates that Thomas M. Wheeler, president of the corporation that took over the paper on 9/6/73, retired in July 1876, and was replaced as publisher by Watkin T. Jones. Jones ran the paper until his retirement in 1883, bringing in Frank N. Barrett as editor in 1877. After Jones' retirement Barrett became publisher.

[27]Jabez Burns, The Right and Wrong of Adulteration: The Benefit and Injury of Adulterating: the Use and Abuse of Adulterations...being a series of articles on these important subjects, published from time to time in the "American Grocer" (New York, 1877). Burns later became editor of a small grocery trade paper, the Spice Mill.

[28]Ibid., p. 3.

[29]Ibid., pp. 4, 12, 14, 22.

[30]This particular quotation is from a Thurber ad placed in Jesse B. Battershall, Food Adulteration and Its Detection (New York, 1887). It was a common practice for manufacturers and dealers to select this type of publication as an especially valuable advertising medium. Many food and drug ads carried testimonials, sometimes by the authors of the books or pamphlets. For example, this same book printed endorsements for Kingsford's Oswego Starch by Arthur H. Hassall and by Otto Hehner, a chemist who had done pioneer work on butter analysis.

[31]American Grocer, 3/4/80, 602.

[32]Thurber Price List, January 1880.

[33]Francis B. Thurber, Coffee: from Plantation to Cup (New York, 1881), pp. 162-163, 21.

[34]The biographical sketch of Thurber's early career is based on material in Edwards and Critten, New York's Great Industries (New York, 1885), p. 112, and The National Cyclopaedia of American Biography (New York, 1932), XXII, p. 176. A lighterage company transferred goods from incoming ships. Wheeler became, in 1873, president of the corporation that purchased American Grocer.

[35]It was not until the Civil War that the American canning industry really began to develop, with the invention of a new process for boiling the canned goods. It was not until 1870 that an "automatic" machine was developed for sealing the cans. See James H. Collins, The Story of Canned Foods (New York, 1924), pp. 14-32.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[36]New York Tribune, 1/22/78.

[37]American Grocer, 11/6/79, 1121.

[38]American Grocer, 2/7/84, 9. Whyland began with the company in 1870, became its head salesman, and then the junior partner in 1884. For a biographical sketch of Whyland, see American Grocer, 5/5/86, 10.

[39]New York's Great Industries, p. 112.

[40]See Benson, Merchants, Farmers, and Railroads.

[41]In addition to a large number of speeches, pamphlets, and articles to which Thurber signed his name, Prof. Benson has traced him as being the anonymous author of perhaps hundreds of other important position papers and editorials, often acting as the spokesman for organizations to which he belonged.

[42]Benson, p. 267.

[43]Benson, chapter VII, on the Hepburn investigation.

[44]In January 1881 Thurber became a founder and co-leader (with Peter Cooper) of the National Anti-Monopoly League, the culminating economic reform organization of this period, credited by Benson, pp. 151-152, with being "the major seed-bed for the notions of 'trust-busting' charactistic thereafter of middle-class reform groups in the United States."

[45]Benson, p. 124. Benson, p. 280, cites letters from H.K. Thurber to F.B. Thurber dated 8/6/76, 12/25/76, and 3/1/77.

[46]Benson, p. 125.

[47]"Some of the Causes of Communism," (1879); quoted in Benson, p. 140.

[48]Speech by Thurber, printed in Report of the Special Committee on Railroad Transportation of the Chamber of Commerce....April 7th, 1881, p. 34; quoted in Benson, p. 161.

[49]Benson, p. 177.

[50]From Our Country. A Paper by F.B. Thurber, Read before the XIX Century Club, New York, November 17, 1885, p. 28; quoted in Benson, p. 241.

[51]Benson, p. 151.

[52]"Democracy and Anti-Monopoly" -- An Address by F.B. Thurber before the Thomas Jefferson Club of Brooklyn, April 16, 1883, p. 15.

[53]For more complete biographies see Harry M. Lydenberg, John Shaw Billings (Chicago, 1924), and Fielding H. Garrison, John Shaw Billings, A Memoir (New York, 1915). For a sketch of his life, in addition to DAB, see "The Life of John Shaw Billings," in Frank B. Rogers, Selected Papers of John Shaw Billings (Medical Library Association, 1965).

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[54]Billings is famous for his work in at least three separate fields: medicine and public health; bibliographic and library science; and hospital design and administration.

Estelle Brodman, The Development of Medical Bibliography (Baltimore, 1954), portrays Billings as the inventor of medical bibliography, and uses his photograph as her frontispiece. William F. Poole, Poole's Index to Periodical Literature (1882; rpt. Gloucester, Massachusetts: Peter Smith, 1963), p. vii, is virtually dedicated to Billings; Poole saw Billings as his inspiration: what Billings "is so admirably and exhaustively doing for medical bibliography, ought to be done by other specialists for law...and every other profession and science."

From 1896 to 1913 Billings created the New York Public Library, consolidating the Astor, Lenox, and Tilden libraries into one, and in the process established its cross-indexed catalog, the system of personal and inter-library loans, and its unique classification scheme.

He designed the Johns Hopkins Hospital (1877-1889), considered to be the model hospital of its time. Billings was acknowledged to be the nation's outstanding expert in hospital design, and published many articles on related subjects, such as ventilation, physical facilities, administration, and medical education. He was also a pioneer in the field of vital statistics, invented the concept of coded cards for data storage, and broadened the approach of the federal census, helping to plan the censuses of 1880-1910.

He was president, and one of the founders, of APHA, was on the governing body of the National Academy of Sciences, and active in dozens of other organizations. He was also a brilliant writer and and astute politician.

[55]Leigh, Federal Health Administration, p. 92.

[56]Ibid., p. 465; Peter W. Bruton, The National Board of Health (unpublished doctoral dissertation, University of Maryland, 1974), pp. 34-53; Henry I. Bowditch, "The Future Health Council of the Nation," Transactions of the American Medical Association, XXVI (1875), p. 301; James G. Burrow, AMA, Voice of American Medicine (Baltimore: Johns Hopkins Press, 1963), p. 23.

[57]Leigh, p. 94.

[58]Billings to Dr. Charles F. Folsom, 9/20/78, Billings papers. There were over 100,000 cases of yellow fever in the South, causing 20,000 deaths, during the epidemic of 1878.

[59]Bruton, pp. 115-127; "Abstract of the Richmond Meeting," APHA Reports and Papers, IV (1878); Times, 10/4/78-11/23/78.

[60]Kathleen F. Cortes, Democracy in the American Public Health Association: A Historical Analysis (unpublished doctoral dissertation, Columbia University, 1976), p. 81.

[61]Nancy R. Bernstein, The First One Hundred Years, Essays on the History of the American Public Health Association (n.p., 1972), p. 10.

[62]Cortes, in Table 2-6, indicates that in 1879 95% of the leaders were medical men, while only about 70% of APHA members were physicians. Tables 2-1 and 2-8 indicate that, in 1879, while only 19% of the members held positions on state or local health boards, a majority of the leaders did. Smillie, Public Health, p. 305, points out that five of the six members

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of the APHA executive committee elected for 1879 were "executive officers of state health departments."

[63]This is apparently new information. Bruton, p. 153, says merely that "the bill had been drafted with the assistance of the APHA." Cortes, p. 81, reflecting Leigh, pp. 470-473, says it "was essentially APHA's Advisory and Executive Committee's plan." George Rosen, A History of Public Health (New York, 1958), p. 249, and Smillie, p. 332, credit Dorman Eaton with being the author. Mazyck P. Ravenel, "The American Public Health Association, Past, Present, Future," in Mazyck P. Ravenel, ed., A Half Century of Public Health (1921; rpt. New York: Arno Press, 1970), p. 31, has Dr. Smith's bill becoming the NBH. Duffy, p. 629, credits Smith and Eaton jointly.

[64]The critics have, perhaps, applied hindsight too heavily. Bruton, p. 154: "The passage of the McGowan bill did little more than salve the conscience of Congress." See Cortes, p. 82. Rosen, p. 248, calls it "premature." Smillie, p. 466, blames Dr. Woodworth's death on his defeat on this issue.

Some of this criticism reflects Dr. Smith's later reminiscences about the superiority of his own plan, and the ultimate failure of the NBH. APHA publications in the current century strongly reflect the opinions of Dr. Smith, who is adulated as the organization's founder.

[65]Billings to Folsom, 3/7/79, Billings papers.

[66]Woodworth's death at this time effectively eliminated the ability of the Marine Hospital Service to influence the new Board, though Dr. Hamilton, Woodworth's successor, would eventually help to destroy the NBH.

[67]Smillie, p. 301.

[68]Cortes, pp. 82-83.

[69]Billings to Folsom, 3/7/79, Billings papers.

[70]Leigh, p. 474. There is some disagreement on this question.

[71]Bruton, p. 160.

[72]Cortes, pp. 83-87. The Board legally remained in existence until 1893, when legislation was passed terminating its existence, but in practice it had ceased to function ten years earlier, when its appropriations were cut.

[73]Cochran to Billings, 9/10/82, Billings papers.

[74]John S. Billings, "Introduction," Albert H. Buck, ed., A Treatise on Hygiene and Public Health (New York, 1879), p. 7. Interestingly, the hygiene text most used in America prior to the publication of Buck's Treatise made only cursory mention of food adulteration--and little even on nutrition--for its first four editions. This was Dr. E.A. Parkes, A Manual of Practical Hygiene, first published in England in 1859. The fifth edition, printed in Philadelphia in 1878, contained two chapters on foods, with methods of detecting adulterations. This is presumptive evidence of increasing interest in the subject.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[75]Benson, p. 133.

[76]Everett M. Rogers, Social Change in Rural Society (New York, 1960), p. 47, argues that "Cultural lag occurs when technological and material changes take place more rapidly than non-material changes in social values, attitudes, and social organization." See also Lawrence M. Friedman and Jack Ladinsky, "Law and Social Change in the Progressive Era," in Stanley N. Katz and Stanley I. Kutler, eds., New Perspectives on the American Past (Boston: Little, Brown, 1969), p. 199: cultural lag occurred at times "in which issues were collectively defined and alternative solutions posed." See also Robert H. Wiebe, The Search For Order, 1877-1920 (New York: Hill and Wang, 1967), especially p. 134.

[77]Charles A. Browne and Mary E. Weeks, A History of the American Chemical Society (Washington, 1952), pp. 14-15.

[78]Burton J. Bledstein, The Culture of Professionalism (New York: W.W. Norton, 1976), p. 31.

[79]Angell's "professional" critics enlarged their attack to include the ASSA, calling it unprofessional for allowing "amateurs" like Angell to speak without having their papers first reviewed by "professionals."

[80]Thomas L. Haskell, The Emergence of Professional Social Science (Urbana, Illinois: University of Illinois Press, 1977), pp. 86-87. See also Edward A. Ross, Sin and Society, An Analysis of Latter-Day Iniquity (Boston, 1907), especially chapter I, where Ross discusses the new variety of "sin"--the "impersonal" sin.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER VI

"WITHOUT IMPOSING UNNECESSARY BURDENS UPON COMMERCE"

There is no indication that the public health professionals would have taken additional steps toward the regulation of foods and drugs had it not been for the publicity created by amateurs like Angell. Though the newly-formed National Board of Health created a standing committee on adulteration on April 3, 1879, the committee took no specific action, or even undertook an evaluation of the problem.[1] The New York City Board of Health ignored its "legislative" capacity to create ordinances for the control of adulteration, nor exercised even those powers already granted to it.[2] Except for milk and kerosene adulteration--areas of pronounced public concern--little had been done.

Moreover, health officials and chemists seemed more interested in reducing public apprehension than in taking direct action, and in ridiculing agitators like Angell than in giving due consideration to their more valid accusations. It is also possible that the ties that had grown between "experts" and businessmen retarded any sweeping legislation that would interfere with commerce. It is not suggested that all health professionals were so dependent upon corporate largess that they feared to anger their wayward employers: the health of American commerce was a legitimate concern for conscientious professionals.[3] Still, it does seem that--for a combination of reasons--the professionals were unwilling to act.

But by 1880, despite the efforts of the chemists and sanitarians to

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

refute Angell's accusations, there was a renewal of legislative activity in Washington, an effort that unquestioningly accepted Angell's assertions and assumptions. In response to this activity Chandler, Billings, and Meyer, following the lead of Francis Thurber and the National Board of Trade, began to prepare legislation of their own--legislation that sought not only to calm public apprehension over adulteration, but to regulate the marketplace with a gentle hand, and impose no "unnecessary burdens upon trade."

* * * * * * *

The professional appraisal of the adulteration situation as of 1879 is best represented by the chapter on this subject in Buck's Treatise on Hygiene, written by Stephen Sharples, Angell's Massachusetts adversary. Sharples' position resembled, not the inquietude of Accum and Hassall, but the complacency of American Grocer and Sanitary Engineer. Sharples insisted that there was little dangerous adulteration, and that only dangerous adulterations need arouse concern. He also cautioned against laws that were too stringent, and against enthusiastic enforcement of the laws, since they interfere "with the great natural laws of supply and demand." To be effective, adulteration laws must neither be "indiscriminate" nor "too definite."[4]

Sharples warned about amateur publicists and "needless alarm." He claimed that many attempts to prosecute alleged adulterators "have arisen more out of malice or mistaken zeal...than from any desire to benefit the public." Then, most peculiarly, he suggested that the "best" method of obtaining suspected samples was "through a third party, who can show that he was injured in some way by their sale."[5] If one remembers the compli-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

cations arising out of the Earle/De Castro and Donner sugar controversy, which took place only a few months before the publication of the Buck book,[6] it becomes necessary to question either Sharples' motives or his common sense.

Implicit in Sharples' differentiation of adulteration into the harmful and the merely fraudulent is the admonition that adulterations which are "in no way injurious to health" are simply not worth prosecuting:

> since the buyer, as a general rule, knows what he is getting. To this class belong such articles as package-coffee, which is generally a compound which contains no coffee...mustard diluted with flour and colored with turmeric; the mixture of inferior grades of goods with higher grades of the same material....the sale of oleomargarine or suet butter as genuine butter; and the adulteration of spices with ship-bread.

He similarly argued that artificial coloration was not an adulteration at all, and dismissed attempts to prosecute for the use of flour, "terra alba," or glucose in candy:

> These were all frauds in their inception, but, sanctioned by usage, they have become difficult to deal with. The health officer may and should expose them so far as he can, but he will find that he can do but little with them in the courts, the law holding that when the nature of the article is well known to both buyer and seller no fraud is committed.[7]

Sharples also discussed "accidental impurities," concluding that "in this case it would hardly be just to hold the vendor liable to a further degree than is involved in the /confiscation/ of his property," even when the "accidental" adulteration is "injurious to health."[8] Sharples, with this advice, precluded any successful prosecution, for no manufacturer or dealer guilty of adulteration would hesitate to claim lack of responsibility due to accident or error. The only food adulterations Sharples specifically condemned, and urged prosecution for, were poisonous colorings --particularly in candies--and adulterations of milk. Moreover, Sharples concluded, "in the large number of cases" the health officer "will find his

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

purposes served far better by warning the parties privately than he will by bringing the case into court."[9]

If Sharples was indeed representative of sanitary experts in general at this time, what provided, in the words of one writer, "the leaven of revolt"?[10] On January 20, 1879, less than two weeks after Angell addressed the ASSA convention, Congressman Hendrick B. Wright of Pennsylvania introduced the first federal bill designed primarily to prevent the adulteration of food. Like Assemblyman Tallmadge's bill in the New York legislature, which was introduced a few weeks later, Wright's bill called for prosecution only for manufacturing or selling foods "injurious to the health of persons partaking thereof."[11] Like the Tallmadge bill, the Wright proposal received little attention in the press, and it died in the House Committee on Manufactures.

Nevertheless, the Wright bill was a foretaste of things to come, for in the next sessions of the Congress other bills would be submitted, and these bills would reflect the opinions, not of Sharples, but of George T. Angell. Angell remained the chief agitator for such legislation, and he continued to use his position within the ASSA to keep the issue alive. Throughout this period Angell had the complete trust of Frank Sanborn and other Association leaders. Despite the escalating condemnation heaped upon Angell by the sanitary experts, as late as 1884 Sanborn wrote to Edward Atkinson, in planning an ASSA meeting, that "Nobody understands Adulteration of Food better than Mr. George T. Angell."[12]

Angell also continued to use every other opportunity for agitation. Although the Massachusetts State Grange was one of the smallest in the nation[13] Angell used his friendship with its master, Benjamin Ware, to reach members throughout the country. He used the Massachusetts Ploughman

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to condemn, unlike Sharples, all forms of adulteration, including "careless" or accidental contamination, calling it "hardly less criminal" than intentional adulteration."[14]

Angell spoke to a wide variety of groups, including, on April 21, 1879, the Citizens' Trade Association of East Boston, a group of leading merchants and businessmen, to whom he repeated the statements made to ASSA in January.[15] In September Angell once again addressed ASSA, though his paper, "The Manufacture and Sale of Poisonous and Dangerously Adulterated Articles," was very similar to his "Public Health Associations" speech.[16] But this time Henry Meyer appeared on the platform with Angell, acting as a spokesman for the professional sanitarians, to refute his claims. Meyer explained "that he had investigated previous articles published by Mr. Angell on adulterations, and had tests made, and he could find no such systems of general adulteration as reported."[17]

Sanitary Engineer devoted almost two full pages to the ASSA meeting, publishing an editorial on the speech and on the Massachusetts papers that gave credence to it, and another condemning the Association itself. The central editorial cited Prof. William Ripley Nichols' protest against Angell's comments, and used Sharples' essay in Buck's Treatise to refute them. Meyer's newspaper also published two long critical letters from Henry Morton and Stephen Sharples. Morton's letter reprinted additional protests against Angell that had been issued after he had presented his "Public Health Associations" speech--by Profs. Merrick (now deceased), Vaughan, Chandler, and Charles O. Thompson, of the Worcester Free Institute. Thus virtually the entire leadership of the chemical profession had aligned itself against Angell.

The crux of Meyer's protests was that Angell, "even though called a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

'sociologist,'" was "not an authority on the subject he discusses": "That adulteration does exist we fully admit, and we regret that a paper such as Dr. Sharples' on "Hygiene and Public Health," was not read instead of the one so widely published, which reflects upon the honesty of the whole mercantile community." Sharples, in his own letter, went even further toward denying the prevalence of adulteration than he had in his Treatise essay, concluding that "our markets are well supplied with good, wholesome food in abundance, and that adulteration so far from being the rule is only exceptional."[18]

American Grocer's editorial on the Angell speech explained that "We desire to build up trade and to encourage the sale of honest products, but this can never be effected by the circulation of wholesale and unfounded alarm and thereby making consumers suspicious of adulteration in everything that is offered for sale."[19] Through the next months both papers kept up their attack on Angell, especially reacting when other newspapers reprinted his accusations.[20]

A consensus seems to have been reached by Sanitary Engineer and American Grocer, not only to condemn Angell's comments, but to report with regularity on adulterations, stressing however their harmless nature. In effect Meyer and Wingate handled their paper as if they had conferred with Thurber and Barrett, and agreed to report very matter-of-factly upon adulterations, stressing poisonous food colorings and milk adulteration, but playing down as insignificant the merely fraudulent, though condemning it as unethical business behavior. Thus, American Grocer began a series called "Can a Large City Be Supplied With Pure Milk?," which ran for five issues, and Sanitary Engineer began publishing news related to the adulteration question more frequently, which eventually matured into a regular feature page called "Food and Drugs."[21]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Interestingly, the New York Times at this point began treating adulteration in an identical manner. It is probable that the publication of the highly-respected Buck volumes, and the professionals' condemnation of Angell's unsubstantiated claims, inclined the newspaper to reconsider its position. In any case, when the Times editorialized on the subject, the paper adopted Sharples' observations, stressing the exaggerations of the public press, "when there is but very little cause," and explaining that the vast majority of adulterations "are generally of an innocent character as far as the public health is concerned." The Times even argued that "The noise made some six months ago in New-York as to admixture of foreign matters in sugars had no possible foundation." Like American Grocer and Sanitary Engineer, the Times explained that the public should focus its attention on milk adulteration, "the worst" crime.[22]

When the Times and Sanitary Engineer both covered a speech by Prof. Albert R. Leeds, chief chemical analyst of the New Jersey State Board of Health, their coverage was almost identical. The Times reported, without editorial comment, Leeds' statements that virtually the only poisonous or dangerous adulterations were in candies and arsenical wall-paper.[23] As early as April 1879 the Times had claimed that even "the poorest people" were able to buy pure coffee; "The chief substitutes, such as barley, crusts, beans, chicory, are seldom employed in this country."[24]

Later that month the paper argued that urban food was healthier, and of a better quality, than what was eaten in the countryside. America, the paper said, "may be compared to an immense desert in which some 15 or 20 cities form conspicuous oases."[25] Although the Times later returned to a more critical examination of the adulteration situation, for the better part of a year its treatment was quite sanguine. Virtually the only accu-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sations made, the only indignation shown, from April through December 1879 revolved around the continuing topic of pure milk.

Thus by the early winter of 1879 the furor over adulteration had temporarily quieted down, the press apparently accepting the Sharples position. A survey of popular, commercial, and scientific periodicals, in late 1879, reveals little material on adulteration in general, although a few specific issues were approached.[26] The New York City Board of Health issued no report on adulteration that year. The American Public Health Association's Reports and Papers for 1879 contained no papers on the topic. The National Board of Health Bulletin, although it was first issued on June 28, and regularly thereafter, contained virtually nothing on adulteration during the year. Even Dr. Bell's Sanitarian printed only one comment on oleomargarine in the second half of the year, and nothing else on adulteration.

But if things were quiet, it might well be the quiet before the storm. Though the Wright bill had died in committee, Representative Richard L.T. Beale of Virginia submitted a new bill, similar to Wright's, to the House Committee on Manufactures in the early days of the next session of Congress,[27] and plans were afoot in Washington, by the end of the year, to introduce additional legislation. Though Angell was ill with severe bronchitis during the winter, it was clear that he had not given up the fight permanently.[28] For the public health and chemical professionals, and for the businessmen who would be affected by any adulteration legislation, the time to act had come.

* * * * * * *

Francis Thurber had been abroad in the fall, attending an international dairy fair in London, in his capacity as president of the American Dairymen's

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Association.[29] When he returned, probably sometime in November, Henry Meyer successfully persuaded him to sponsor a contest in Sanitary Engineer for a draft of an anti-adulteration law. Thurber was to put up the prize money of $1,000, and enlist the support of the National Board of Trade (NBT) for the competition, which would help broaden the contest to one of national interest. As Meyer put it: "As a result of the competition, and the attention thereby directed to the subject, it is hoped that the National Board of Trade will be able to propose legislation which will protect the public on the one hand and the honest manufacturer on the other." The rules called for a draft of legislation that would not impose "unnecessary burdens upon commerce."[30]

The National Board of Trade, which Thurber and Meyer intended to employ in this cause, was just recovering from the effects of the great depression of the 1870's. It had been formed in 1868, with a membership of thirty-two local boards of trade, chambers of commerce, and business exchanges. During the depression, however, membership had fallen. Despite the optimism of Frederick Fraley, a Philadelphia merchant and banker, and effectively the permanent president of the Board,[31] in December 1879 only seventeen organizations were represented at the annual meeting, four of which had just then been admitted or readmitted to membership. Things had been so bad that the NBT had not even met the previous year, holding only a session of its Council.[32]

Nonetheless, the NBT was the dominant nation-wide organization representing the interests of middle-sized business firms. Its central concern since its inception was, and continued to be, transportation--especially attempts to control railroad practices.[33] But the Board was actively engaged in an assortment of battles and sorties, each of which attempted in

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

some way to cope with the changing business environment.[34]

Coincidentally, at exactly the time the re-emerging Board of Trade was about to involve itself in sanitary matters, the new National Board of Health sought the assistance of Thurber and his associates. Dr. Billings was aware that the position of the NBH was precarious at best. With appropriations for only four years of operation, with legislation that clearly indicated its experimental nature, with distrust already being directed against it from sanitary officials on local and state boards, particularly in the South, and with the need to prove the Board's value to the nation, Billings sought support from Thurber just when Thurber needed support from reputable national public health figures. A mutuality of interests would link the two organizations over the next three years.

Dr. Thomas J. Turner, the Navy's appointee to the Board, and its secretary, sent a letter to the NBT, requesting that they join the National Academy of Sciences and the NBH in a meeting on December 16 to work on "a plan for a national public health organization."[35] Yet at this very time some members of the NBT, suspicious of the Health Board, wished to discuss "the propriety of amending, revising, or repealing the Act of Congress, creating a National Board of Health."[36] Thurber made it his business to derail any such attempt, and had Fraley appoint a special committee to meet with Turner and Billings. Not surprisingly, the committee consisted of Thurber, his associate from New York Ambrose Snow, and George L. Buzby of Philadelphia. Snow was in the shipping and commission business, and was an unquestioning supporter of Thurber, who was appointed chairman.[37]

Billings was enthusiastic about associating with Thurber, and wrote to Dr. Folsom that "perhaps my best move has been to get the National Board of Trade to appoint a special Committee to confer with us." Billings was

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

having troubles within the sanitary profession that were parallel to the difficulties Angell was creating for Meyer and Thurber. He wrote that "of all the d--d bummers that I ever met in any walk of life it seems to me that most of the professional philanthropists and sanitarians are the scaliest."[38]

Billings, while serving on Sanitary Engineer's committee to judge entries for a model public school building,[39] had been approached to serve on the committee for the adulteration competition. Although direct evidence is lacking, it seems logical that the imminent announcement of this upcoming competition[40] inspired Billings to have the NBH put together some material on adulteration for its annual report. The NBH Bulletin was conspicuously lacking such material, especially if the Board, through Billings, was about to become intimately involved in the topic. But this supplementary material was little more than a survey of the literature of adulteration, contained no evaluation of actual conditions, and shows much internal evidence of haste. Billings was very conscious of its defects, and wrote Dr. Folsom that "We have a paper from Kedzie which you would probably put in the wastepaper basket. Don't think we shall however."[41]

Needing some material on short notice, Billings published Robert Kedzie's article, along with a report on drug adulteration by C. Lewis Diehl, which appended Dr. Squibb's 1879 "Rough Draft." Kedzie's material contained some valuable nutritional information, but was also replete with innane observations and personal philosophy: "A hungry man is, for the time, a savage...." Wheat is "pre-eminently the food of brain-workers...." "Flour is often damaged by being kept where it will absorb bad odors."[42] There was little material on adulteration per se, probably constituting less than one page of the Bulletin, and most of that was a rehash of Kedzie's

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

1874 research on glucose. Though Kedzie made no attempt to measure the extent of adulteration, his comments were totally compatible with Sharples' conclusion that it was not a serious problem.

Prof. Diehl's report on drugs consisted of a very thorough summary of the material on drug adulteration published over the years in the Proceedings of the American Pharmaceutical Association (APhA).[43] Within its self-imposed limit--dependence upon one primary source--and pressed for time, the Diehl report was a competent summary, but little more. He admitted, at the outset, that he had never "previously given the subject special attention," and that he found the time allotted him "too short to do complete justice to the work."[44] Probably because of his involvement with APhA[45] Diehl was entirely uncritical of its activities and motives. Whatever improvements had been made in the quality of pharmaceuticals he credited to APhA, and all failures he laid at the door of conniving politicians and the patent medicine clan. The Association, he explained, "has combated everything that is corrupt, improper, or unfair in the drug business."[46]

On the whole, Diehl felt that "the drug market must be unqualifiedly pronounced to be fair."[47] The drug import law of 1848 had succeeded, Diehl judged, in removing most adulterated or inferior drugs from the marketplace. Further professionalization of the trade, under the supervision of APhA, would remove much of the remaining domestic adulteration. Although new state laws were necessary, the main consideration was to insure that members of the Association controlled the preparation and dispensing of medications.

Diehl was sensitive to the conflicts of practicising druggists, and condemned the growing de-professionalism of the trade. Though sympathetic to the demands and rigors of the occupation--perhaps overly so--he also

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

explained that:

> The pharmacist occupies a very peculiar position. Being both a tradesman and a professionalist, he unites in his dual calling opposing interests. As a tradesman, it is his sole aim to make money; as a professionalist, it is his aim to guard the interests of the public by supplying medicines of pure quality, without regard to cost or trouble.[48]

The problem was that the public ignorantly demanded "cheap goods," thereby creating "the prime motor to all falsifications and substitutions."[49] Thus, Diehl suggested, two things would operate to nullify this threat to pharmaceutical professionalism: enhancement of the legal authority of APhA; and a system of state laws on the pattern suggested by Dr. Squibb. It was for this purpose that Diehl appended Squibb's "Rough Draft."

Although the present study deals with patent medicines only incidentally,[50] it should be pointed out that, like APhA itself, Diehl saw these "secret remedies" as perhaps the greatest hindrance to the reformation of American pharmacy. Although he emphasized their medical dangers--ignorant reliance upon symptomatic relief, and habit-forming drug dependence, "the ultimate consequences of which are moral and mental ruin and death"--his basic intention was to make the public more dependent "upon legitimate medicine and less upon the professions of charlatans and mountebanks."[51] Strict state pharmacy laws and laws requiring content labeling of patent medicines would affect, APhA consistently argued, unscrupulous or incompetent druggists who reflected badly upon the profession, and would remove the competition of other merchants, such as neighborhood grocers, who maintained a supply of patent medicines as part of their stock in trade.[52]

* * * * * * *

The Kedzie and Diehl material, published at about the time Sanitary Engineer announced Billings as one of the judges in its contest for a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

draft adulteration law, established the National Board of Health itself as a participant in this new legislative effort. The weekly NBH Bulletin announced and supported the contest:

> There appears to be a growing interest among sanitarians, legislators, and merchants in the United States with regard to the subject of the adulteration of food and the propriety of legislation for its prevention. One of the most practical steps which has been taken to secure satisfactory legislation on this subject is that taken by the National Board of Trade at its annual meeting....[53]

The Bulletin reprinted the NBT resolution, and then quoted in its entirety the terms of the contest from Sanitary Engineer.

The NBT resolution, in addition to specifying that the draft legislation should prevent "injurious" adulterations (nothing was said about the merely fraudulent), "without imposing unnecessary burdens on commerce," also specified that the committee to judge entries should consist of five "experts," including at least one doctor, chemist, lawyer, and merchant. The official announcement in Sanitary Engineer was more direct about the motivation behind the NBT's concern that "the public mind has of late been considerably agitated by the alleged general adulteration of food":[54]

> For more than a year we have had frequent occasion to defend the commercial community from wholesale and alarming charges of deleterious food adulteration. We have exposed the absurdity of the sensational statements made by men like Mr. Angell, which in our judgment tended to thwart intelligent and legitimate attempts to correct and control this evil where it does exist.[55]

Two issues later Sanitary Engineer published the complete rules of the competition. Entries were to be submitted anonymously, with a code "motto" for identification, and sent to the paper, with judging to take place in October. The committee of experts consisted of Billings, Chandler, Benjamin Williamson, Alpheus H. Hardy, and John A. Gano. Williamson came from a distinguished family, his father having been Chancellor, and then governor, of the state of New Jersey. Williamson received a law degree from

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Princeton, and in 1852 was himself appointed Chancellor, serving one seven-year term. He then engaged in corporate law, serving as chief counsel for the New Jersey Central and Lehigh Valley railroads, and worked for various other corporations and financial institutions.[56] Hardy was a prominent Boston importer-exporter. He became a partner in his father's firm in 1865, becoming head of the company in 1873. He was president of the Boston Board of Trade.[57] Gano, a Cincinnati businessman, never actually served on the committee.[58]

Even before publication of the complete rules, inquiries were coming to Meyer. Cards and letters came from merchant newspapers and news agencies, promising to reprint information about the contest; it was also reprinted in the medical press.[59] Even so, Meyer and Thurber felt they were in a race. Congressman Beale's anti-adulteration bill, which had been sitting in the House Committee on Manufactures since May 23, 1879, was now replaced by a new version with a higher likelihood of passage, read twice in the House, and recommitted to the Committee.[60] Whatever the bill's actual prospects, the Beale measure was clearly being publicized: there was even some confusion in the business community, some merchants thinking that the Beale proposal was being supported by the NBT.

For example, a communication from the Baltimore Board of Trade was received by the New York Board of Trade and Transportation (NYBT&T), which was actively supporting the Sanitary Engineer contest, asking endorsement for the Beale measure. Thurber had the NYBT&T send a letter explaining that it opposed the Beale bill, and advising its Baltimore colleagues to wait for the NBT's own forthcoming bill. Thurber also had the NYBT&T appoint a special committee of three, which he chaired, to maintain commu-ication with other business groups throughout the nation.[61]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The New York Board of Trade and Transportation was Thurber's most direct link to the business community. Although the NBT Executive Council met fairly frequently, the NBT itself assembled only once a year. The NYBT&T, which met monthly, provided Thurber with a more active organization for his voice. Originally founded as the New York Cheap Transportation Association in 1873,[62] the Board had widened its interests somewhat by the late 1870's, and by the early '80's had a membership of over a thousand New York State firms and individuals, maintaining communication with dozens of similar organizations in other cities on a regular basis.[63]

Unlike Thurber's battle with the railroads, in which the NYBT&T was also his chief vehicle, the adulteration question was not sectional in nature. Public apprehension and pressure for restrictive legislation would affect importers, exporters, and wholesalers throughout the nation equally, and thus Thurber could coordinate this battle more effectively than he could the transportation question, where legislation that would benefit one region might harm another.[64]

The Beale bill, which Thurber and Meyer hoped to defeat, and ultimately replace with their own bill based on the Sanitary Engineer competition, was amended, and then referred to the Committee of the Whole by the House Committee on Manufactures on March 4, 1880.[65] There were few substantive differences between the amended substitute and Beale's original version. The chief difficulty with the original draft (H.R. 2014) was that, in the opinion of the Committee, it "assumed the right of the general government to legislate in regulating the sale of articles of food and drink for the States," and was therefore unconstitutional.[66] The revised version (H.R. 4738) applied only to the District of Columbia, the territories, and inter-state trade, and would presumably arouse less opposition. The bill not

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

only prohibited the manufacture, importation, or sale of poisonous foods, but also restricted harmless adulterations.

Sanitary Engineer chose not to make "merely" fraudulent adulteration the issue, and instead concentrated its criticism on two provisions of the bill which were indeed weaknesses. First, the bill incorporated the word "knowingly" in its definitions. As Sanitary Engineer pointed out, the clause was "useless...except to originate lawyers' fees." Second, the bill provided a complicated system for determining if a suspected product was indeed adulterated. Any suspicious customer might demand a sample, to be presented to a chemist for analysis. The New York sugar controversy of 1878-1879 should illustrate the flaw in allowing the accuser to retain possession of an alleged adulteration. Sanitary Engineer added another objection--extravagant, but nonetheless valid: "What a harvest this would open up to bummers and dead beats in general, who would have a right to go around and demand samples from every grocer, butcher, market gardener, etc., in the country!"[67]

There were other problems with the bill, particularly since it applied to food and drink only, not to medicines or cosmetics, and neglected to define "adulteration" adequately. Sanitary Engineer objected to the requirement that virtually all mixtures had to have content labeling. The paper also felt the bill's assumption that both fraudulent and harmful adulterations were widespread was inadequately established, since the Report of the Committee lacked the testimony of "chemists or sanitarians of repute." The Committee "had no evidence before them beyond some ex parte statements and newspaper clippings, which are in the main false and misleading."[68] What Sanitary Engineer failed to note was that the source of these "false and misleading" statements was none other than George T. Angell,[69] and the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Report indeed copied some of his most outrageous accusations. American Grocer was more specific about the "Boston alarmist": "When they disclose that this information comes mainly from such an individual as Angell, it takes away all force from the report."[70]

Sanitary Engineer's central objection related to what the paper felt was a cavalier treatment of American business:

> It may be thought impossible that such a bill as this, affecting as it does some of the largest business interests of the country, should become a law, but those who think so are not acquainted with the manner in which our legislation is often managed....If so important a committee, specially charged with looking after the business interest of the country, is willing to report such a bill as this to Congress with the recommendation that it pass, it is certainly full time for the competition instituted by the National Board of Trade, and in a matter of so much importance it would certainly seem worth while to wait for the results of this competition.[71]

Meyer's editorial failed to note some of the worst inadequacies of the Report. The rationale used for failing to conduct extensive tests was that "without power to send for persons, your committee was dependent upon such aid as has been voluntarily offered."[72] Three tests conducted by the Department of Agriculture, however, were reported. One briefly stated that the Department in 1878 found glucose in one brand of sugar syrup. In the second example the Committee, either intentionally or through ignorance, misrepresented Chief Chemist Peter Collier's test on coffee, conducted on behalf of Congressman Wright the previous year. Although both the "Report of the Chemist" and the Committee's summary were in agreement that "facing" chemicals used to color coffee beans were injurious, the Committee's Report implied that all the beans tested were "faced," while Collier's original report shows that the beans were merely experimentally colored for the purpose of testing.[73]

The third "test" was of tea adulteration, in which Collier had examined one particularly suspicious sample sent to him by the Health Officer

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of the District of Columbia. He found this sample to be dirty, dyed, and adulterated. But Beale's Committee incorrectly stated that "it seems to be one-half Prussian blue," and then used this single analysis to conclude that "the adulteration of tea is notorious....Our own citizens have far surpassed the heathen Chinese in successful adulteration of this article."[74] The Committee also claimed that, next to the blue dye, the worst characteristic of these sophisticated teas was that "in the worst samples imported a very large percentage is theine." Collier was saying that this sample was low in theine, which is the natural caffeine found in tea. Good tea is high in theine.[75]

But for the next several months, of course, Thurber and Meyer had no bill of their own to substitute for Beale's. They were forced to wait until the October deadline of their contest, Thurber lobbying against the Beale bill while Meyer spent the summer in Europe. Billings, besieged with NBH problems, and perhaps thinking ahead to his upcoming work on the Board of Trade contest and bill, wrote to Folsom "I am not feeling well, and am in that mood which leads me to regard any one who meddles with sanitary matters, himself included, as a d--d fool. Yours biliously."[76]

In any case Billings was determined that the next annual report of the NBH would contain a more appropriate study of adulteration than the Kedzie "wastepaper basket" material, and in the spring appointed Dr. Charles Smart to conduct a thorough investigation. On June 1, 1880, Dr. Turner sent letters to health boards throughout the country asking them to assist Smart's investigation, and Smart sent out detailed questionnaires.[77]

What seems to have been most on the minds of Meyer and Angell was the approaching annual meeting of the American Social Science Association. At the September 1879 meeting Meyer had confronted Angell by himself. This time

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

practically the entire leadership of the chemical profession would attempt to discredit him, once and for all. Meyer, though he did not return from Europe in time for the meeting, obviously instructed Wingate to publicize the confrontation as much as possible.[78] Angell, having been told that "chemists were to come from various parts of the country to refute my charges, and allay public excitement," spent his entire summer vacation "preparing for the battle at Saratoga," now that "the great adulterating interests, involving many millions of capital, were aroused."[79]

ASSA sent invitations to leading chemists throughout the nation. Prof. Samuel W. Johnson would present the main paper on food adulteration, to be followed by remarks limited to ten minutes for each commentator. The Association "hoped that the question will be thoroughly discussed in a fair and scientific spirit. The great importance of the subject makes it very desirable to have all important points brought out."[80] It was also well known that Angell would be appearing, and surely many of those invited were eager to confront the man who had consistently attacked the credibility of their profession. As Sanitary Engineer had commented earlier, "when he charges leading chemists with dishonesty and ignorance of their profession," Angell's "wild and libelous declarations" deserve to be refuted.[81]

Wingate advertised the up-coming debate as the ultimate confrontation between scientific reputability and unscientific irresponsibility:

> The leading speakers are gentlemen of scientific repute, and may be expected to consider the subject in a conservative yet rational spirit ...so that the general public may know just to what extent adulteration exists, and what checks should be imposed to lessen its amounts and hazards. This discussion is timely, in view of our approaching competition for a draft of a law to prevent adulteration.[82]

Prof. Johnson, the key speaker, exemplified the reputable scientist of this period. He was professor of theoretical and agricultural chemistry at Yale, was the father of the system of agricultural experiment stations run

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by the states, and had been president of the American Chemical Society in 1878. Although not a man who sought notoriety, he was one of the most influential chemists of his generation.[83]

Johnson's lengthy paper clearly reflected the confusion about adulteration in the minds of even the most expert witnesses. It was a peculiar mix: a recitation of oft-told horror stories with the admission that he had never personally witnessed, and had trouble believing, most of them; a warning that adulteration was wide-spread, yet the assurance that (like Sharples and Leeds) he believed there was little danger inherent in it; and, running through it all, the insistence that the subject was best left to the experts.

Johnson claimed that most of the alarm raised about adulteration was unjustified. Many so-called adulterants--such as oleomargarine and glucose--were perfectly healthful foods, and the sharpest alarms had been raised about adulterations that were either scientifically absurd, or simply not true. Thus he dismissed, for example, stories about corrosive acids in glucose, and strychnine in liquor and beer. But the most common adulterations he considered--as had Sharples--merely customary: "certain additions to food that were originally fraudulent and gross adulterations, having been practiced without complaint for a long time, have acquired the sanction of use which exempts them from the charge of falsification or even makes them fairly respectable."[84] Into this category fell products like package coffee, mustard, and spices.

Certain practices Johnson condemned as clearly dangerous to health, especially the use of poisonous coloring in candies, even though these activities have "no doubt been oftener the result of ignorance than of intention, for evidently the most depraved candy-maker can have no object

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to kill his customers outright." He also condemned the use of alum in bread or in baking powders because, although not as serious a practice as poisonous colorings, alum was unquestionably dangerous, though Johnson noted that he had never personally found any used by New Haven bakers: "The bread of that city is in fact of better quality than it was from five to twenty years ago."[85]

Johnson concluded that Americans were not "liable to suffer in purse and health from the adulterations that are now practised upon our food," and cautioned against those enthusiasts who "would have us believe that we are really defrauded and poisoned in a wholly reckless manner." "Only experts" were qualified to evaluate the problem, and "probably the fingers of one hand would suffice for reckoning the number of analysts in the United States, who today are competent" to make such judgments.[86] But this was not to deny that adulterations did exist, at least in some of the largest cities: "whenever the falsification of any article can be carried on with much profit and little risk, that moment the adulteration will most probably begin."[87]

In the debate that followed Johnson's paper Angell, using his position as an ASSA director, "obtained the privilege of both opening and closing the discussion."[88] Sanborn's Journal of Social Science covered his comments in full, while noting that only a few of the other remarks "have been preserved."[89] And though Angell began by explaining that he could not do justice to his topic in the time available, it is obvious from the recorded remarks that he took far more than the ten minutes allotted to him.

Despite his assertion that much of what he had to say was new, most of Angell's comments and "evidence" had been used by him previously, and the credibility of the two "experts" he cited was weakened by the fact that

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

their expertise was vouched for merely by one another, and by an assortment of non-professionals, including judges, a humane society leader, a banker, and two merchants. This could not have impressed the eminent chemists who shared the platform.

Angell specifically attacked glucose and oleomargarine at length because he saw Thurber, who was deeply involved in their production and sale, as his chief antagonist, as the secret force who induced others to attack him. While preparing for this "battle" at Saratoga Springs, Angell wrote: "I knew perfectly well that the great oleomargarine and glucose interests alone could easily raise a million of dollars as a fighting-fund, and would not yield their enormous profits without a struggle."[90] At the time of the ASSA convention Angell was already planning specific accusations against Meyer, Billings, and Thurber, whom Angell saw as the financial backer of the corruptionist forces.[91]

Sanitary Engineer, which devoted little space to Angell's part in the debates, summarized the comments of the chemical experts more fully than had Sanborn. Prof. William R. Nichols defended the purity of glucose and oleomargarine, though noting that they should, indeed, be sold under their own names. "He believed that the adulterations now practised are of a fraudulent and not of a dangerous character, and that, with the exception of a few things which are almost universally adulterated, there is no difficulty in obtaining in a state of practical purity all the necessary articles of food and drink by paying a fair price for the same,"[92] which is what Sharples, and now Prof. Johnson, had said. But the chief "defense" expert, according to Sanitary Engineer, was Prof. Ira Remsen.

Remsen reported that he "had tried hard to find samples of deleterious adulterations, but he had been surprised to discover how small their number

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

was, and he had come to the conclusion that they were not a cause for serious alarm." He challenged Angell's two "experts," and offered to test, free of charge, any alleged adulterations they cared to send him. He pronounced that he had never actually found even a trace of tin in sugar, even if the sugar had indeed been "bleached," and that the tiny traces of tin occasionally found in syrups "was not sufficient...to render the syrup a dangerous article of consumption, unless taken into the system by the gallon." Remsen "did not desire to cover up or excuse any adulteration of food now in vogue, but merely to do what he could to allay what must be termed foolish fears." In a final thrust at Angell, Remsen "questioned the value of evidence furnished by a chemist whose scientific standing had to be vouched for by a county Justice of the Peace."[93]

After some others had spoken (Wingate, for example, also stressing the need for expert, rather than amateur, testimony), Angell read some additional letters, and spoke at length, reiterating the points he had already made, some of which had been ridiculed by the other speakers, including Johnson himself. There were a few additional comments, Angell's colleague Sanborn, for example, urging that all adulterations should be prosecuted, "not overlooked and considered as necessary evils from which the poor must always suffer."[94]

But an interesting light can be thrown upon this debate by examining a letter Prof. Remsen addressed to Dr. Billings the very next day. Remsen, the star chemical witness against Angell in the debates, became one of the best-known names in the history of American chemistry, professor of chemistry and later president of the Johns Hopkins University. A licensed physician as well, Remsen is considered to have been the leader of the modernization of American chemical studies. He would become one of the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

inventors of saccharin, president of the American Chemical Society, first recipient of the Priestley Medal, and president of the American Association for the Advancement of Science. In 1879 he founded the American Chemical Journal, was already the nation's foremost expert on water supplies, and a member of the National Academy of Sciences. He was noted for refusing to do chemical work for private parties, and was held in the highest esteem within the profession.[95]

Remsen wrote to Billings, in response to a request Billings had sent, for "any notes which might be at my disposal regarding adulterations of food," for inclusion in the next NBH supplement. Remsen reported "As regards the subject of food adulterations, I have very little to say. I have just returned from the Social Science meeting at Saratoga, where a few of us met the great Angell in battle array." He then repeated to Billings the statements he had made regarding tin salts used for bleaching sugar, and glucose adulterations in syrups, but then went on to confess privately:

> On the other hand the syrups from these sugars were found to contain a minute trace of tin, though not enough, I believe, to cause any injurious effects in the human system. This is only a belief on my part, however. If I had the opportunity I would undertake an exhaustive examination of the whole subject of tin as a possible constituent of articles of food, including the sub-subjects: 1) the occurrence of tin in food; 2) the form in which it occurs; 3) the effect of small doses of tin in various forms taken into the body--In regard to the latter point we really know very little. The authorities do not agree, and all our information may be said to be very indefinite.[96]

In other words, Remsen, though he would later become a renowned expert on the subject of adulteration,[97] was at this time only thirty-four years old, and had made very positive statements at the convention, when in reality he only suspected that they were true, and if fact privately admitted that, with the exception of sugar, he knew little about adulterations of food.

* * * * * * *

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

After the ASSA convention Angell began making plans to spend the next months in Washington, in an attempt to get his "evidence sent over the country in the authoritative form of a congressional report."[98] Meanwhile Billings, Meyer, and Chandler began making plans to meet after the contest deadline of October 1 had passed. There were only four entries Meyer thought worthy of consideration for the three prizes to be awarded, and he sent copies to the four judges. They made plans to have Sanitary Engineer print galleys of the essays and draft acts, and to meet at the end of October in New York City, Meyer inviting Dr. and Mrs. Billings to stay over at his home.[99]

The correspondence between the three men clearly indicates that it was not the choice between the four entries that concerned the judges, but rather the official NBT draft bills for the state and national legislation. Even before the winners were picked it was apparent that none of the draft bills among the entries were considered to be satisfactory, and that the judges would have to write up their own version of the legislation, drawing from the entries when appropriate, and using the contest to validate their actions. Yet they were obviously in basic agreement about the parameters of any draft legislation, for Billings and Chandler felt "We can agree on main outlines of Report on Tuesday and finish it Wednesday afternoon. I don't think it will be very troublesome."[100]

Meyer selected hotel accomodations for the committee meetings, arranged a reception with local reform leaders at the Union League Club, and staged a dinner Tuesday evening at Delmonico's, where local businessmen could meet the judges.[101] The committee met the last week of October, and quickly made their selections and agreed upon a draft report, to be published along with the winning essays. It would not appear that any of the entries, how-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ever, impressed at least Chandler. On the galleys of the four essays he commented (for the eventual winner): "aludes to medicines. /the contest was supposed to deal only with foods/ Schedule of definitions does not provide for hair dyes--Pat. meds. contains poisons. Written by an Englishman. Impossible law. I miss the materials he says he gives." For the second prize entry Chandler had less to say: "Argument against adulteration excellent--few facts presented. Law good." For the third place winner he had no comments at all, and for the honorary mention fourth essay, only the word "exaggerated."[102]

A letter sent to Dr. Billings by Orlando W. Wight, the author of the fourth-place essay, would appear to justify Prof. Chandler's reservations about the quality of the entries:

> My essay and draft of law sent to the Committee of award for the best adulteration of food act, were not properly prepared. I made a mistake in time. It was my intention to give the leisure hours of a month to the work. Turning to the announcement in the Sanitary Engineer, for a careful consideration of the requirements, I found that I had only two days time, instead of thirty. In two evenings, after working hard all day, I wrote the essay and drew the bills, which a young lawyer friend of mine, son of the Chief Justice of the State, copied after me and I sent them on: an audacious tour de force.[103]

By Wednesday, October 27, the committee's report had been prepared for NBT president Fraley. This, along with all the essays, was then printed in full in a twenty-three page Supplement to Sanitary Engineer.[104] First prize was given to Prof. George W. Wigner, secretary of the Society of Public Analysts, the English organization founded in 1874 to help prepare "clear definitions of adulteration and standards or limits of purity," to aid in the administration of the British food and drug laws.[105] The other winners were Vernon M. Davis, of New York, and Dr. William H. Newell, a member of the New Jersey State Board of Health. Also printed were the essay by Dr. Wight, the Health Commissioner of Milwaukee, Wisconsin, and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

some remarks by Albert B. Prescott, a physician and chemist, and founder of the University of Michigan School of Pharmacy.[106]

What elements in Wigner's winning essay attracted the committee, besides his succinct definitions of food and drug adulterations? Wigner credited the lack of adulteration legislation in most nations to three factors: consumer apathy; "the quiet opposition exerted by the comparatively small number of traders who really carry on dishonest practices"; and "the exaggerated statements which from time to time have been put forward by alarmists." Wigner also adopted the position taken by Sharples, Leeds, and Johnson, which stressed the culpability only of those vending deleterious articles, largely excusing those who dealt in "harmless" fraud. Wigner also implied that the early findings of high amounts of adulteration, by men like Hassall, were based on biased and/or naive assumptions, and went on to state that while, in 1860, the state of adulteration may indeed have been bad, the most common adulterations had virtually disappeared, with a few exceptions, such as watered milk.[107]

The recent English studies cited by Wigner, which showed that about 17% of the foods and drugs tested were adulterated, were largely dismissed as insignificant, again with the exception of milk, which Wigner noted constituted about half of all reported adulterations. The other accusations were presented as being basically matters of interpretation: oleo sold as butter, chicory in coffee, or flour in mustard--things Wigner dismissed as being either commonplaces of the market, or virtually innocent deception. The only really severe criticism he reserved to the cases of drug adulteration, not merely because of the importance of unadulterated drugs for proper treatment, but because "A chemist and druggist in England is supposed to be an educated man, with special knowledge of his own articles, as shown

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by his having passed an examination, and he ought to be able to ensure that the goods he sells are up to the standard."[108]

The conclusions of the committee report probably came as no surprise; they were very much in line with the conclusions reached by Sharples in his essay in Hygiene and Public Health, and repeated by the chemists who confronted Angell at Saratoga. The committee condemned "the statements which for the last two or three years have from time to time been made with regard to the prevalence in this country of adulterations of food which are dangerous to health and life, and which have created so much agitation in the public mind." None of the winning essays contained evidence of "widespread...dangerous adulterations." Along with the information gathered by Dr. Smart for the forthcoming NBH Supplement on adulteration, this "absence of such evidence...fully warrants us in declaring that none of our staple articles of food or drink are so commonly adulterated as to be dangerous to health or life." The only adulterations specifically condemned as dangerous were the use of poisonous colorings, "as, for instance, in confectionery, and even these are rare," and the watering of milk.[109]

The committee further concluded that:

> The main objects of legislation upon this subject should be to prevent deception, to furnish to the public authoritative information, and to nullify the operations of ignorant and sensational alarmists, who damage the business interests of the country quite as much as do the evils of which they complain.

Thus the committee officially declared war upon Angell. Moreover, even though the original rules of the contest called for essays on the adulteration only of food and drink, the committee now decided that "We are of the opinion that there is much more danger to health and life in this country from adulterated drugs than there is from adulterated food." They

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

then laid the groundwork for the draft legislation they were about to prepare: "...we do not consider any of the Acts proposed to be satisfactory. In this matter it is much better at first to do too little than too much, and the first steps in such legislation should be tentative and educational in character."[110]

Any national or state law should be administered only by experts, and the committee encouraged the formation of state health boards in those states not yet having one. These enforcing agencies should have "a very considerable amount of discretion...limiting it only in the direction of possible over-rigidity." Boards of health were invited to define for themselves what constituted an adulteration, and "to exempt any article from the penalties imposed in the Act." Moreover, the committee cautioned against excessive penalties, urging a reliance on the public "exposure of fraudulent practices," and insisted that no fees should be paid to informants.[111]

With these guidelines, it was doubtful that any but the most corrupt manufacturer, wholesaler, or retailer of food or drugs could find much to object to in a law based upon the committee report. Meyer, Billings, and Chandler immediately set to work to draft a federal and a state version of the act. Their deadline was December 15, for Meyer wanted both draft bills ready for submission to the NBT's annual meeting. The approaching battle was whether the NBT concept of adulteration legislation would prevail, or Angell's more restrictive concept, for by the time the bill supported by Thurber was ready, Angell was already in Washington, lobbying strongly against his enemies.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER VI

[1]Peter W. Bruton, The National Board of Health (unpublished doctoral dissertation, University of Maryland, 1974), p. 170; New York Times, 4/7/79.

[2]Even after the creation of the New York State Board of Health in 1880 local boards continued to have such powers. See State Board of Health of New York, "Duties and Procedures of Local Boards of Health and Their Officers," (Publication no. 27, n.d.), p. 3; Laws of 1880, ch. 322 (May 18, 1880), the act establishing the State Board; Laws of 1882, ch. 351, public health act.

[3]In his NBH activities Dr. Billings always tried to consider the commercial situation, though he never let it override health considerations. For example, when trying to persuade the health authorities in Memphis to carry out NBH recommendations, he refused to "leak" information to the press. "I need hardly suggest that this matter should not be allowed at present to become a subject of discussion by the press, for it is sure to injure greatly the commercial interests of the City if such should occur." (Billings to R.W. Mitchell, February, 1881, Billings papers.) When Mitchell--an officer of the NBH--wrote back urging publication of the Memphis correspondence Billings responded that such action would only weaken chances for public health progress, and "injure Memphis." (Billings to Folsom, 3/8/81, Billings papers.)

[4]Stephen P. Sharples, "Adulteration of Food," in Albert H. Buck, ed., A Treatise on Hygiene and Public Health (New York, 1879), II, p. 351.

[5]Ibid., p. 354.

[6]The Treatise was apparently published in late August or early September, 1879, according to comments in the press.

[7]Buck, pp. 355-356. "Ship-bread" is hardtack; Sharples means that harmless grain products and by-products were used to dilute spices. Sharples' stress on deleterious adulterations reflected British enforcement of their Adulteration Acts. Although the law of 1860 condemned fraudulent adulteration as well, innocuous sophistications were accepted by 1872. Ernst W. Stieb, Drug Adulteration: Detection and Control in Nineteenth-Century Britain (Madison, Wisconsin: University of Wisconsin Press, 1966), p. 134, claims that this was "an effort to recognize public demand for different grades of substances and to avoid undue harassment of trade and commerce."

[8]Buck, pp. 356-357.

[9]Buck, p. 376.

[10]F. Leslie Hart, "A History of the Adulteration of Food Before 1906," Food-Drug-Cosmetic Law Journal, VII (January, 1952), 14. Hart deals mainly with Accum and Hassall.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[11]Congressional Record, 45th Cong. 3rd Sess. H.R. 5916 (1/20/79), p. 575; Times, 5/23/79. See Thomas A. Bailey, "Congressional Opposition to Pure Food Legislation, 1879-1906," American Journal of Sociology, XXXVI (July, 1930), 52; Gustavus A. Weber, The Food, Drug, and Insecticide Administration (Baltimore, 1928), p. 7.

[12]Sanborn to Atkinson, 12/22/84, Edward Atkinson papers. The appointment of Angell to speak on the topic for the 1885 meeting was a decision of the ASSA Council, not just of Sanborn.

[13]In 1876 membership was only 3,776, compared, for example to over 16,000 in New York, and almost 12,000 even in Maine. See Solon J. Buck, The Granger Movement, 1870-1880 (Cambridge, Massachusetts, 1913).

[14]Massachusetts Ploughman and New England Journal of Agriculture, 4/22/82.

[15]George T. Angell, Autobiographical Sketches and Personal Recollections (Boston, 1892), p. 62.

[16]American Grocer, 10/2/79, 793-794; Sanitary Engineer, 10/1/79, 346.

[17]Times, 9/11/79.

[18]Sanitary Engineer, 10/1/79, 352.

[19]American Grocer, 10/2/79, 793.

[20]See Sanitary Engineer, 11/1/79, 390; 11/15/79, 418; 12/1/79, 5; 1/1/80, 45; 2/1/80, 85; 4/1/80, 170. American Grocer, 11/20/79, 1253; 3/18/80, 727.

[21]Sanitary Engineer, 6/15/81.

[22]Times, 10/26/79.

[23]Times, 11/11/79; Sanitary Engineer, 12/15/79, 35. Leeds was the author of "The Adulteration of Food," Third Annual Report of the New Jersey State Board of Health (Camden, New Jersey, 1879), and of similar reports in later annual reports of the Board. The speech was delivered to the New York Academy of Sciences.

[24]Times, 4/14/79.

[25]Times, 4/30/79.

[26]Pure milk continued to be discussed, and there was concern over the oleomargarine question and alum, but these two "adulterations" are considered below.

[27]Congressional Record, 46th Cong. 1st Sess. H.R. 2014 (5/23/79), p. 1552, discussed more fully below, pp. 186-190.

[28]Angell, Autobiographical Sketches, p. 67.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[29]American Grocer, 11/20/79, 1253. See Lee Benson, Merchants, Farmers, and Railroads (New York, 1955), p. 138.

[30]Sanitary Engineer, 1/1/80, 45. Of course, the idea for the competition may have been Thurber's.

[31]Fraley had been a Pennsylvania state senator, organized the Philadelphia Board of Trade in 1838, became president of the board of Girard College, and helped establish the NBT; he "became its first president and has been reelected each year." National Cyclopaedia of American Biography (New York, 1897), VII, p. 513.

[32]Proceedings of the Tenth Annual Meeting of the National Board of Trade, Held in Washington, December, 1879 (Boston, 1880), Introduction.

[33]Benson, Merchants, pp. 22-23, 211-212. The NBT prospered over the next years. The National Association of Manufacturers was not formed until 1895, and the national Chamber of Commerce until 1912.

[34]James Q. Wilson, Political Organizations (New York: Basic Books, 1973), p. 146, points out that it was not in industries controlled by small numbers of large corporations that business associations were stimulated, but rather "in those industries characterized by fragmentation, competition, and localism....Associations formed disproportionately, it appears, in those industries that were unable to achieve control over their resources and markets."

[35]NBT Proceedings, 1879, p. 115.

[36]Ibid., p. 161.

[37]Ibid., pp. 161-162. For information on Snow see Proceedings of the New York Board of Trade and Transportation (New York, 1883), p. 24.

[38]Billings to Folsom, 12/14/79, Billings papers.

[39]This was Meyer's second contest; the adulteration competition was the third. Billings wrote that Meyer's "prize tenement house plans worked so well that he is going to do the same thing for School Houses....He is a good man & deserves good counsel for he appreciates it." (Billings to Folsom, 10/6/79, Billings papers.)

[40]The Times published the NBT resolution for the organization of "a committee of experts" on 12/13/79, but the members' names were not yet known.

[41]Billings to Folsom, Christmas, 1879, Billings papers.

[42]Published as appendices D and E of the Annual Report of the National Board of Health, 1879 (Washington, 1880), and as National Board of Health Bulletin, Supplement No. 6; R.C. Kedzie, "The Adulteration and Deterioration of Food," NBH Bulletin, Supplement No. 6, pp. 28-29.

[43]For example, Diehl included a summary of the reported general quality of 212 common drugs and chemicals, adapted from APhA Proceedings reports.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[44]C. Lewis Diehl, "Report on Deteriorations, Adulterations, and Substitutions of Drugs," NBH Bulletin, Supplement No. 6, p. 1.

[45]Diehl lived in Louisville, Kentucky, and was a very active member of APhA. He was instrumental in modifying the pharmacy law of Kentucky in order to benefit practicising pharmacists and to hinder the activities of the patent medicine makers and dealers. He was a member of the Kentucky State Board of Pharmacy.

[46]NBH Bulletin, Supplement No. 6, p. 2.

[47]Ibid.

[48]Ibid., p. 20.

[49]Ibid., p. 9.

[50]For a treatment of patent medicines, see James H. Young, The Toadstool Millionaires, A Social History of Patent Medicines in America before Federal Regulation (Princeton, New Jersey: Princeton University Press, 1961), and D.L. Dykstra, Patent and Proprietary Medicines: Regulation Control Prior to 1906 (unpublished doctoral dissertation, University of Wisconsin, 1951).

[51]NBH Bulletin, Supplement No. 6, pp. 20-21.

[52]American Grocer was aware of this potential threat to the retail grocers, and to wholesalers like Thurber, who maintained his own pharmaceutical department. See issues of 5/6/80, 1177; 5/27/80, 1366-1367. The paper called the attempt of the New York State Pharmaceutical Association to form "a Druggists' Protective Association, limiting the trade in certain articles to their own class....a monopoly...if it is an encroachment on the druggist's business for a country merchant to sell paragoric /an opiate commonly used for stomach cramps/ and magnesia, the druggist encroaches equally.../by having/ a soda fountain, a case of cigars, stationery, combs and brushes...." American Grocer, 6/10/80, 1494.

[53]National Board of Health Bulletin, I, no. 33 (2/14/80), 249-250.

[54]NBT Proceedings, 1879, p. 162.

[55]Sanitary Engineer, 1/1/80, 45.

[56]The National Cyclopaedia of American Biography (New York, 1904), XII, p. 337.

[57]The National Cyclopaedia of American Biography (New York, 1945), XXXII, p. 237.

[58]Proceedings of the Eleventh Annual Meeting of the National Board of Trade, Held in Washington, December, 1880 (Boston, 1881), p. 26: "Mr. Gano was in Europe during the summer and autumn, and was, therefore, unable to serve." Membership in the NBT had risen to twenty-seven organizations.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[59]The earliest letters were from George B. Frye of Minneapolis (1/31/80), and A.C. Reed, secretary of the Chicago Health Union (2/2/80). Wingate handled the details of administration for Meyer. Angell's pervasiveness penetrated even into letters coming from businessmen. The representative of the Local News Co., the agency representing the Chicago Merchants' Reporter, asked "Is it true they grind stone and put it in food in New Jersey?" (no signature, 2/16/80, Wingate papers.)

[60]Congressional Record, and House of Representatives Journal, 46th Cong. 2nd Sess. H.R. 4738 (2/25/80).

[61]New York Board of Trade and Transportation Minutes, February, 1880.

[62]Benson, Merchants, pp. 63-79.

[63]NYBT&T Minutes and Proceedings. The name change took place at the meeting of September, 1877.

[64]Benson, Merchants, pp. 60-61.

[65]Congressional Record, 46th Cong. 2nd Sess.

[66]The Manufacture of Articles of Human Food and Drink, 46th Cong. 2nd Sess. H. Rept. 346 (Washington, February 25, 1880), p. 2.

[67]Sanitary Engineer, 3/15/80, 151.

[68]Ibid.

[69]Manufacture...H. Rept. 346, p. 3, explains that Angell "has devoted many years to investigations of adulteration of food...."

[70]American Grocer, 3/18/80, 727.

[71]Sanitary Engineer, 3/15/80, 151.

[72]H. Rept. 346, p. 2.

[73]Annual Report of the Commissioner of Agriculture for the Year 1879 (Washington, 1880), p. 79.

[74]H. Rept. 346, p. 3.

[75]Ibid., and Annual Report of the Commissioner of Agriculture for the Year 1878 (Washington, 1879), p. 128.

[76]Billings to Folsom, 4/27/80, Billings papers.

[77]Copies in Chandler papers.

[78]Wingate to Billings, 9/21/80, Billings papers.

[79]Angell, Autobiographical Sketches, pp. 67-68.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[80]Form letter from E.W. Cushing, Secretary of the Department of Health of ASSA, 5/3/80, Chandler papers.

[81]Sanitary Engineer, 2/1/80, 85.

[82]Sanitary Engineer, 9/1/80, 369.

[83]Charles A. Browne and Mary E. Weeks, A History of the American Chemical Society (Washington, 1952), pp. 471-472; Dictionary of American Biography.

[84]Journal of Social Science, XIII, part II (1881), 100. The paper was published in full as "Adulterations of Food," Good Company, V, no. 12 (August, /sic/ 1880), 546-560, but the magazine did not cover the debate that followed. The Journal copy has been used for quotations, with typographical errors corrected on the basis of the Good Company printing.

[85]Journal of Social Science, 110, 121.

[86]Ibid., 116-117.

[87]Ibid., 121.

[88]Angell, Autobiographical Sketches, p. 68.

[89]Journal of Social Science, 123.

[90]Angell, Autobiographical Sketches, p. 67.

[91]See Adulteration of Food, 46th Cong. 3rd Sess. H. Rept. 199 (Washington, 2/4/81), discussed in chapter VIII, below.

[92]Sanitary Engineer, 10/1/80, 410.

[93]Ibid. In the New York Times' coverage of the debate, 9/9/80, Remsen is quoted as saying "that a person who should use glucose syrup to the extent of two gallons at one time might be injured by deleterious substances therein."

[94]Journal of Social Science, 135. Among the other chemists attending were S.A. Lattimore of Rochester, N.Y., Prof. C.R. Fletcher of Boston, Dr. Clifford Mitchell of Chicago, and Dr. Ezra M. Hunt of New Jersey.

[95]Browne and Weeks, American Chemical Society, p. 478; Dictionary of American Biography. After the passage of the Pure Food and Drug Act of 1906 Remsen became chairman of the Remsen Referee Board, which studied the administration of the law, and passed judgments on the purity and adulteration of foodstuffs. See Oscar E. Anderson, Jr., The Health of a Nation (Chicago, 1958).

[96]Remsen to Billings, 9/10/80, Billings papers.

[97]Dr. Harvey W. Wiley, however, came to regard Remsen as a subversive expert. See his The History of a Crime Against the Food Law (Washington, 1929), pp. 160-204, 230-237; and An Autobiography (Indianapolis, 1930), pp. 241-246.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[98]Angell, Autobiographical Sketches, p. 69.

[99]Billings to Chandler, 10/8/80, Chandler papers; Meyer to Billings, 10/11/80, Billings papers.

[100]Billings to Chandler, 10/17/80, Chandler papers.

[101]Meyer to Billings, 10/23/80, Billings papers; Billings to Chandler, 10/24/80, Chandler papers. The committee met at the Hoffman House (Meyer to Chandler, 10/22/80, Chandler papers). Arthur M. Schlesinger, The Rise of the City, 1878-1898 (Chicago: Quadrangle Books, 1971), pp. 107-108, explains that Delmonico's, at Fifth Avenue and 26th Street, served "the best meals in America, at the highest prices. There important political conferences were held...and distinguished foreigners were feted."

[102]Chandler papers.

[103]Orlando W. Wight to Billings, 11/24/80, Billings papers.

[104]American Grocer reprinted the committee's report, as well as the Wigner and Davis essays. According to the NBT Proceedings, 1880, p. 27, the Supplement was published with the 12/1/80 issue of Sanitary Engineer, but the NYPL copy is bound together with the 1881 volumes.

[105]Stieb, Drug Adulteration, pp. 131-132, explains that Wigner's definition of drug adulteration in his prize essay was essentially the definition that had been adopted by the Society of Public Analysts.

[106]Davis' name does not appear further in relation to this subject. He probably was Vernon Mansfield Davis, who graduated from Columbia Law School in 1879, and later became a New York judge. Newell would soon play an important part in the legislative efforts of the NBT. Some peculiar comments about glucose, attributed to Wight, had been used by Angell. Judith W. Leavitt, The Healthiest City. Milwaukee and the Politics of Health Reform (Princeton: Princeton University Press, 1982), p. 49, notes that Wight was a devoted health crusader, though somewhat of a "windbag."

[107]Sanitary Engineer, "Supplement," ii-iii.

[108]Ibid.

[109]Ibid., p. i.

[110]Ibid.

[111]Ibid.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER VII

LEGISLATIVE SUCCESSES

Even before Meyer, Billings, and Chandler had prepared the National Board of Trade adulteration bill opposition was gathering. Not only was Angell in Washington, campaigning against them, but some of the press was intensely suspicious. The New York Tribune accused the committee of having "knocked most of the powder out of their cartridge by saying, as they do in substance, that none of the staple articles of food or drink in our markets are so commonly adulterated as to be dangerous to health or life." The paper accused them of being chiefly concerned for the "protection of dealers."[1]

The Grocer reprinted the Tribune editorial,[2] and the Journal of Commerce accused the committee of "giving aid and comfort to the food adulterators" by insisting that adulterations were not "dangerous." The paper condemned the chemists who had made this same point when confronting Angell at Saratoga, and lashed out at chemists who defended immoral practices: "If these men had been paid for their opinions by the adulterators they could not have defended their employers more ably."[3]

In this atmosphere Meyer, Billings, and Chandler had to appear to be like Caesar's wife; any bill they prepared had to condemn all adulterations, or its legislative chances were slight. Billings was assigned the job of drafting federal legislation, Chandler was to write the state bill, while Meyer coordinated their efforts and stayed in touch with Dean Williamson,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Alpheus Hardy, and Thurber. On November 10 Billings sent Meyer his rough draft, and asked him to have Chandler go over it, and then send it on to the other judges: "I don't submit it as perfect, but it will do for a beginning."[4]

Two weeks later Chandler sent Billings' draft back to Wingate, making no significant changes. Chandler agreed with Meyer that copies should now be made of the bill for each member of the committee, and promised to get to work "at once" on the state version of the law.[5] Meyer asked Wingate to have "the type writer people" make up three extra copies, so he could mail Billings' draft to Hardy and Williamson,[6] and also urged Prof. Chandler to complete the state bill quickly, before the NBT annual meeting. He noted that "Mr. Angel /sic/ has written me that he has taken up his quarters in Washington for the winter when he proposes 'to push legislation'--It is desirable therefore that we get sensible bills before Congress because if we don't they will likely pass one after his notions."[7]

Meyer also wrote to Billings, whom Thurber was counting on as his Washington "connection," both for the upcoming NBT meeting in the capitol, and for lobbying:

> I hasten to enclose a note from Mr. Thurber. You might write out what you want and mail it to me and we can prepare the report after we get to Washington.
>
> Chandler approves your bill. I have had copies made and sent to Hardy and Williamson--Chandler is at work on the state bill.
>
> I thought you would be apt to gauge Angel /sic/ after seeing him.
>
> You might write out any suggestion for Thurber report while en route to New Orleans.[8]

But meanwhile Hardy and Col. William Prentice--now the counsel for the New York State Board of Health--both found flaws in Billings' draft. Billings had, like the Beale bill which Meyer and Thurber had opposed, included the word "knowingly," and Hardy doubted that the courts could "fix knowledge and intent" on corporations.[9] But the only strong objection Hardy made related

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to the enforcement clauses: "I recommend that the provisions of this act...not effect business actually entered upon at the time of its passage."[10] When Meyer sent this letter on to Chandler, he included a note interpreting Hardy's objection as asking for a delay of "60 or 90 days after its passage" before the law went into effect, so that "innocent parties" holding adulterated articles "manufactured before the passage of the Act" could legally sell them to consumers.[11]

In contrast to Hardy, Col. Prentice found the bill objectionable, and legally questionable. He wrote Chandler that he had "no interest or confidence in the law such as you may have," and suggested that the legal experts employed by the National Board of Health should "put it into shape." As for himself, despite all the legal work he had done for Chandler and the New York City and State Boards, he did not wish to attempt its reworking, for "personal reasons": "I don't care to be reviewed and remembered by a lot of doctors & officials." Moreover he judged the $50 penalty "too small for a misdemeanor," and argued that the law should permit citizens to start civil action against offenders, "and finally that it be made the duty of U.S. Atty's to enforce the law."[12]

But the low $50 penalty was retained, and the legal option of citizen action, which the Beale bill had also called for, and which Meyer had objected to as an invitation to "bummers and dead beats," was not added. Mr. Hardy's complaint, however, was acted upon by the committee, with the addition of a brief final section to the draft, providing for a ninety-day delay in enforcement.

Billings, now in New Orleans for an American Public Health Association meeting, addressed the question of commerce and public health in a manner consistent with his "Introduction" to Buck's Hygiene and Public Health,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

but with a new poignancy. He may have had in mind, not only the continuing difficulties experienced by the NBH with the Louisiana health officials, but also the NBT bill. He noted that, when times were good, the people refused to listen to the sanitarians; only a pestilence could arouse them. "They say to the sanitarian who is warning them: 'Hush, wait a little. Don't make a fuss. You will injure the reputation of the city. You will drive away commerce. We are no worse than our neighbors....'"[13]

Meanwhile Prof. Chandler had hastily completed a draft of the state bill in time for the NBT meeting. In addition, Meyer had hoped to have the bill ready for presentation to the New York State legislature, before it completed its session for 1880. He sent an urgent telegram to Chandler, from Albany, asking "Is there any probability that draft of state law will be ready to secure assent of members of committee before tuesday the fourteenth."[14] But Chandler's draft, if it indeed reached Meyer in Albany, was apparently so inconsistent with Billings' draft of national legislation that Meyer failed to submit it at this time, hastily journeying to Washington to participate in the NBT session.

By mid-December Chandler was having second thoughts about Billings' proposal; he not only questioned many of Billings' definitions, but had apparently been persuaded by Col. Prentice to ask for more dramatic changes. On December 14 he wrote to advise Billings to drop all "standards" and specific descriptions from the federal draft: "I think those details should be left to the National Board of Health, as it is impossible before hand to get those standards exactly right, & it may be desirable to change them from time to time." He also now supported Prentice's complaints about the $50 penalty being "rather a small one for a maximum," and the need to direct district attorneys to prosecute violators. He noted that he had completed

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"a very hasty draft of a State law," and had sent it on to Meyer, who "will show it to you, and has promised to return it to me for revision."[15]

No complete copy of Billings' original version seems to be extant, and so a thorough comparison cannot be made, but the final version of the federal bill adopted by the NBT accepted some of Chandler's and Prentice's suggestions.[16] Billings, having received Chandler's letter, and his draft of the state bill, had written back on December 15:

> I quite agree with you as to the propriety of leaving the standards or limits to be fixed by Boards of Health and will make the necessary change in the proposed National Act.
>
> I have also put in a clause relative to the duties of district attorneys.
>
> With regard to the amount of penalty I was desirous of getting it too low rather than too high. Very likely that will be increased in the Congressional Committee.[17]

Thus, the final version called upon district attorneys, once notified by the NBH, to take legal action. It dropped all proposed standards for foods, and left all specific definitions, and all determinations about exemptions, to the NBH. Similarly, the final state bill, when completed, left all such decisions to the state boards of health. Whether this weakened or strengthened the bills is a matter of opinion, but it seems clear that considerable room for negotiation and compromise was created by the decision to leave out firm formulas for even the most basic foods.[18] Similarly, the nominal nature of the punishment can be interpreted as being either a way to encourage prosecution of violators, or a guarantee that reputable businessmen would never be in danger of imprisonment.[19]

What appears to be part of Billings' original draft (with Wingate's notation "Don't print this" on top) gives definitions and descriptions that are more complete than in the final version. There are not, however, many substantive differences. The original version (see Appendix A) included animal feed in its definition of food. It also limited the trade

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

names given to food mixtures, and implied that all admixtures, in order to avoid prosecution, would have to bear content labeling. Billings' original version also had a vague general definition of "standards": "...a fair and legitimate standard, ensuring such substance and grade and quality as the consumer may properly expect to obtain under the name by which the article is furnished." This clause could conceivably cause a great deal of inconvenience to manufacturers and dealers, and the version adopted by the NBT eliminated it.

But before the NBT could consider the final Billings draft, with these last-minute changes incorporated, Thurber found himself facing a small rebellion. It will be remembered that at the 1879 session of the NBT a committee consisting of Thurber, Ambrose Snow, and George L. Buzby had been appointed to confer with Billings regarding the relations between the two groups. The NBT was especially concerned about the effect of the health board's "bearing upon commercial interests," and Thurber now reported favorably, and advised complete support for the work Billings had been doing. But some of the sanitary decisions of the NBH quite naturally had an impact on business interests and investments, and some of these activities now threatened to cause the NBT to cut off its support, much as Billings had complained of only a week earlier, in his New Orleans speech.

In 1880 the NBH had conducted a sanitary study of Baltimore, and, to the discomfiture of the local board of health, condemned its sewerage system. Now the representatives to the NBT from the Baltimore business community raised objections to the Thurber committee's motion that the NBT support the Board of Health in its efforts to get additional Congressional appropriations. Although Meyer and Thurber argued strenuously on behalf of the NBH, the tenor of the minutes indicates serious difficulties

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

because of the objections of William S. Young, of Baltimore.

John P. Wetherill, of Philadelphia, normally a Thurber supporter, began to echo Young's concerns, and Thurber was in danger of losing control of his motion. Wetherill was afraid of the extent of power potentially held by the NBH, warning "if such power exists, or if parties not so kindly disposed as the gentlemen now in office were to succeed them, they might make serious and permanent trouble, and put a city like Philadelphia to a great deal of commercial embarrassment."[20]

Thurber, clearly doubtful about having his resolution adopted, called for a postponement of consideration until the next day. The next afternoon Young completely reversed his position, having in the meantime been introduced to Dr. Billings by Thurber, and persuaded by them that the "National Board of Health will bring about results which must be beneficial to the country at large."[21] Thurber's resolution was adopted, and the NBT then turned to consideration of the adulteration competition.

The competition committee's report was accepted, and Meyer moved that the NBT and its constituent members work to promote both the national and state legislation. Only the revised Billings draft was specifically included at this time--December 16, the day after Billings wrote to Chandler accepting some of his suggestions--for Chandler's state draft was still uncompleted. Thurber spoke in favor of the resolution, and tried to push it through without discussion or amendment:

> The bill presented is too elaborate to admit of very close study at this time....While it may seem as if we were adopting a bill without weighing carefully each provision of it, this Committee consisted of experts selected by our President. They were, perhaps, the best qualified men in the country to judge of this matter; and from what I have seen of the bill I believe that it is the result of the very best and most intelligent effort in that direction.[22]

Nonetheless two amendments (unspecified) had to be accepted by Thurber

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

before he was able to get the resolution adopted and the bill approved. (See Appendix B.)

Most of the national bill was adapted, with changes in language, from two of the prize essays. The very important section 8, on definitions of adulteration, was largely taken from Wigner's winning draft, in place of Billings' original material. Most of the language of the first five sections were modified versions of Newell's third-place entry. Newell's material was, presumably, chosen over Wigner's and Davis' because he dealt at length with protection for the importer and wholesaler, and both Hardy and Thurber were certainly interested in having those protections incorporated. The specific limitations on common products such as milk, which had been included in Wigner's definitions, were dropped, presumably to comply with Chandler's protest of December 14.

The Committee added sections 5, 6, and 7, establishing the National Board of Health as the central enforcement agency for the law. The three winning essays had envisioned the law being enforced by state boards, with perhaps some aid and oversight from the NBH. Also new was most of part b7, of section 8, specifically authorizing the NBH to exempt "certain articles or preparations," and stating that "the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles of food, provided that the same are not injurious to health and that the articles are distinctly labelled as a mixture, stating the components of the mixture."[23]

This was apparently a compromise measure, exempting very large numbers of common food products from prosecution, yet requiring some degree of content labeling. This provision was further enhanced by section 9, which made it the "duty" of the NBH to declare "lists of articles, mixtures, or compounds" to be exempted--perhaps without the labeling required by the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

previous section. Section 9 also permitted the NBH to "fix the limits of variability permissable in any article or compound"--a very broad discretionary power.[24]

* * * * * * *

While Meyer organized a lobbying effort on behalf of the federal bill, Chandler continued to struggle with revisions of the state version. It is clear that his intention was to construct language somewhat different from that of Billings' draft. Meyer also transmitted Billings' further suggestions to Chandler, noting especially that difficulties might arise through the inadequacy of the "chemists" whom Chandler's draft would permit local boards to employ.[25] Chandler apparently took this recommendation into consideration, for the final draft of the state bill granted to the State Board of Health the power to revoke "the appointment of public analysts and chemists...whenever it shall deem any such officers incompetent."[26] (See Appendix C.)

Still, it was not until a month later that Chandler finally completed his draft of the state legislation. Meyer informed Billings that Chandler and Prentice had "changed the language of the State bill somewhat and I will now put it into type & send it to you for your views before sending it to Mr. Hardy or Mr. Williamson" for their approval.[27] Chandler's final version, despite all the time he had taken to complete it, was basically the same as Billings' national bill, with the obvious differences called for by the fact that the bill was limited to the state level.

The definitions of adulterated drugs and foods are identical (taken from Wigner), and Chandler gave to the State Board of Health the same power of declaring exemptions that Billings had given the NBH. He also,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

like Billings, exempted "mixtures or compounds recognized as ordinary articles of food." Though this appeared to be a very broad withdrawal of authority, it would allow the Board of Health to render the final verdict on just which foods were "ordinary." And although Chandler's bill, even more than Billings', made very specific provision for the gathering of suspected samples by the analysts appointed under the law, he too was careful to make no provision for "bummers and dead beats" to collect samples on their own.

The penalties assigned were similar to those of the national bill: a fine of $50 for a first conviction and a maximum of $100 for subsequent offenses; Chandler's bill, despite his letter to Billings urging harsher sentences, did not call for imprisonment. There seems to be only one substantive difference between the bills: Chandler left out the word "knowingly." Consistent with his enforcement of the New York milk laws, Chandler felt that only the illegal act itself need be proven, not knowledge of illegality.[28]

* * * * * * *

While Thurber, Meyer, Billings, and Chandler began lining up support for both of their bills, opponents were also busy, either attacking the NBT/NBH proposals, or promoting their own versions of legislation. The Tribune attacked the limited scope of the NBT federal bill, arguing that a broader interpretation of constitutional powers would allow the government to "strike squarely at the manufacture and sale of fraudulent and injurious articles, and not endeavor to cure the evil by the roundabout way of prohibiting the transportation of such articles across State and National frontier lines."[29] Soon both the Tribune and the Journal of Commerce

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

were directing their most vicious attacks against oleomargarine and against Thurber, the largest oleo distributor. These attacks coincided with a state investigation of the industry in 1881, and intimated that Thurber's proposed legislation was camouflage for continuing oleomargarine production and sale.

The Tribune criticized newspapers (such as the Times) which were courteous to Thurber:

> apparently in profound ignorance as to who or what this F.B. Thurber is. If he wishes to rush before the public at all, there are several things about him in which the people might take a greater interest than in his opinions on any subject whatever. They might like to know, for instance, whether it is true that he was long largely engaged in selling oleomargarine for butter, fraudulently concealing its real character; whether he used his position as president of the Dairymen's Association to deceive his customers into the belief that they were buying real butter, while he did what he could to destroy the business of the dairymen; whether he pretended to be a temperance man, while one of the main elements of his business was the manufacture of bogus brandy and whiskey out of crude alcohol and flavoring extracts; whether he has since been largely engaged in the manufacture of a bogus honey out of glucose....

The paper accused Thurber of merely posing "as the disinterested friend of the people and public-spirited philanthropist" in order "to advertise his groceries."[30]

The Journal of Commerce also attacked Thurber and the oleomargarine industry, but reserved its harshest criticism for the scientists, like Chandler, who allowed their names to be used in advertising testifying to its purity and wholesomeness. "If all the chemists, microscopists and sanitarians in the country should certify to the sublime virtues of oleomargarine /while being paid by the manufacturers/, their certificates would not be worth the paper on which they were written."[31]

Dr. A.N. Bell's Sanitarian, surprisingly, had little to say about either bill, merely reporting on them factually, though it may be speculated that Bell refrained from criticizing the bills out of respect for

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Billings. Dr. Billings had obtained Bell's appointment, in 1879, as one of the district sanitary inspectors for the NBH.[32] But this reluctance to render judgments on the bills seems to have been the pattern in much of the professional press. One major exception was New Remedies, which ran a series of editorials and debates on the NBT bill. New Remedies was the most important pharmaceutical trade journal of the period, and spoke as the unofficial voice of the American Pharmaceutical Association. It was important that Meyer gain APhA's support, though the pronouncement of the NBT committee that there was more to be feared of from adulterated drugs, than from foods, may certainly have started any such effort off on the wrong foot.

New Remedies, though officially edited by Dr. Frederick A. Castle, seems to have been run primarily by the associate editor, Dr. Charles Rice. Rice was a man of many talents: a philologist and Sanskrit scholar, as well as a noted chemist. He was superintendent of the pharmacy department of Bellevue Hospital, New York, first vice-president of APhA, and chaired the APhA committee to revise the U.S. Pharmacopoeia from 1880 to his death in 1901.[33]

On December 31 Meyer managed to get a verbal commitment from Rice to support the NBT federal bill "on the assurance that it was not intended that the National Board of Health should interfere with standards made by any National Pharmacopoeia."[34] Rice also promised to try to get the support of Dr. John M. Maisch, the most important man in APhA at that time. Maisch had been manager of the U.S. Army Laboratory during the Civil War, then became professor, and then dean, of the Philadelphia College of Pharmacy, and served until his death. He was, in 1881, writing the important A Manual of Organic Materia Medica, became APhA's permanent secretary, was its chief

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

official expert on pharmaceutical adulterations, and editor of the American Journal of Pharmacy from 1871 until his death in 1893.

Meyer promised to recommend to Congress that it incorporate Rice's request into the legislation, even hinting to Rice that Billings had already made the same suggestion. Thus, without changing the language of the draft bill directly, Meyer was attempting to placate the pharmaceutical leadership. He wrote Billings that, though "the Quack Medicine Interest may oppose" the bill, "I think now the Pharmacists will be satisfied."[35]

In the February issue of New Remedies Rice gave the NBT bill reserved approval. He noted that "It is to be hoped that the Act which may eventually be adopted will have first been so modified by general criticism as to reduce to a minimum the opportunies for an inefficient discharge of duty by the inspectors, and evasion of its true intent by dealers."[36] The meaning of this sentence, considered in the light of the conversation between Rice and Meyer, was that APhA would not give unequivocal approval to the bill until it was amended so the the United States Pharmacopœia and APhA--which controlled the USP--were recognized as the undisputed authorities for all drug formulae, by which adulterations could be judged.

Meyer had anticipated this response, and had written to Billings in January requesting him to respond in the Sanitary Engineer to criticisms of the bill: "Suppose you therefore write the editorial sustaining it, pointing out that it has been prepared at the instance of merchants and is sustained by them. While good amendments may be made indicate such suggestions will have the consideration of the Comm. having it in charge."[37] He also asked Billings to see Maisch in Philadelphia, explaining that "A half hour's talk I am sure will satisfy them and do much good."[38]

But in the February issue of New Remedies Rice also published a letter

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

from an anonymous correspondent who submitted a substitute bill, which the journal printed side-by-side with the NBT bill for purposes of comparison. The letter from correspondent "O.O."--almost certainly Oscar Oldberg, a prominent member of APhA[39]--raised many objections to the NBT bill, but almost all of them hinged upon one idea: that the experts of APhA might not be called upon, in the administration of the law, to be the judges of what is, and what is not, an adulteration.

For example, Oldberg objected to section 4 of the bill because the Collector of Customs would determine, in a disputed case, which public analyst would make the final judgment. Oldberg also objected to using the USP by itself as the standard for drugs, without consulting with APhA as to what strengths of raw drug materials it wished to allow. And, although the letter expressed confidence in the National Board of Health, it noted that the bill should "require the Board to consult the chemists and pharmacists...for under the law constituting the National Board of Health there is not likely to be a professional chemist or pharmacist among the whole membership at any time."[40]

These objections were reflected in Oldberg's proposed substitute bill, where the key difference was that the pharmaceutical profession would control the force of analysts employed by the NBH in the enforcement of the law. Oldberg wanted all of the Board's Special Examiners of Food and Medicine to pass an examination in chemistry and pharmacy, "to be conducted by a Board of Experts consisting of three chemists and two pharmacists possessing the confidence of the Colleges of Medicine and Pharmacy."[41] The Sanitary Engineer editorial, presumably written by Billings in response to Meyer's request, was a direct attempt to satisfy the Oldberg/Rice demand. Billings explained that "we have no doubt that the National Board of Health

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

would necessarily proceed to form a commission and Board of such experts."[42]

Another response to Oldberg's criticism appeared in the next issue of New Remedies, by a correspondent signed "W.H.N.," who was almost certainly William H. Newell. Newell was not only the author of the third-place essay in the NBT contest, but by this time had been employed by Meyer as a trouble-shooter and lobbyist on behalf of the National Board of Trade. Months earlier Newell had written to Billings regarding anticipated opposition from the pharmacists:

> I am working with the committee appointed by President of National Board of Trade to promote the proposed legislation to prevent the adulteration of food and drugs.
>
> If you will find it possible you will oblige by sending me the report of Dr. C.S. Diehl made to the National Board of Health on the subject of the Adulteration of Drugs and any other reports on this subject that may be of use. We expect some antagonism from the drug trade particularly and wish to combat it with all the statistics possible.[43]

Although Newell employed some sarcasm in his criticism of Oldberg's substitute bill, his New Remedies letter was basically conciliatory. He noted that the NBT bill had already been endorsed "by the members of the National Board of Trade, the Chamber of Commerce, Produce Exchange, and every wholesale druggist in the city of New York." He explained that the bill was now out of the hands of the committee of experts, and was "in the hands of a committee appointed by the President of the National Board of Trade, composed of Henry C. Meyer, Esq., of New York; John P. Wetherill, Esq., of Philadelphia, and Richard D. Fisher, Esq., of Baltimore." This committee was perfectly willing to consider "any amendment or objection," and would bring them to the attention of the proper Congressional committee "if it is deemed proper and desirable so to do." But Newell's most important concession, reflecting Billings' Sanitary Engineer editorial, was that "I am assured that the National Board of Health will select public analysts...

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

from among the number reported to them as properly qualified, by a committee of experts appointed by the different colleges of medicine and pharmacy."[44]

In the next month's issue, while New Remedies refrained from editorializing directly, Rice published a response from Oldberg, wherein he repeated his insistence that the final version of the bill must explicitly state the qualifications of all examiners and analysts. Oldberg--and perhaps Rice--were explaining that the compromise offered by Newell and Billings was insufficient. APhA was unwilling to depend upon the good will of the NBH, and wanted a specific commitment to defer to the pharmaceutical profession written into the bill, before APhA could lend its full support.[45]

* * * * * * *

Though Meyer and Billings were concentrating on the fight in Washington, passage of the state bill was by no means a certainty. Chandler's bill had received endorsements from the New York drug manufacturers, sugar refiners, and commercial associations, but these were not in themselves enough to get the legislation through Albany. Public interest had begun to rise--but from Meyer's viewpoint, perhaps dangerously so. The situation threatened to get beyond the control of the NBT interests, for other, more specific, adulteration bills were proposed in Albany, and it was at this time that the State Assembly began its intensive investigation of the entire oleomargarine situation. The press began to awaken to the topic; after the scarcity of stories and editorials on adulteration in the previous months, there seemed to be a virtual explosion of material. In the first six months of 1881 the New York Times ran over sixty items related to adulteration, not including stories about the NBT bills themselves.[46]

Perhaps the greatest curiosity about the state legislative effort is

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the fact that the "New York" bill was passed in New Jersey several days before it was even introduced in the New York Senate. William Newell, it will be remembered, had been persuaded by Meyer to campaign for the NBT bills. It had always been intended that the Chandler version of the bill would be taken to Albany, as a test of the bill's potential for legislative success. But Newell had been working with the NBT legislative Committee (Meyer, Wetherill, and Fisher) since December, and obtained a copy of Chandler's bill as soon as revisions had been completed. From New Jersey he reported to Billings in triumph:

> I have the honor of informing you that I procured the introduction into our State legislature of the Bill which I mail you today. You will see, with some few additions, that it is a facsimile of the draft of a State Bill which you were so kind as to furnish me with.
>
> We kept the matter very quiet so that there would be as little public attention called to it as possible & thereby we aroused but little opposition. At the latter part of the session the bill was rushed through successfully.[47]

Newell sent a similar note to Chandler, adding: "New Jersey now may be congratulated as being the pioneer state in this movement. I trust that you may be as successful in your State."[48]

The tactic of surprise, however, was unlikely to work in New York. On March 30 Senator William W. Astor introduced the Chandler bill, now approved by the NBT Executive Council, in the New York State Senate (Senate Bill # 317). It received no initial opposition, and was referred to Sen. Benjamin Williams' Committee on Public Health, where it sat for a few weeks while Meyer rallied support for it. Perhaps the greatest danger it faced was the fact that six separate oleomargarine bills, a bill to regulate the practice of pharmacy, and a bill to control patent medicines (the latter two bills supported by the New York State Pharmaceutical Association and a large group of physicians) were in competition with it. The NBT not only supported its own bill, but was opposed to the others, particularly the oleo bills,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

which challenged substantial business interests, in which Thurber had hundreds of thousands of dollars invested.[49]

Meyer bivouacked in Albany, but realized that he needed support from professional groups beyond those he had already tapped, particularly in light of the competing bills. He wrote Dr. Billings for help:

> I have been twice to Albany about the Food Adulteration Bill now I write to ask if you won't write Dr. Stephen Smith an urgent letter to try to make him work for it. He can influence /Sen. William B./ Woodin who is the main man on the Senate Comm.--also Dr. /Edward M./ Moore the Pres. of the /State/ Board /of Health/ may be able to exert some influence--the chairman is Benj. H. Williams from Buffalo. If you know any Buffalo physician who would write to him it might hurry him some.
>
> I believe I wrote you that New Jersey had passed it--If I had a list of the State Boards of Health--I would urge each one to go to work. I don't think Dr. /Elisha/ Harris can be of any use in the matter.[50]

Billings obviously wrote Stephen Smith immediately, for Smith replied in a letter dated only two days after Meyer's:

> I was not aware that the Adulteration of Food Bill was before our Legislature until so informed by Mr. Meyer a few days since. I will give it all the aid I can--there should have been some preliminary work done in the profession of the State to have rendered its passage easy--It is extremely difficult (& generally a very thankless task) to gain the support of members to a bill that don't specially interest them.[51]

Meyer himself travelled back and forth to Albany, lobbying in both Senate and Assembly. He asked Billings to send him some copies of Dr. Diehl's report on drug adulteration. Presumably, therefore, he was trying to convince medical representatives to support the NBT legislation, rather than the Pharmaceutical Association's bill, for he did not ask for copies of the new NBH report on food adulteration, which was already available.[52]

Chandler was also at work, for a note in Col. Prentice's handwriting indicates that Chandler had persuaded Assemblyman William S. Andrews, who had introduced the pharmacists' bill back in February, to "substitute the bill of the National Board of Trade. I think Mr. /Thomas G./ Alvord will

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

introduce it into /the Assembly/, he knows Chandler." Prentice set out to have copies printed up for Andrews and Alvord.[53]

On May 3 the NBT bill was recommitted to Senator Williams' Committee on Public Health, after having been committed to the committee of the whole two weeks earlier. That same day Williams' Committee reported in favor of the bill.[54] But the legislation was having some difficulty in the Assembly, and Meyer wrote Billings with some interesting revelations about the legislative process:

> I have just returned from Albany having last night had a final hearing before the Assembly Committee on Public Health--This morning I have a dispatch saying they proposed to report the bill for consideration of the house--The truth is most of the Committee are too ignorant to understand it and one man (Dr. /Isaac I./ Hayes) on it who might influence them was partly drunk last night and asked absurd questions--He afterwards changed his tune when he learned you had had a hand in drawing the bill and informed me he was under you in the Army. I am satisfied therefore that a strong personal letter from you urging him to secure the approval of his Committee will do it and when he is sober he will work for it--with the city members he has some influence--the Senate have reported the bill favorably. Dr. Harris I am sorry to say is of no use to me and acts and talks as though it could not possibly pass--Erastus Brooks who is an influential member of the Assembly and also a member of the State Board of Health is helping me all he can.
>
> If you can try writing to Dr. Moore...or the members of the Board get them to write to their members I think it will help.
>
> A Dr. /George M./ Palmer on the House Committee spoke earnestly in favor of it.
>
> P.S. I was advised by Chandler not to set Harris to work, for as he saw he would be apt--well I'll tell you when I see you.[55]

Chandler had warned about Elisha Harris because he was having trouble with him in the operation of the new State Board of Health, but Meyer began to have trouble of his own with Harris:

> From certain indications I infer that Dr. Harris does not like it that I have put the commercial interest to the front in urging the bill at Albany and he has predicted that we won't succeed until the Doctors take it up....The only reason I did not urge Harris to work is for the one that Chandler gave "don't have him meddle with it or he will 'pee' all over it."
>
> I explained to Harris that I was the representative of our Boards of Trade, and had no right to represent the Medical profession. I wanted all the help I could get but I was too busy a man to attempt

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> to organize the medical men--The fact is that he is a well meaning old fool and I fear would be more of a hindrance than help to me.[56]

The State Senate passed the bill on May 10, with no dissenting votes. Although Meyer still had to see the bill through the Assembly, there were also other things on his mind, for the escalation of publicity about adulteration indicated that the public had to see some immediate results. The dozens of articles in the Times about oleomargarine, glucose, contaminated pork, adulterated milk, poisoned food, and careless druggists indicated the temper of the period. The Times article announcing the Senate's passage of the bill noted that "the race of adulterators has grown greedier and bolder, and the unaided senses now supply the evidence of their crimes," and went on to catalog dozens of traditional adulteration claims.[57]

Both houses had approved the bill by May 19, and sent it on to Governor Alonzo Cornell, who found one legal problem. Newell explained to Chandler that Cornell favored the bill, but wanted it to have a specific appropriation. "I therefore had it returned with message from Governor, and amended in the Senate...with the $10,000 appropriation." Now the amended bill had to be repassed by the Assembly, where Newell feared opposition would coalesce. He asked Chandler what minimum amount "would serve to carry out this law," if he had to negotiate over money.[58]

But Newell's anxiety turned out to be misplaced; the full $10,000 was appropriated.[59] Newell may have been magnifying the difficulties, and his role in solving them, to impress Chandler. Although Newell had been appointed to the council of analysts and chemists in New Jersey, after passage of the bill there, his position apparently paid no regular salary. He had discussed with both Harris and Meyer the possibility of getting a similar

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

job in New York, and wrote to Chandler about it.[60] Nonetheless there was unquestionably at least some last minute confusion about the bill which Newell helped to rectify. Meyer wrote to Chandler, just before leaving for Albany, that he had sent Newell to ask Cornell to sign the bill, but that the governor "wanted to take time to consider it and also to hear those that might oppose it....Will you please dictate a letter to him & mail it tonight urging it and indicating the policy of the Board to be conservative and cautious in executing it."[61]

On June 2, 1881, the NBT bill became law in New York State. In all of the votes cast in the legislature, there was never any significant opposition to the bill, nor did Governor Cornell express any anxiety, except about the appropriation clause. Whether this is an indication of the successful lobbying of Meyer and Newell in Albany, or whether it indicates that some of their concern was overstated, it is impossible to tell, especially since the real legislative battles were fought in the Committees on Public Health, of which no records were kept.

It might be speculated, however, that members of the legislature--particularly those from dairy counties--went along with the NBT bill only because they also passed two anti-oleomargarine bills which, had they been signed by the governor,[62] would have imposed strict responsibilities upon the State Board of Health in its enforcement of the adulteration law. Cornell's veto of these bills, and the failure of the two pharmacy bills,[63] were to some extent also triumphs of the commercial interests which had supported the NBT legislation.

* * * * * * *

Although it was the intention of the National Board of Trade to promote

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

passage of food and drug adulteration laws in all of the states, with legislation modeled upon Dr. Chandler's bill, it seems to have succeeded in only three states. After the easy victory in New Jersey, thanks to William Newell's tactic of surprise, and in New York, thanks to an intensive lobbying campaign, the NBT seems to have been able to follow through with a victory only in the state of Massachusetts.

Jesse P. Battershall's 1887 survey of food and drug laws[64] indicates general adulteration laws in only those three states at the time of publication. There were indeed many laws in many states related to adulteration, but they concerned only specific products--usually dairy products, and particularly oleomargarine.[65] This--plus the fact that the victory in Massachusetts was quite narrow--indicate that the NBT effort collapsed after 1882.

The Massachusetts State Board of Health, Lunacy, and Charity, under the control of Stephen Sharples in 1882-1883, not only published Sharples' chapter on adulteration from the Buck book, Hygiene and Public Health, as a Supplement to its annual report,[66] but also officially recommended a law on the model of that passed in New York.[67] Following Sharples' perspective, the Board noted that:

> As many of the prominent articles of commerce, though they may be said to be adulterated, are quite harmless, in some cases useful, it should be left to the discretion of some competent authority to relieve such articles from the fines imposed by this bill. The honest and persistent exposing of fraudulent practices will generally have an effect upon public opinion fully equal to any penalty imposed by the courts, and will in the end prove as effectual in making such practices unprofitable.[68]

The Massachusetts law, as finally adopted, was based upon the NBT bill, but with some significant differences. This law was somewhat stronger than its New York and New Jersey counterparts, probably because of the lobbying efforts of George T. Angell. There is some confusion about the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

legislation, since Angell claimed responsibility for its creation,[69] but there seems to be no question that it was Angell who managed to get broad support for some sort of anti-adulteration bill in Massachusetts, and got hundreds of grocers, and a number of prominent citizens, particularly from the Boston area, to send in petitions he had drawn up. Whether through his efforts or not, the Massachusetts law added cosmetics, and some other items, to its list of affected articles,[70] imposed imprisonment for those knowingly purveying adulterated goods which were unwholesome or injurious, and set up poison regulations for the state.

Strangely, Angell seems to have accepted the NBT bill as the basic instrument for his own campaign against adulteration on the state level. Perhaps he felt (though he seems never to have expressed it) that, with some additions and modifications, the Thurber bill was the best that could, at that time, be achieved. He noted, in a letter to the Ploughman, that 134 petitions had been sent to the Massachusetts legislature by retail grocers, that others had been sent by wholesalers, Boston clergymen, and the State Grange. He added that the time had come to act, and that New York and New Jersey had already passed "stringent laws, and other states are moving."[71]

The voting pattern in the Massachusetts Senate and House of Representatives was very different from that in New York. Dairy and other rural counties gave very little support to the bill. Perhaps this may be explained, considering the speculation about why New York dairy counties did support the law, by the fact that in Massachusetts, in 1882, the legislature did not pass anti-oleomargarine laws. Rural representatives may have therefore been more sceptical about the intent of the state version of the NBT bill. Last-minute attempts were made to defeat the bill (failing by a vote of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

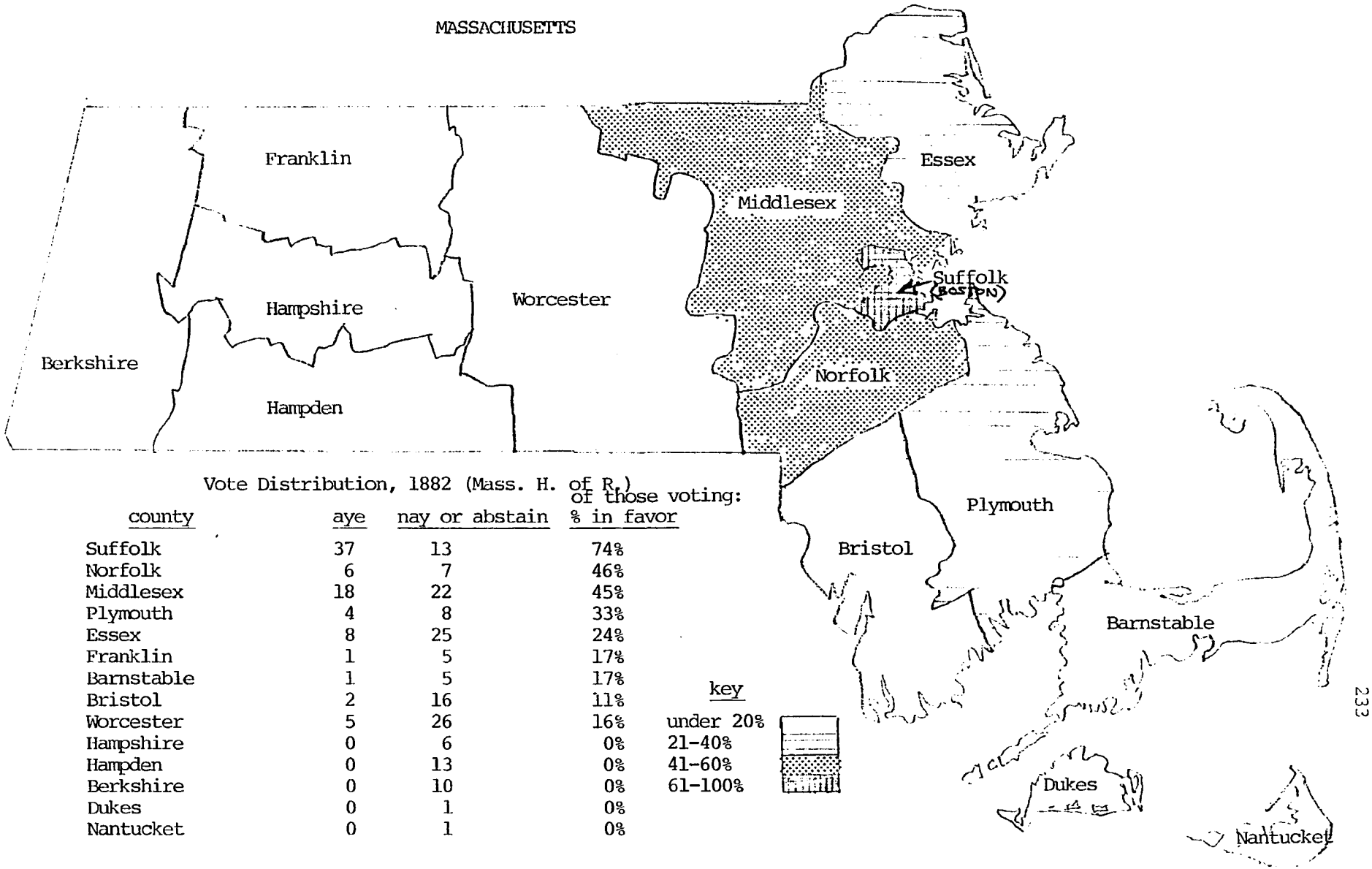
19-12 in the Senate),[72] and to weaken it by inserting the word "knowingly" for all violations, not just harmful adulterations (failing by a vote of 15-13).[73]

The map on the following page illustrates the narrowness of the victory in Massachusetts by examining the voting pattern in the state House of Representatives. The bill received well under half of the possible votes to be cast; it was only because of large numbers of abstentions that it passed. It can be speculated that members from rural counties disliked the bill, but failed to oppose it actively because the alternative was to have no adulteration law at all.[74]

All but nine of the votes cast in favor of the bill came from the five counties immediately in and around Boston. The vote was even more skewed than the map shows, because the residence information given in the House Journal indicates that members voting in favor, from Essex, Middlesex, Norfolk, and Plymouth counties, tended to be those living closest to Boston. For example, in Middlesex County, of the twenty-two representatives living in what would today be part of Greater Boston, seventeen voted in favor of the bill; of the twenty-eight Middlesex representatives living outside of that area, only one voted for the bill. In Massachusetts, the NBT bill was a Boston bill. From the petitions sent to the legislature in its support, it seems to have been the bill of the Boston grocers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.



Vote Distribution, 1882 (Mass. H. of R.)

county	aye	nay or abstain	of those voting: % in favor
Suffolk	37	13	74%
Norfolk	6	7	46%
Middlesex	18	22	45%
Plymouth	4	8	33%
Essex	8	25	24%
Franklin	1	5	17%
Barnstable	1	5	17%
Bristol	2	16	11%
Worcester	5	26	16%
Hampshire	0	6	0%
Hampden	0	13	0%
Berkshire	0	10	0%
Dukes	0	1	0%
Nantucket	0	1	0%

NOTES FOR CHAPTER VII

[1]New York Tribune, 11/28/80. Chandler took note of this editorial; he had a clipping in his files.

[2]Grocer, 12/16/80.

[3]New York Journal of Commerce, 11/26/80.

[4]Billings to Meyer, 11/10/80, Billings papers.

[5]Chandler to Meyer, 11/26/80, Wingate papers.

[6]Meyer to Wingate, 11/26/80, Wingate papers.

[7]Meyer to Chandler, 11/27/80, Chandler papers.

[8]Meyer to Billings, n.d., Billings papers. Billings was going to New Orleans on APHA business, but also hoped to work on some NBH problems there.

[9]Ernst Stieb, Drug Adulteration: Detection and Control in Nineteenth-Century Britain (Madison, Wisconsin: University of Wisconsin Press, 1966), pp. 127-128, explains that the concept of willful adulteration had been incorporated into the British Adulteration Act of 1860, and proved to be one of the reasons it was almost impossible to enforce. The Sale of Food and Drugs Act of 1875, in an attempt to improve the British law, was written so as to include the necessity of proving guilty knowledge, "but the burden of proving absence of such guilty knowledge now rested with the defendant."

[10]Hardy to Meyer, 11/30/80, Chandler papers.

[11]Meyer to Chandler, 12/3/80, Chandler papers.

[12]Prentice to Chandler, 11/30/80, Chandler papers.

[13]Address of Dr. Billings, delivered 12/8/80, in Billings papers.

[14]Meyer to Chandler, 12/12/80, Chandler papers.

[15]Chandler to Billings, 12/14/80, Billings papers.

[16]See Proceedings of the Eleventh Annual Meeting of the National Board of Trade, Held in Washington, December 1880 (Boston, 1881).

[17]Billings to Chandler, 12/15/80, Chandler papers.

[18]For example, state food laws, as they existed prior to passage of the first comprehensive adulteration laws, almost always set standards for milk, and sometimes for other food staples.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[19]Stieb, pp. 138-141, notes that the British law of 1860 imposed a nominal fine of £5. The 1872 Adulteration Act increased the fine to a maximum of £50, and permitted sentencing for six months with hard labor for repeated offenses, for crimes injurious to health.

[20]NBT Proceedings, 1880, p. 48.

[21]Ibid., p. 83.

[22]Ibid., p. 79.

[23]Appendix B.

[24]Ibid.

[25]Meyer to Chandler, 12/19/80, Chandler papers.

[26]Laws of 1881, ch. 407; see Appendix C.

[27]Meyer to Billings, 1/17/81, Billings papers.

[28]Chandler also left out the word "corporation"; his draft said only that "no person shall" adulterate. Although legally a corporation was a "person," it is not clear if Chandler and Hardy were drawing a distinction.

[29]Tribune, 1/22/81.

[30]Tribune, 4/7/81. The oleomargarine question is discussed below, ch. XI.

[31]Journal of Commerce, 3/25/81.

[32]Peter W. Bruton, The National Board of Health (unpublished doctoral dissertation, University of Maryland, 1974), pp. 178-179, notes that "The selection of the inspectors...represented another one of the board's attempts to secure the support of sanitarians. By careful appointment of prominent local public health officials, the National Board sought to solidify its claim as the leading public health agency in the land."
See Sanitarian, X, 237-238, and XI, 188-189.

[33]Glenn Sonnedecker, Kremers and Urdang's History of Pharmacy (Philadelphia: J.B. Lippincott, 1976), p. 196, calls Rice "the creator of the modern American pharmacopeia," and he and John M. Maisch are considered the "two German immigrants who exerted the greatest influence on the development of American pharmacy."

[34]Meyer to Billings, 1/1/81, Billings papers.

[35]Ibid.

[36]New Remedies, X, no. 2 (February, 1881), 33.

[37]Meyer to Billings, 1/12/81, Billings papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[38]Meyer to Billings, 1/19/81, Billings papers.

[39]Oldberg had been on the staff of the Marine Hospital Service, and on the faculty of the National College of Pharmacy; in 1881 he took a job with Schieffelin and Company, a major drug manufacturer.

[40]New Remedies, X, no. 2 (February, 1881), 59.

[41]Ibid., 60-61.

[42]Sanitary Engineer, 2/15/81, 130.

[43]Newell to Billings, 12/24/80, Billings papers.

[44]New Remedies, X, no. 3 (March, 1881), 87.

[45]New Remedies, X, no. 4 (April, 1881), 115-116.

[46]Each month in this period there were more items on the topic than usual, but Times coverage peaked in March, when twenty-four stories appeared.

[47]Newell to Billings, 3/29/81, Billings papers.

[48]Newell to Chandler, 3/29/81, Chandler papers.

[49]Journal of the Senate of the State of New York, 104th Session (Albany, 1881), pp. 312, 456, 895.

[50]Meyer to Billings, 4/7/81, Billings papers.

[51]Smith to Billings, 4/9/81, Billings papers.

[52]Card sent from Meyer to Billings, n.d., Billings papers. Billings noted on the card that he sent NBH Bulletin Supplement No. 6 to Meyer on 4/18/81. The Smart report on food adulteration was published 1/1/81, and is discussed below, ch. VIII. There is, of course, no evidence that Meyer did not already have copies of the Smart report with him.

[53]Note in Chandler papers, n.d., no signature. On May 5, with Andrew's support, the NBT bill was substituted for the original Assembly bill. See Journal of the Assembly of the State of New York, 104th Session (Albany, 1881), p. 1080.

[54]Senate Journal (1881), pp. 580, 583.

[55]Meyer to Billings, 5/5/81, Billings papers.

[56]Meyer to Billings, 5/9/81, Billings papers.

[57]New York Times, 5/14/81.

[58]Newell to Chandler, 5/21/81, Chandler papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[59]The original bill had called for an allotment of the money, but left out the appropriation of it from the state treasury. See last sentence of section 5, Appendix C. Chandler wrote in the addition on his own copy.

[60]Newell had, according to his letter, been promised a position, and was very annoyed that Chandler did not follow through with his appointment. In effect, he also threatened to renege on his commitment to work on the NBT bill in Washington, if Chandler didn't keep his promise: "I also desired this official position in New York State because it would give me more prominence in my intercourse with members of Congress next session should I determine on going on to Washington to work in favor of the National Bill, as the most of its friends desire me so to do." (Newell to Chandler, 7/8/81, Chandler papers.)

[61]Meyer to Chandler, 5/25/81, Chandler papers. Meyer also wrote to Billings: "Dr. Newell has really done very good service & I now think very well of him. Dr. Harris asked how he would do as Secy. of the Committee to get up the rules and get the thing started. I told him I thought he was just the man as there is little doubt but that he would work hard-- I shall rely on him to work it through Congress and should be glad if he can get something to do under our State Bd. as in Jersey he gets no pay." (Meyer to Billings, 6/1/81, Billings papers.)

[62]Cornell's veto of the two oleo bills is discussed below, ch. XI.

[63]The two pharmacy bills are discussed below, ch. VIII.

[64]Food Adulteration and Its Detection (New York, 1887).

[65]Massachusetts State Board of Health, A Brief History of Its Organization and Its Work, 1869-1912 (Boston, 1912), p. 48, says that the NBT bill was also passed in the state of Michigan.

Report of the Industrial Commission on Agriculture, XI (Washington, 1901), p. 110, F.B. Thurber testified that the NBT's "draft is the foundation of the regulation of food in New York, Ohio, Illinois, New Jersey, Massachusetts, and other States. Most of the States have made variations in their provisions, but the definitions are largely those which the committee outlined." The present study suggests that Thurber's claim was too broad; not the NBT bill, but its definitions of adulteration, adapted from Wigner's prize essay, were widely adopted.

[66]S.P. Sharples, "Adulteration of Food," Supplement to 4th Annual Report, Massachusetts Department of Health (Boston, 1883).

[67]Third Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts, January, 1882 (Boston, 1882), p. xlvi.

[68]Ibid., p. xlvii.

[69]George T. Angell, Autobiographical Sketches and Personal Recollections (Boston, 1892), pp. 76-77.

[70]Stieb, p. 282, n 21, correctly notes that the Massachusetts definition of "drug" apparently combined that of Wigner with that of Dr. E.R. Squibb,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in his "Rough Draft" of 1879. Transactions of the Medical Society of the State of New York (Syracuse, New York, 1879), p. 214, Squibb included antiseptics, disinfectants, and cosmetics--anything, other than food, "used for the preservation of health, or for the relief or cure of disease in man or animals."

[71]Massachusetts Ploughman and New England Journal of Agriculture, 2/25/82.

[72]Journal of the Senate of the Commonwealth of Massachusetts, Session of 1882 (Boston, 1882), p. 410.

[73]Ibid.

[74]Source of residence information was the Appendix to the Journal of the House of Representatives of the Commonwealth of Massachusetts, Session of 1882 (Boston, 1882).

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER VIII

LEGISLATIVE FAILURES

Of all the bills related to adulteration before the legislators in Albany during the 1881 session, only the National Board of Trade bill became law. But the pharmacy bills, though they failed at this time, reflected long-range changes taking place within the drug market. Not only were the pharmaceutical associations strengthening their control over the profession, but the drug manufacturers and wholesalers were also emerging as powers to be reckoned with. Prof. Chandler, who was about to assume responsibility for interpreting and enforcing the new law, would have to decide if he wished to tread into this area at all, or else leave regulation of pharmacy to the pharmacists, and concentrate upon food adulteration.

For his part, Henry Meyer had to mend fences with all these groups, for he needed their support for effective implementation of the state law, and to promote the passage of the federal version of the NBT bill before he and Dr. Billings were scheduled to leave the country for the summer.[1] In Albany Meyer had had the backing of New York business organizations, the endorsement of local sanitary authorities, and the qualified support of the pharmaceutical associations. In Washington, even though Dr. Billings and other public health leaders lent some assistance, he was more on his own. Moreover, he had to contend with the presence of George T. Angell.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Angell was spending the winter of 1880-1881 in Washington, lobbying to revive interest in the Beale bill, which had been reported on favorably by the Committee on Manufactures on March 4, but which had been lying dormant since then. In his Autobiographical Sketches Angell drew an exaggerated picture of the opposition to his activities that nonetheless may have been true in its essentials. He claimed that President Hayes had forwarded his letter concerning adulteration to Meyer, who:

> two years before, at Saratoga Springs, manipulated the Associated Press to suppress my paper. Of course, the oleomargarine and glucose rings /Thurber/ knew just what I was up to. An active lobbyist /Newell/ was put to work. Washington papers were fixed to afford me no aid; officers of the National Board of Health /Billings/ could find no time to listen to my paper; and wires had been so skilfully manipulated that I came very near being defeated in reading it before the National Grange.

Angell believed that circulars had been sent from New York urging Congressmen to avoid him, and it was at this time that he thought he was being followed by "a man who had once been tried for murder." A hearing scheduled with Beale's committee was cancelled for lack of a quorum, and Angell, at "the close of 1880...had found no man who was willing to do battle against the great political and financial power of adulteration."[2]

Billings, meanwhile, was doing what he could, not only in support of the NBT endeavor, but to cast doubts upon Angell's more sensational claims. He had Dr. Charles Smart's report on adulteration published as Supplement No. 11 to the NBH Bulletin on January 1, 1881. The Smart report was intended to be much more comprehensive and reliable than the "wastepaper basket" report of Dr. Kedzie, published the year before,[3] and Smart had begun gathering food samples and professional opinions from various local health officials the previous June. Though Smart found ample evidence of adulteration in many common products, his conclusions and recommendations were completely compatible with those of Drs. Sharples and Leeds.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Smart reported that, though legislation was needed, there was absolutely no cause for alarm. Goods purchased from reputable dealers were rarely adulterated (7.89%), and only "the poor and ignorant" were really exposed to fraudulent goods on an everyday basis. Most foods were not adulterated at all, but others, such as spices and "package" coffee, were universal deceptions. More importantly, with few exceptions, "the adulterations cannot be considered as deleterious. They affect the pocket of the individual rather than his health, so that, to use the words of the committee appointed by the National Board of Trade," the problem was merely one of fraud, rather than "a sanitary" consideration.[4]

Smart denounced "sensational writing," dismissed Hassall's findings as irrelevant to contemporary America, and claimed that the most common and important foods--including tea, lard, loose coffee, sugar, and flour--were rarely sophisticated. He also claimed that the high percentage of adulteration (44.74%) among the samples purchased from "sources which might be presumed to yield low grade, if not adulterated, goods," where the "poor and ignorant" might shop, "in reality convey no meaning." He explained that percentages could easily be manipulated, simply by purchasing greater amounts of those foods--such as spices--which were frequently adulterated. His own study examined few of those goods which had proven to be generally pure, and thus, Smart explained, the figures were disproportionately high.[5]

There were some serious problems, of course. Alum, though not necessarily deleterious, "should be suppressed." Yellow candies (though not the more common red) were frequently colored with lead chromate. But these were the only adulterations Smart discovered to be potentially dangerous.[6] The key to the Smart report, therefore, is that it was in complete accord with the NBT report, from which Smart quoted. It was an endorsement of Dr.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Billings' draft legislation, even before that bill had been submitted to Congress.

Meyer, of course, made preparations to present the draft when Congress reconvened after the Christmas break. He sent Richard Fisher and John Wetherill of the NBT Committee to confer with Billings, and have all of them appear before the Commerce Committee of the House of Representatives, to "explain the reasons for the different sections."[7] But before they could act word leaked out that Congressman Beale was about to ask "for a suspension of the rules" in order to have his own bill acted on. Meyer dashed off a letter requesting Billings to have Fisher ask the NBT's friends in the House "be on the look out for it," and stop Beale:

> I don't know what advice to give as to the proper course to pursue and would suggest that Mr. Fisher be governed by yours and Genl Hawley's advice as to whether to object to a suspension of the rules and prevent a vote or to /allow/ a vote in the hope of defeating it--It strikes me the former course would be the better one--Delay might be urged on the ground that the bill prepared by experts under direction of the Natl Bd of Trade should be carefully considered before decisive action on either measure was taken.[8]

Congressman Joseph R. Hawley had been a major-general in the Civil War and then governor of Connecticut; he was a conservative Republican. He was, perhaps, a strange bed-fellow for Meyer's efforts, for in 1880 Hawley had questioned the National Board of Health's administrative abilities and "its penchant to waste money." Hawley believed that "health was a local responsibility and the federal government should help only in emergency situations."[9] But Hawley had written to Meyer on April 23, 1880, in response to the Sanitary Engineer contest, remarking on his own interest in adulteration questions, and saying that he was "glad to see them in such good hands."[10] Meyer selected Hawley to introduce the NBT bill.

In his letter to Billings Meyer also mentioned that the Nation was about to support their efforts to stop any attempt Beale might make. The

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Nation editorial appeared a few days later. It repeated Meyer's old bugbear about Beale's bill providing a "harvest" for "bummers and dead beats" by "persistent calling for samples," and rejected the bill in toto as showing "not a vestige of scientific or legal sense." In contrast the journal praised the NBT bill--which had yet to be introduced--as "a very guarded measure...simple and perspicuous in every part."[11] Whether this timely editorial had any effect upon Beale, or if Hawley took some unpublicized action, cannot be known, but Beale's alleged attempt to revive his bill never took place.

Perhaps because of this final collapse of the Beale bill, it was at this time that Angell decided to take action of his own. Beale had twice granted him additional appointments to appear before the House Committee on Manufactures, but both times, as in 1880, no quorum appeared. He then tried the House Committee on Agriculture, with the same result. As Angell viewed the situation those committees would never give him a hearing, because "the lobbyists were too active" in preventing it. But Angell had met Casey Young, chairman of the House Committee on Epidemic Diseases, back in 1878, while lobbying for a different purpose. Angell felt that the "Southern men" on that committee:

> were not afraid of the political influence of either glucose or oleomargarine. The New-York lobbyists had never suspected that I should bring the adulteration of foods before a committee on yellow-fever; and, even if they had found it out sooner, it is quite likely they would not have made much headway with that committee.[12]

Whether Angell's analysis of the situation was correct or not, Young allowed him to draft a completely new bill on the adulteration question, which Young presented to the House on January 24, 1881. A very simple bill, of only fifteen lines, the Young measure was Angell's direct response to NBH Supplement No. 11. It asked for the appointment of a commission of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"three persons learned in chemistry and sanitary science, to investigate and report upon the adulteration of food."[13]

A week later General Hawley submitted the NBT bill, which was sent on to the Committee on Commerce, rather than to Beale's committee. In addition a sudden flood of petitions in favor of an adulteration law was sent to Congress, to support the NBT bill. Fifteen petitions were reported in the House, and six in the Senate, from a wide variety of boards of trade, chambers of commerce, and produce exchanges. But Angell's response to Hawley's bill came a few days later--the report of Young's committee, which consisted of a brief introduction by Young, and twenty pages of "evidence" supplied by Angell, evidence that was a direct attack on the NBH/NBT conclusions about the general harmlessness of adulteration, and upon Thurber, Meyer, and Billings.

Young's introduction, reflecting Angell's testimony, was in complete contradiction to Sharples, Leeds, Johnson, Smart, and the NBT report. His committee (in just over one week) had concluded, in their "investigation" of "the injurious and poisonous compounds used in the preparation of food substances...that the adulteration of articles used in the every-day diet of vast numbers of people has grown to and is now practiced to such an extent as to seriously endanger the public health."[14]

Angell's evidence consisted of a repetition of his 1879 testimony, plus some interesting new comments. For example, he cited the Smart report to support his own contentions. He accomplished this by using only one sentence, merely employing Smart's acknowledgement that there was a great deal of adulteration, without repeating any of Smart's qualifying statements. He managed to turn the NBT contest to his own devices, by selecting items from the four essays that tended to support his conclusions, while

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ignoring any contradictory statements. Angell similarly used Prof. Johnson's essay, which had been read to the American Social Science Association largely for the purpose of refuting Angell's sensational claims, simply by selecting from Johnson's list of possible adulterants.

Angell continued with a wide assortment of miscellaneous citations from professional reports, anonymous correspondents, and newspaper stories--often his own stories, although he seldom mentioned their source. He once again reserved some of his longest and sharpest attacks for the glucose and oleomargarine industries. He claimed that glucose was manufactured from "rags" and "sawdust," cited a wildly improbable assortment of "poison" claims about glucose, and enhanced Prof. Chandler's 1878 analysis of the De Castro and Donner sugars by saying that "The students in the school of mines of Columbia College, New York City, extracted some time since quantities of tin from sugars and hung the lumps from the necks of the bottles from which they were taken."[15]

He attacked oleomargarine as unfit to eat, despite the "certificates" from the "paid chemists" who testified to its wholesomeness: "A great glucose or oleomargarine ring, making millions of dollars, can easily afford to furnish all the chemists in the country carefully-prepared samples of their commodities, and pay the highest prices for analyses and certificates."[16] Among the items Angell cited as having been found in oleo under microscopic analysis were tapeworms, cockroach parts, sheep blood, yeast, fungi, parasitic eggs, and tallow.

Angell then proceeded to attack the Hawley/NBT bill, while giving some support to the Beale measure, "which seems a good one so far as it goes." He attacked all his opponents in a manner worth quoting at some length:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> Last year a great oleomargarine seller in New York City...who is also...an influential member of the National Board of Trade, offered through that board $1,000 prize for the best essays on adulteration. The affair was managed by a paper in New York City, said to be owned by a dealer in plumbers' materials of that city, and called the Plumber and Sanitary Engineer, which paper has published so much to disparage and denounce my humble efforts that I have come to look upon it as the organ of those gentlemen whose opinions do not agree with my own. A high officer...of the National Board of Health is a regular contributor to that paper, and probably through its influence was made chairman of its committee of award on these prizes. The report of that committee ...sets forth, among other things:
>
> 1st. That none of our staple articles of food or drink are so adulterated as to be dangerous.
>
> 2d. That one of the main objects of legislation should be to nullify the operations of ignorant and sensational alarmists.
>
> 3d. That adulterated drugs are more dangerous than adulterated foods.
>
> 4th. That it is much better to do too little than too much.
>
> 5th. That it would be unwise to attempt to secure uniform State laws.
>
> 6th. That the law should not attempt to define in detail what is adulteration.
>
> 7th. That the Board of Health should have power to exempt any article from the penalties.
>
> 8th. That care should be taken not to make penalties excessive.
>
> 9th. That under no circumstances should fees or moieties be allowed informers.
>
> And the bill now before Congress, urged and pushed by this Plumber and Sanitary Engineer man...seems to be drawn in strict compliance with the above recommendations.

Angell then concluded that, since Billings, as one of the NBT judges, had expressed the opinion that "none of our staple articles of food or drink are dangerously adulterated," the investigation of adulteration must be taken out of the hands of the National Board of Health, and "put into the hands of an independent committee or commission."[17]

Meyer responded by having Sanitary Engineer attack the Young bill, in addition to Beale's,[18] and by pledging to avoid all future mention of Angell. "I have decided not to print Angells name in our paper and have an idea he would be more annoyed at being ignored than anything else--His agitation will help us in the end!"[19] From this time one, neither Meyer's paper nor Thurber's American Grocer appear to have referred to Angell.[20] Meyer left the Washington problems in Billings' hands, while he lobbied

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in Albany; when they both left the country for the summer neither the Beale, Young, nor NBT bills had been passed. Meyer determined to try again during the next session of Congress.

The final word, for the time-being, belonged to Albert Leeds. Speaking to the American Chemical Society on June 3, he reiterated the "official" position: virtually no dangerous adulterations existed. His specific comments mirrored Smart's exactly, adding only that "skimming and watering of milk was still very extensively practiced in New York and New Jersey, although stringent laws had been passed for its repression."[21]

Without mentioning him by name, Leeds also devoted much of his paper to an attack on Angell, but blamed the professionals for having "left the field in the possession of scientific demagogues and pseudo chemists who, for the past four years, had been sending out through the daily press an unlimited amount of sensational literature, either in part or altogether false."[22] He noted that, due to these activities, "there is a vast deal of misinformation passing for exact science...an impression is current as to the extent and deleteriousness of adulteration which requires correction."[23] Leeds called upon all the true professional scientists to support the search for the truth, and "to control and shape the laws now under consideration."[24]

With the seating of the 47th Congress Meyer and Billings once again took to the attack. Since General Hawley had been elected to the Senate, they selected Roswell P. Flower, a wealthy New York Democrat who had just been elected to the House, to be their standard-bearer. Flower introduced the NBT bill on December 16, 1881, and it was once again sent to the Committee on Commerce.

At this point Billings decided to draw the American Public Health Asso-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ciation directly into the fray, drafting a circular for the current president, Dr. Robert Kedzie, to send out under his own name.[25] Under the guise of a questionnaire, Billings sought to stir up the membership to support the NBT bill:

> If you approve the general features of the bill will you at once write to the members of Congress from your State to urge them to enact the bill into a law?
>
> The work of the Association in the past has largely been to disseminate information and to mould public opinion....
>
> It seems to me that it is time that some of the results of the eight years' beneficient work of our Association should become operative through the form of law....[26]

While Billings continued to lobby in the Capitol, Meyer tried to contend with new attacks in both the professional and popular press. One of the first editorials in Dr. Squibb's new journal, An Ephemeris of the Materia Medica, was directed against the NBT proposal.[27] Although written after the state version had already become law, Squibb's comments were directed against both versions of the bill, since he noted that the Senate bill was "practically the same as those recently enacted by the Legislatures of New York and New Jersey; that is, being modeled upon the same plan, it contains the same advantages and defects."[28] Squibb's central objection to the bill was based on an unreconcilable difference between himself and the NBT committee.

Although neither Billings nor Chandler could have, publicly at least, objected to Squibb's desire to prevent, rather than to punish, adulteration, their bills were designed to give a great deal of leeway and authority to the experts administering the law, whether within the NBH or the state boards. To this end, the Billings and Chandler bills contained general, rather than specific, definitions of food adulteration. It will be recalled that Billings had been persuaded to drop from his bill even the few specific

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

standards that Wigner had recommended in his essay. But Squibb argued that only such specific statements and rules could act to discourage the adulterators, whom he saw as "intelligent, skillful, cunning and rich," from choosing to run the risk of prosecution.[29]

Squibb drew attention to the "very large opening for the escape of defendants" created by the clause excusing "mixtures or compounds recognized as ordinary articles of food." Squibb made several other criticisms, mostly minor, but consistently stressed that it is fraud that must be prevented, not just injurious adulterations, for such were usually the result of accident, not intent. In conclusion, not surprisingly, Squibb recommended his own proposal of 1879 over the current NBT bill.[30]

Charles Dana's New York Sun also editorialized against the NBT bill. Startled by this unexpected attack, Meyer called on Dana for the first time, to "see if it was done with his knowledge." But Dana, who had also begun criticizing the National Board of Health, and opposing any extension of its tenure, told Meyer that:

> the policy of the paper was "to go for" any national legislation that would make more officers, or tend to "centralization." He said the Natl Board of Health was a nuisance and useless. In other words he was down on any thing "national" and talked the usual nonsense about office holders and too much power.
>
> He however acted as though he had learned from me facts that he did not know, and while he favored a law to stop adulteration he thought the states and not Congress should do it.
>
> I have an appointment today with Dr. /William H./ Draper who is his son in law--what I hope to do now is make him drop the matter plainly or state his democratic objections--and if he will, admit the bill other wise all right. I don't think his opposition will amount to much unless it frightens Flower and makes him weaken. I have written Flower to see just how he feels about it--Dana thinks this editorial he wrote will make Flower drop it.[31]

Meyer and Billings continued to consult about how best to approach the members of the Congressional committees. One suggestion made was for Stephen Smith to press Dr. William Smith, a State Board of Health Quarantine

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

officer, to persuade his relative, Congressman David P. Richardson of New York, to support the bill.[32] Meyer also urged Billings to consult with Flower.[33] At Stephen Smith's suggestion, Meyer tried to recruit Dr. Frank Reilly, a junior member of the Illinois Board of Health, to lobby in Washington in place of Newell, who was busy in New Jersey.[34]

Meyer sent Billings a complete list of the members of the House Commerce Committee, and discussed tactics with him, dividing up the list between them.[35] Then, apparently uncertain about recruiting Reilly, Meyer sent Newell back to Washington, "to try to educe Horr to make the report and leave out the reference to liquors."[36] It would appear that Roswell G. Horr, Chairman of the House Commerce Committee, had decided to include alcoholic beverages in the bill by specific reference, and Meyer understood that this would merely bring a new and powerful interest into opposition:

> I only heard about an hour before I left /Washington/ that Horr wanted something about whiskey. I think it impolitic to call the liquor people's attention to the measure which any reference to beer or liquor will do--they are well organized and with little trouble can quietly sit upon us--and then their opposition must be openly /responded to/....
>
> For the present I thought I would not send for Reilly but use Newell until real trouble comes.[37]

On March 3 Newell reported that Horr's Committee had unanimously approved an amended version of the NBT bill, and would report it to the House the next day.[38] But the substitute bill (H.R. 4789) was drastically watered down, compared to the NBT's original version (H.R. 1080). Though 4789 retained the general definitions of adulteration adapted from Wigner's essay, and approved restrictions on the importation of adulterated goods, it dropped the provisions regarding manufacture, sale, and interstate shipment of these foods and drugs. Pleading reluctance to interfere with commerce, Horr's Committee opted to regulate only foreign goods. Horr argued that, by setting this limited example, state governments would be

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

encouraged to regulate where the federal authorities refused to tread.[39]

If Meyer, Newell, or Billings were dismayed by this radical surgery, they did not discuss it in their correspondence. Instead, Newell immediately began lobbying in the Senate, to persuade members of its Commerce Committee "to report favorably on House of Representatives Bill as amended."[40] Newell and Billings kept up attempts to meet members of both Houses, with the intention of pushing through the drastically-revised bill. Never was there any discussion of restoring the original version.[41]

Still, it does seem that the heart had gone out of the efforts of Meyer and Billings. Newell kept on doing the job he had been hired for, but the others could not have been satisfied with the substitute measure. Even if passed, it could only serve to render their efforts absurd. Surely Thurber had never sought so emasculated a bill. What the NBT had been after was not merely a paper tiger, but a reasonable, moderate, effective law, that would enable responsible professional sanitarians to hound the corrupt business competitor, yet leave space for the normal give and take of every-day trade, while silencing the anxieties of a consuming public that had been aroused by men like Angell and by the exaggerations--and true revelations--of the press.

Meyer sent one last letter to Billings regarding lobbying efforts, but it was filled with doubts and contradictions. He made suggestions about using Erastus Brooks and Dr. Moore to write the New York delegation in Congress, but then explained that he really didn't feel up to persuading either man himself, and asked Billings' help. He suggested dealing with New York Congressman Abram Hewitt,[42] but then retracted the suggestion, for fear "it might annoy Hewitt more and make him obstinate." Then Meyer speculated that "the pressure must be put" upon Samuel J.R. McMillan of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Minnesota, the new Chairman of the Senate Commerce Committee,[43] rather than upon the New York delegation, but Meyer clearly had no idea how to go about influencing McMillan. Meyer ended his letter by simply saying that he would "do nothing until I hear from you."[44] There is no indication that Meyer continued his lobbying activities after sending this letter to Dr. Billings.

As for Billings, he soon submitted his resignation from the National Board of Health. Congress had been delaying renewed appropriations for the Board; in June the Board's powers were sharply curtailed, and its appropriations cut to the bone. An emergency fund of $100,000 was created, in the event of an epidemic, but it was turned over to President Arthur, rather than the Board. In July the Board was forced to terminate its quarantine inspection service for lack of funds. By the time it was ready to resume this function, on a reduced scale, the Marine Hospital Service had usurped it. When a yellow-fever epidemic began in August the emergency funds were turned over to the Marine Hospital Service, rather than the Board. By the end of the month all ongoing scientific investigations had been suspended, and the weekly Bulletin shut down. Though legally the NBH continued to exist until 1893, it had effectively been destroyed.

Though Billings stayed on in the surgeon-general's office, his influence had been badly eroded. His connections to the American Public Health Association remained strong, but he no longer was involved with the National Board of Trade, or any coordinated movement for adulteration legislation. Meyer, who had written him at least seventy-four letters since 1879, apparently did not write again, except for one letter almost three years later. The joint NBH/NBT legislative effort had ended.

* * * * * * *

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

In July 1881, after the NBT bill had become law in New Jersey and New York, Dr. Rice printed a letter from Meyer, thanking New Remedies for its "valuable aid." Meyer specifically expressed indebtedness to New York City firms which had given active support to the National Board of Trade/New York Board of Trade and Transportation effort in Albany. He named ten wholesale drug manufacturers and distributors, and nine sugar refiners.[45] The refineries had had a special interest in the legislation, for accusations about sugar adulteration had been revived, and the New York sugar industry was once again in troubled waters. The active support of the New York drug companies demonstrated, in part, their growing importance.

The pharmaceutical market was rapidly shifting from a reliance on the formulations of the individual druggist to the pre-packaged preparations of the manufacturer. These shifts were altering the entire profession. While there were only about ten pharmaceutical manufacturers in the entire nation prior to the Civil War, by 1880 there were almost one hundred. In addition, the number of proprietary manufacturers continued to increase at an even faster pace. To rationalize this growing competition, with its wide fluctuations in pricing, quality, and variety, wholesalers were at this very time organizing a national trade association, which would begin operating in 1882.[46] Manufacturers like Squibb--who was conspicuously absent from Meyer's list--were transitional figures with mixed loyalties to the American Pharmaceutical Association. They helped to create the transition by preparing high-quality and uniform goods for the druggist trade, though Squibb himself was suspicious of the activities and motives of other manufacturers.

Squibb, for example, saw that the average physician and pharmacist (particularly those located in towns and rural areas) were becoming virtual

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

middle-men and distributors for the manufactured preparations sold through the traveling salesmen employed by the pharmaceutical houses:

> The merchant, as such, follows his business to make money by it, and the dealers in medicines are no exception to the rule. Medical supplies are to them simply merchandise, and are dealt in very much as railroad supplies, groceries, and dry goods are, and the invariable and inevitable law of trade is to favor the articles upon which most money is to be made.[47]

In his own price-list Squibb advised that "Physicians and Pharmacists are never so safe as when they powder their drugs for themselves, and the labor and difficulty of doing this is very much overrated." Squibb, of course, offered the entire range of powdered drugs for sale, "To supply those who will not adopt this plan."[48]

The interests of the pharmaceutical manufacturers did not always coincide with those of the physician or of APhA. In fact it could be argued that a law prohibiting the sale of adulterated drugs might well encourage retail druggists to rely more heavily upon pre-mixed and pre-packaged drugs, rather than risk prosecution for goods they themselves prepared. Meyer understood this, and had gone out of his way to negotiate separately with the manufacturers. In February 1881 he had written to Billings:

> I have seen Mr. Robbins of McKesson and Robbins and he consented to be present tomorrow and support my resolutions /. H/e signed the petition.
>
> I have a young man out today getting signatures of the other drug Houses. Mr. Gellatly of Schieffelin will also be on hand and support them. He is very friendly.[49]

Dr. Squibb, however, considered many of the activities of competing firms in the movement to establish codes of ethics, debar patent drugs, and support anti-adulteration laws to be self-seeking behavior. He wrote to Dr. Billings, for example, that Parke, Davis and Co. had "simply taken up this movement now as a high-toned advertisement to bring in money."[50]

Meanwhile APhA, at its 1881 annual meeting, accepted the reality of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the NBT law having been passed in New York and New Jersey, and being seemingly well on its way in the Congress. Dr. Maisch, however, warned that the Association must remain circumspect: APhA's candid reports on adulteration, though they had succeeded "in directing attention to adulterated articles and in preventing or exposing fraud," were being cited "as proof of the inferior or sophisticated condition of the great bulk of the drugs in the American market." He politely repeated the objection Dr. Rice had raised: for the law to "effectively reach this evil" required uniform enforcement by the State Board of Health, and that depended upon the qualifications of the Board's appointees.[51]

After passage of the law in Albany Meyer, for his part, proceeded to mend fences with APhA. In the very next issue of Sanitary Engineer he published a long exposition on the "Comparative Purity of Drugs," which was essentially an apologia for the pharmacists. With the law about to be put into effect, he explained, it was important "to carefully avoid any exaggerations or sensational statements" about "the inferior quality of the medicines sold in this country." Prepared drugs--especially powdered drugs--were where most adulteration was to be found. Meyer laid the blame, not on the pharmacist, who was portrayed as being equally victimized, but upon his recent allies, the wholesale dealers, and upon the federal government's lax enforcement of the 1848 drug import law.[52]

In his next issue Meyer began a celebration of the pharmaceutical associations. Besides reporting on the work they were doing to investigate the adulteration situation, Meyer cheerfully listed all the state associations, and stressed that "the new health law...is the ally of the pharmacist." He chiefly hailed the "importance" of APhA, which "has done vigorous and loyal work."[53]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

By August Meyer was explaining that in a recent--and highly publicized--case of druggist error, in which an infant had died, not the druggist, but the doctor, had probably been at fault. He noted "the negligent writing of physicians, and the general want of any accompanying directions as to the administration of the remedy." Not only did "the majority" of physicians "write badly," but the particular doctor in question was accused of neglecting to state on the prescription that the medication was for an infant. If this oversight had not occurred "there is but little doubt that the error would have been averted." Meyer went on to congratulate the New York druggists on the pharmacy laws for New York City (1872) and Brooklyn (1879), stressing the quality of the profession under the supervision of the Boards of Pharmacy, and urging that the state-wide law desired by the druggists be passed.[54]

* * * * * * *

After the New York City pharmacists had stood together in 1872, and succeeded in replacing the "Irving" law imposed upon them the previous year, they once again went their separate ways. Having defeated what Dr. Maisch had called "rulings of the general government where they oppress the true liberty of those engaged in business,"[55] New York druggists were apparently willing to allow further activity regarding both drug adulteration and regulation of the practice of pharmacy to lie in the hands of their national organization. They waited until 1879 to form their own association.

Although the heightened concern about adulteration was the general stimulant for this renewed collaboration, the specific event leading to the formation of the New York State Pharmaceutical Association (NYSPhA) appears to be the recommendation for a law governing the sale of drugs and poisons

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in Brooklyn, by the newly-formed Kings County Pharmaceutical Society. This organization was closely affiliated with the Kings County Medical Society, and even published its Proceedings in the larger organization's journal. The bill was proposed by the Brooklyn pharmacists in November 1877, and was "in the main a copy of the law enacted for the city of New York in 1872,"[56] but with one interesting difference. While one of the main objections the New York pharmacists had had to the 1871 "Irving" law was the participation of physicians on the pharmacists' licensing board, the Brooklyn bill intentionally proposed such a joint endeavor.

The bill called for a Board of Pharmacy of "five members, two of whom shall be pharmacists...to be elected by the Kings County Pharmaceutical Society...two practitioners of medicine, to be elected by the Kings County Medical Society...and a pharmacist...to be elected by the joint ballot of the members elected."[57] Although physicians had sometimes sought to establish such joint boards,[58] it was quite unusual, if not unique, for pharmacists to have initiated such a plan by their own design, in this period. A possible solution to this enigma may lie in the fact that Dr. Squibb was extremely active in both Brooklyn organizations.

At this time Squibb had just suffered not only defeat, but a sharp rebuff, in his attempts to improve the process by which the USP was to be revised.[59] One of his principal arguments was for increased participation on the part of the medical profession. But his ideas were rejected not only by his fellow pharmacists, but by the American Medical Association as well. Although no direct evidence can be found to substantiate the contention that the Brooklyn bill was Squibb's brainchild, and although Squibb himself was not on the drafting committee, the nature of the proposal and its timing, as well as Squibb's interest in both adulteration and regulation, and his

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

dual membership in both the medical and pharmaceutical professions, are suggestive.

Whether or not Squibb had been involved in the proposal, regulation of the profession was certainly the most heated topic discussed by NYSPhA. Meeting for the first time in May 1879, while the Brooklyn bill was before the legislature, the Association appointed a committee to draft a bill of its own. But the pharmacists quickly divided on an issue that was fundamental to the state of pharmacy at that time: the differences between rural and urban pharmacy. The standard history of American pharmacy, for example, while explaining that most state pharmaceutical associations were organized "partly for the purpose of fostering legislation"--and, perhaps, for shaping legislation that already threatened--explains on the same page that it was only in the larger cities that it was necessary to confine the practice of pharmacy to pharmacists.[60]

In the 18th century there had been no clear distinction between pharmacy and medicine. It had been common for doctors to run their own dispensaries, while apothecaries often engaged in a limited practice of medicine. In addition, even in the colonial period the availability of patent medicines made it possible for general stores to compete with both professions by carrying a broad selection of "pharmaceutical" aids.[61] In 1872 Dr. Maisch had pointed out that, in rural areas, similar conditions still prevailed, with physicians "compelled to dispense medicines and carry them in suitable forms in their saddle bags, while the sale of popular remedies is usually in the hands of country storekeepers who make no pretensions as to any acquaintance with drugs and their preparations."[62]

In the period before the Civil War the medical and pharmaceutical professions began to separate and specialize, putting the prescription and the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

preparation of drugs into separate hands; the city was the cutting edge of this movement. Highly-trained urban physicians lobbied for legislation to keep pharmacists from engaging in diagnosis, and the better-educated urban pharmacists sought to eliminate the competition of both the incompetent untrained "druggist," and the general merchant. Lending urgency to this movement was the growing importance of the manufacturing pharmacist, who after the Civil War increasingly threatened the professional esteem of the pharmacist, for both the competent and the incompetent could deal equally well in preparations already manufactured and packaged for their use. In 1883 Albert B. Huested, president of NYSPhA, complained that the preparation of pharmaceuticals had passed "into other hands" to such an extent in the previous fifty years, "that many so-called pharmacists do not, and could not, properly manufacture the simplest of their preparations."[63] Thus, though the medical profession first initiated legislation to regularize the two professions, urban pharmacists came to share an interest in licensing.

The key to much of the new interest in legislation may well have been the growing public concern over adulteration. Here was an issue that threatened both professions. The newspapers not only made a career of attacking incompetent physicians and pharmacists, but anticipated one conclusion of the NBT committee: adulterated drugs were more dangerous than adulterated foods. New York State had enacted a physicians' licensing law on May 11, 1874, which put the responsibility for enforcement exactly where the medical profession wanted it: the county medical societies.

But the press continued to attack incompetence, usually linking it to the drugs prescribed by the physician. Dr. Billings warned the students graduating from Bellevue Hospital that they ignored the adulteration question at their own peril:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> You will find that public health legislation is a matter to which you cannot remain indifferent, for you will become part of the machinery whether you wish it or not....One of the matters just alluded to touches your professional work very nearly, and that is the adulteration of drugs....Unless you can depend upon getting what you call for in your prescription, what success can you hope for? and yet unless you know what apothecary is to fill that prescription, you cannot rely upon it.[64]

Although Billings felt that the rural practitioner was in more danger of relying upon incompetent druggists than the urban doctor, the warning was clear: if the prescription doesn't work, the doctor is blamed at least as much as the druggist.

If doctors warned against incompetence in pharmacy, pharmacists were perfectly willing to include the doctors in their own catalog of accusation. Dr. Maisch, in a well-publicized speech to the American Public Health Association, laid the blame for drug adulteration on three factors: the inadequacies of the 1848 drug importation law; irresponsible manufacturers of patent medicines; and the lack of responsiveness of the medical societies, which, he claimed, had refused to cooperate with the anti-adulteration efforts of the American Pharmaceutical Association.[65] Thus, both the medical and pharmaceutical professions realized they could be made to bear the blame for ineffective or dangerous drugs.

Adulteration had become the sword that hung over APhA. Yet, if these accusations constituted a threat to the organization's desire to regularize the profession, the adulteration issue could be turned into an asset, if APhA could demonstrate concerned involvement. For eleven years the Association had virtually ignored the entire subject, then, beginning with the session of 1871, each issue of the Proceedings carried a report of the new Committee on Adulterations and Sophistications.

But these reports were designed for the trade, not the general public. They contained little over-all commentary, concentrating on technical in-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

formation on specific medicinal supplies. When the APhA Committee did make general statements, they tended to convey the impression that the subject was so complex that any comprehensive evaluation was out of the question. Though the report for 1874 agreed that it should be the aim of APhA "to stand guard over the quality of all substances relating to pharmacy, and seek out and denounce all frauds," the Committee raised so many "drawbacks" to carrying out this responsibility that the difficulties seemed insurmountable.[66]

Throughout this period APhA made no attempt to evaluate the actual extent of adulteration in the marketplace. In fact, by 1876 the Committee admitted what had long been obvious: all the items in their list, with the exception of "some stray facts coming under our own observation," and one letter from the University of Michigan Pharmaceutical School, were gleaned "from journals accessible to us."[67]

By 1881, with the agitation over the NBT bills and publication of the Diehl report in the NBH Bulletin bringing the subject before the public eye, APhA became more responsive. The organization accepted for discussion at the following year's meeting a challenging question on the purity of powdered drugs, the form of medication most notoriously susceptible to sophistication. The eight-page response by C.B. Allaire of Illinois was, at first glance, anything but sanguine: it reported that fully 46% of the samples tested "were sufficiently adulterated that detection was easy." Moreover, Allaire noted that "these examinations were not made from suspected samples or with the intention of making an unfavorable showing."[68]

Considering these results, Allaire's comments and conclusions are interesting: any druggist wishing "powdered drugs of absolute purity and prime quality" could easily obtain them by paying an appropriate price. He

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

declared that virtually all wholesalers and processors were honest and reputable, and "that the present large percentage of adulterated goods in the market, is the result of a wide-spread demand for cheap goods."[69] Allaire concluded that legislation was incapable to curing adulteration. There were only two effective steps: better training within the profession, so that pharmacists could detect (and, presumably, reject) adulterations more readily; and a willingness to pay higher prices for quality supplies.

These same sentiments were repeated in the discussion that followed Allaire's paper. Dr. Maisch, after insisting that the adulteration situation was certainly no worse than it had been "thirty or forty years ago," strongly suggested that pharmacists hesitate before rushing into print with revelations about adulteration, because so few of them were really experienced enough to form positive judgments. Even Dr. Squibb, Maisch pointed out, "hesitates to make such results public."[70] James Richardson, of the Western Wholesale Druggists' Association,[71] condemned the growing practice of price-cutting, and hinted that if retailers were only willing to pay decent prices to the wholesalers, they would be entitled to raise their own charges in turn, and receive "a just and honorable compensation."[72]

Events in NYSPhA paralleled those in APhA. Although the law of 1872 had applied only to the state's largest city, by the end of the decade support was growing among pharmacists in other New York communities to acquire protective legislation. Nor was this sentiment found only among those dedicated to the improvement of the profession and the betterment of society; licensing meant limiting competition. But there was considerable resistance to a motion, at the first NYSPhA convention, to draft an adulteration bill. Although the opposition was primarily from rural representatives, enough of the urban members--who made up the majority[73]--

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

joined to create a deadlock. As Dr. Huested put it: "If the city of Brooklyn sees fit to make a regulation for themselves, all very well. The druggists of the state can make such a regulation when their necessities call for it."[74] The session adjourned without reaching a decision on the issue.

At the second session of NYSPhA, in 1880, a committee succeeded in drafting a bill very much like the New York City law. It imposed strict conditions upon all those wishing to begin a pharmaceutical practice, but grandfathered in all existing druggists. New York and Kings Counties--which had their own laws--would not be covered by the law, the proposed State Licensing Board would be composed of members of the Association, and one section of the bill prohibited adulteration.[75]

Although the bill provided strict rules and penalties for adulteration, there was very active discussion about protecting the innocent druggist who inadvertently sold sophisticated drugs. That year's president, P.W. Bedford, insisted that only those "knowingly" selling adulterated drugs should be punished. "The difficulty in my mind seems to be," Bedford explained, "how to protect the seller of an article which he believes to be pure, or of a reliable quality, and finds out, perhaps too late, that he himself has been deceived."[76] This "difficulty" proved almost insurmountable, but the proposed bill was finally approved, for submission to the state legislature in 1881.

With the bill undergoing the amendment process in the State Senate, debate continued in the NYSPhA session of 1881, the chief complaints coming from the rural minority. A clear example of the opposition argument was the statement of a Mr. Tozier, of Brockport:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> I do not think my side of the question is a popular one here; but I do believe, as you go out into this great imperial State of New York, that you will find hundreds of druggists, not here to-day, who will express the same sentiments as myself. If, however, a committee is to represent us /in Albany/, let it be made up of the country druggists in part, and not all from these great dominant cities of the State....
>
> The demands made upon the country druggists, are not equal to those in our large cities....we ought to have the privilege, and the right.../to/ not be measured by the standard that is used in New York....[77]

The Association finally endorsed the amended bill, but it died in the State Assembly, and the NYSPhA law was not achieved until 1884.[78] The law, as finally passed, corrected the "weighty objections"[79] to the 1872 law, and put control over the practice of pharmacy firmly in the hands of the Association. NYSPhA was not fully satisfied, however,[80] because the law provided a good deal of leeway for non-pharmacist merchants and grocers who sold patent medicines, or "the usual domestic remedies" put up by legitimate pharmaceutical manufacturers; doctors also could supply "their patients with such articles as they may deem proper."[81] The 1884 law contained no section dealing with drug adulteration, presumably because that was covered by the NBT act of 1881.

* * * * * * *

The other state pharmacy bill of 1881 dealt with patent medicines, and was virtually confiscatory in nature. Submitted to both Assembly and Senate on February 16, the bill would have required complete ingredient labeling of proprietary drugs--including proportional quantities--and would have set up a special board with the power to inspect manufacturing facilities and to deny licensure for any such medication. No proprietary drug could have been sold in the state without a certificate and, to add insult to injury, the manufacturers would have to pay the commissioners for the time spent investigating their products. Similar bills had been submitted to earlier

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

legislatures and, like them, this patent-medicine bill was accompanied by the endorsement of a large number of eminent New York physicians and pharmacists.

When the Assembly Committee on Public Health rejected the bill less than a month later, the Times reported it as a conspiracy of the proprietary industry. Milton M. Fenner, the Chairman, was accused of being a patent-medicine dealer, and two Erie County Assemblymen on the Committee, and one from Westchester, were accused of being in the pocket of the proprietary interests.[82] This defeat was an annoying setback for the pharmacists, who had long been attempting to make the nostrum manufacturers the scapegoats on the drug adulteration question.

This effort of the New York pharmacists was certainly not unique; Prof. James H. Young notes that state formula disclosure bills, promoted by physicians and pharmacists, became common in the 1880's.[83] And it is probably not coincidence that it was at this time that nostrum makers formed the Proprietary Medicine Manufacturers and Dealers Association. Publication of the Diehl report, the passage of the NBT bills in two states (though they did not prohibit nostrums specifically), and the New York patent-medicine bill, all coming in 1880-1881, may well have influenced the proprietary manufacturers to join in self-defense.[84]

Although 1881 long antedates the time when the nostrum makers held an iron hand upon much of the press,[85] certainly patent-medicine advertising was becoming ubiquitous. The New York Times constantly ran long nostrum ads in this period, many of them disguised as news items reporting medical breakthroughs. Even if the Times was not so frightened of losing this revenue that it refused to criticize the proprietaries, it nonetheless published dozens of editorials criticizing incompetent doctors and druggists for each

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

editorial against the nostrums. Perhaps for fear of lawsuits, the Times appears, in this period, never to have attacked any one patent medicine specifically.

It is ironic that the proprietaries were reaching new heights in both sales and advertising at exactly the time that the medical profession acquired the knowledge to prove that the nostrums were dangerous and inefficacious. One reason it was difficult to attack the nostrums effectively was that they camouflaged themselves with the jargon of legitimacy. The nostrums pretended to be part of this new age of medical discovery, and appropriated quotations--and misquotations--from medical authorities for their own advertising.[86]

A letter in Dr. Billings' files is a perfect example of these practices. Lambert and Company, manufacturers of the new product "Listerine," had selected a quotation of Dr. Billings "to form the introduction for our pamphlet" describing their nostrum. Lambert also explained the source of their trade-name with unconscious satire:

> It was difficult to find a strictly scientific name for the preparation, owing to the number of ingredients, and as Mr. Lister's name is so inseparably connected with "antisepticism," we deemed that the one selected would define its character, as well as confide its nature to the knowledge of the profession.[87]

In 1884 APhA appointed a committee to prepare model legislation on proprietary drugs, and at the next year's session this proposed bill was presented. Resembling the failed New York bill of 1881, the draft called for registration of the formulae of all patent medicines, and content labeling of the active ingredients. APhA recommended that such laws be passed, not only by Congress, but in every state.[88] The committee stressed that the public knew what articles it purchased from the pharmacist, for he followed the doctor's prescription, but that proprietary drugs had a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"secret composition." Yet druggists felt compelled to carry nostrums because they believed that the public would simply buy them from less competent merchants, such as grocers, if pharmacists refused to deal in proprietaries.[89]

The pharmacists argued that it was really the patent drugs that caused price-cutting--which in turn encouraged adulteration--for the public paid relatively low prices for the nostrums, which cost almost nothing to manufacture. In contrast, the legitimate druggist, in addition to his business overhead, had to pay high prices for quality ingredients for officinal drugs. But an ignorant public simply assumed that because he charged more for his own preparations than for patent drugs, the pharmacist was profiteering. As a NYSPhA spokesman explained, "The consumer also knows the price of Ayer's Sarsaparilla or of any of the other common patents, but does not know the prices of general drugs and therefore he is not competent to judge of their value or quality." Thus NYSPhA argued that the nostrums were the single greatest obstacle to victory over adulteration.[90]

The grocery trade, understandably, saw the legislative efforts of the pharmacists as an attempt to reserve the sale of profitable "over-the-counter" drugs to their own profession. American Grocer ran a number of articles specifically attacking these efforts, in 1882 and 1883:

> In these days, when staples afford very small profits, grocers cannot be too wide awake in adding to their stock such lines of goods as are consumed in every family, and which pay liberal margins. This is especially true of drugs and patent medicines, and it rightfully belongs to the grocer to add such merchandise to his stock. Heretofore the objection has been urged with force that drugs should only be sold by persons educated to the business. This no longer holds good, except where prescriptions are to be compounded, because of the new method of compounding standard remedies and putting them up with full directions as to their use.[91]

American Grocer's parallel criticism that the druggists were themselves infringing upon the grocer's territory was echoed by Dr. Huested of NYSPhA,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

who found it impossible to explain "How it is that we have come to include, even in cities and populous districts, nick-nacks of all sorts...even teas, coffees, knives, razors, pocket-books, stationery, cigars....They are certainly not medicines, nor do they require pharmaceutical skill to handle."[92] The Grocer, reacting to the renewal of discussion on the subject in 1884, responded bitterly that "When a man gets ten cents a grain for a salt that costs two cents a pound, and sells a glass of soda at a thousand per cent. profit, he don't seem to be suffering for 'protection' so much as his customers do."[93]

* * * * * * *

Drs. Squibb and Billings agreed that, with the passage of the NBT bill in New Jersey and New York, the United States Pharmacopoeia had taken on new significance.[94] After all, by the definition adapted from Prof. Wigner's essay, all officinal drugs were now to be judged in "strength, quality, or purity" by the standards of this unofficial directory. For this reason Squibb felt that it was now more important than ever that APhA's control over the USP be reduced, with "two or three strong representative medical men" influencing the Committee of Revision.[95] Ideally, Squibb wanted the AMA to take over responsibility for the decennial revisions.

Squibb, because of his concern about adulteration and high standards for the profession, had initiated a one-man campaign in 1876 to alter the manner by which the USP was revised. He particularly objected to the dominance of "the Philadelphia crowd"[96] and the dependence upon the privately-owned Dispensatory that the sketchiness of the USP had created. So long as Drs. George Wood and Franklin Bache, the respected editors of both the USP and its companion Dispensatory, were alive there was little that Squibb

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

could do to create a pharmacopeia able to stand alone, and become the authoritative volume which he felt it should be.

But with the death of Bache (1864), and the incapacitation of Wood by age and infirmity (he died in 1879), Squibb felt that the opportunity had come to encourage broad changes. Although Squibb greatly admired both men, he felt that their control had created an unhealthy situation, particularly since the inadequacies of the USP had allowed the patent-medicine manufacturers to thrive.[97] But although Squibb addressed a wide variety of medical and pharmaceutical societies in 1877, and participated in a pamphlet war for his cause, both professions rejected his arguments.

Virtually the entire pharmaceutical profession rose up in indignation, led, predictably, by the Pennsylvanians. Horatio C. Wood, Dr. George Wood's nephew, called Squibb's objections "a misunderstanding so groundless...that it is monstrous."[98] Dr. Alfred B. Taylor, a leading Philadelphia pharmacist, and first treasurer of APhA, accused Squibb of planning "a coup d'etat."[99] At a special meeting of the Philadelphia County Medical Society, called to "take action upon" Squibb's proposal,[100] Prof. Maisch insisted that the regular revision plan was "far superior to that proposed by Dr. Squibb."[101]

When the AMA met, in June 1877, it gave Squibb little time to present his arguments; he noted in his journal: "My entire subject of the Pharmacopoeia was indefinitely postponed without hearing the whole of my paper, and thus I was sat down upon very hard."[102] Like APhA, the AMA rejected Squibb's plan. After his defeat he resolved to do what he could toward improving the USP within the existing rules. He participated in the revision conferences as an invited guest, though not elected as a delegate. After its publication, he admitted gladly that "As a whole, it must first be said --and can hardly be said with too much emphasis--that it seems to be by far

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the best Pharmacopoeia of the time."[103]

To some extent it must have been Squibb's influence, and also the new significance of the USP under the New Jersey and New York laws, that encouraged the APhA Committee of Revision, led by Dr. Charles Rice, to make some radical departures in the new Sixth Revision, published in 1882. This new USP placed much less emphasis on the outworn notion that the community pharmacy was a place of pharmaceutical manufacture. Instead it provided better guides for the druggist to judge the quality of the medicinal supplies and products he purchased from manufacturers and wholesalers, and many new tests were provided for establishing the purity of drugs.[104]

Interestingly, however, while the revision was nearing completion some of Squibb's former opponents sought to put the stamp of legality upon the USP, and to broaden its base. Dr. Maisch wrote Billings, urging the federal government to take a hand in "the revision of the U.S. Pharmacopoeia." He stressed the need to create a truly "authoritative medical lawbook for the entire country," a uniform standard.[105] Three days later he wrote again, emphasizing that "At present the U.S. Pharmacopoeia is a voluntary production of a fraction of the medical and pharmaceutical professions," and that the nation needed a better system.[106] These pleas are made all the more interesting when it is realized that Maisch was not only a leader of APhA, but was also a member of its Committee of Revision.[107]

Dr. Isaac M. Hays of Philadelphia, publisher of the respected Medical News and Library, to which Billings often contributed, had been one of Squibb's strongest attackers. He had declared that for the AMA "to attempt to seize the Pharmacopoeia in the proposed violent manner is neither admissible in law nor justifiable in morals."[108] Yet when Hays received a similar letter from Maisch he too wrote Billings, supporting Maisch's

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

arguments:

> The present "Pharmacopeia" simply bears the authority of custom while such a book should bear the stamp of the "Government," for it is the very essence from which other volumes are to draw their authority.
>
> The /1870/ convention for the revision of the U.S. Pharmacopeia was manipulated in the most disgraceful if not corrupt manner--and the committee of revision then appointed is notable for the absence of names of note and standing from the Medical profession....The production of a work such as the Pharmacopeia in incompetent and corrupt hands is to say the least a public misfortune.[109]

When, however, a bill was introduced in the House of Representatives, in January 1884, for the federal government to "Prepare and Publish a National Pharmacopoeia for the United States," the medical and pharmaceutical professions rose to oppose it. One suggestion was perhaps typical of the sentiment within both groups: "Resolved....That all necessary legal authority which the present Pharmacopoeia does not now possess can be easily given it."[110] But indeed, this is exactly what was already happening, for as other states followed the lead of New Jersey and New York in passing adulteration laws--even when those laws varied widely from the original NBT plan--the new laws used the USP to set the standards by which adulterations of officinal drugs were judged. Dr. Rice's excellent revision made enforcement of the new state laws potentially more efficient and secure.

To what extent would that potentiality be realized? The NBT law intentionally avoided providing definitions of "purity" for even the most common foods. But, since the law adopted the USP as its official guide to drug purity and quality, the health authorities were provided with a ready-made standard by which to judge every officinal medicinal formula and ingredient. The pharmaceutical profession argued that it was capable of regulating itself. In the area of food, of course, no parallel organization existed. The sanitarians would have to decide if they were willing--at least through inaction--to entrust the pharmacists with such self-regulation.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER VIII

[1]Dr. Billings addressed an international medical conference in London, and was accompanied by Meyer.

[2]George T. Angell, Autobiographical Sketches and Personal Recollections (Boston, 1892), pp. 70-71.

[3]Smart's report was a fairly comprehensive and judicious examination of the actual state of adulteration, plus an evaluation of the contemporary literature; a competent job, but unquestionably slanted.

[4]Dr. Charles Smart, "Report of an Investigation to Determine the Prevalence of Adulteration in Food Supplies," National Board of Health Bulletin, Supplement No. 11 (January 1, 1881), p. 1.

[5]Ibid.

[6]Watered milk would almost certainly have been included in Smart's list, but milk was not among the foods tested, since it was assumed that it was common knowledge that milk was frequently adulterated. See NBH form letter dated 6/7/80, from Smart: "Wines, liquors, and dairy produce are not included in this investigation as their status is believed to be understood." (Chandler papers.)

[7]Meyer to Billings, 1/1/81, Billings papers.

[8]Meyer to Billings, 1/21/81, Billings papers.

[9]Peter W. Bruton, The National Board of Health (unpublished doctoral dissertation, University of Maryland, 1974), pp. 252-253.

[10]Wingate papers.

[11]The Nation, XXXII, no. 813 (January 27, 1881), 52.

[12]Angell, Autobiographical Sketches, p. 72.

[13]"A Bill Authorizing the President to appoint a commission to examine and report upon the adulteration of food," 46th Cong. 3rd Sess. H.R. 7005 (1/24/81).

[14]Adulteration of Food, 46th Cong. 3rd Sess. H. Rept. 199 (Washington, February 4, 1881), p. 1.

[15]Ibid., p. 14.

[16]Ibid., p. 15.

[17]Ibid., pp. 17-19.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[18]Sanitary Engineer, 2/15/81, 130.

[19]Meyer to Billings, 2/21/81, Billings papers. Similar sentiments were repeated by Meyer in another letter dated 3/1/81.

[20]American Grocer respected this prohibition until 2/22/83, 390, when it briefly mentioned "the notorious Boston Angell," at a time when agitation was stirring once again.

[21]Journal of the American Chemical Society, III (1881), 62.

[22]Ibid., 60.

[23]Times, 6/4/81.

[24]Journal of the American Chemical Society, 60.

[25]Kedzie to Billings, 1/5/82, Billings papers; letter confirms receipt of Billings' draft of the circular, and Kedzie's willingness to print it under his own name.

[26]Printed memo from Kedzie, dated 1/5/82.

[27]Squibb wrote Billings (1/5/82, Billings papers) that while the New York adulteration bill was "in its passage" he had had time only to criticize it "verbally, and that without effect. But when this U.S. Law was prepared I felt a very strong desire to criticize it, as it was so much like the others, and would be a model for so many states."

[28]An Ephemeris of the Materia Medica, Pharmacy, Therapeutics, and Collateral Information, I, no. 1 (January, 1882), 21.

[29]Ibid., 24-25.

[30]Ibid., 24-29. Squibb had also written to Billings (12/23/81, Billings papers) that "There are grave defects in the N.Y. Adulteration Law. If you are specially interested as I hope you are in having a general Law, please look carefully over my proposed law, on which both the N.Y. and N.J. laws are based." Squibb was clearly in error, but if he recorded this notion in his journals, to which Lawrence G. Blochman, Doctor Squibb (New York, 1958), had access, Blochman's erroneous assumption discussed above, chapter IV, p. 137, n. 37, is explained.

[31]Meyer to Billings, 2/1/82, Billings papers. Draper was Chandler's colleague at Columbia. In 1886 he would become president of the New York Academy of Medicine.

[32]Meyer to Billings, 2/1/82, Billings papers.

[33]Meyer to Billings, 2/3/82, Billings papers.

[34]Reilly wrote to Billings, 2/5/82, Billings papers, asking for advice about taking the job. His letter indicates a close relationship with Billings, for whom he had been working in the NBH's quarantine effort in the South. (See Bruton, The National Board of Health, p. 211.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[35]Meyer to Billings, no date, Billings papers.

[36]Meyer to Billings, 2/13/82, Billings papers.

[37]Ibid. Apparently Meyer intended that the proposed law apply to liquors, but wished to avoid calling this to public attention.

[38]Newell to Billings, 3/3/82, Billings papers.

[39]Adulterated Food and Drugs, 47th Cong. 1st Sess. H. Rept. 634 (Washington, March 4, 1882).

[40]Newell to Billings, 3/7/82, Billings papers.

[41]Newell to Billings, 3/7/82; Congressman Thomas H. Herndon to Billings, 3/10/82; Dr. D.W. Hand (St. Paul, Minnesota) to Billings, 3/28/82, Billings papers.

[42]Hewitt was a wealthy iron manufacturer, who was elected mayor of New York City in 1886; a Democrat.

[43]A year earlier Meyer might have hoped for support from the Senate, where New York's Roscoe Conkling was Chairman of the Commerce Committee. But after Conkling's dramatic resignation from the Senate, in May 1881, the chairmanship was given to McMillan. See below, ch. XI, for relations between Conkling and Thurber.

[44]Meyer to Billings, 4/4/82, Billings papers.

[45]New Remedies, X, no. 7 (July, 1881), 208.

[46]See William H. Becker, The Wholesalers of Hardware and Drugs, 1870-1900 (unpublished doctoral dissertation, The Johns Hopkins University, 1969), pp. 160, 171; F.E. Bogart, et. al., A History of the National Wholesale Druggists' Association from Its Organization to Nineteen-twenty-four (New York, 1924), pp. 24-27.

L.F. Kebler, "The Good Work of the Western Wholesale Drug Association (1876-1882) For Honest Drugs," Journal of the American Pharmaceutical Association, XV, no. 4 (April, 1926), 293-297, argues that the WWDA, the forerunner of the NWDA, was particularly outraged by the poor quality and broad adulteration of drugs in the Western market, and set out to elevate standards. It should be noted, however, that the WWDA laid the lion's share of the blame upon the ineffectiveness of the 1848 import law, and was loathe to consider whether its own members were equally guilty.

[47]Edward R. Squibb, "The Relations of Physicians to their Medical Supplies," Transactions of the New York State Medical Association for the Year 1886, III (Concord, New Hampshire, 1887), p. 89.

Squibb did not deny that benefits could derive from large-scale pharmaceutical manufacture. He indicated in his own Squibb Trade List, August 1, 1861, that quality mass-production could supply "a class of standard preparations...accessible to all," replacing the haphazard quality control faced by physicians dealing with a succession of local druggists, or druggists buying from an assortment of importers and distributors.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[48]Squibb Semi-Annual Price List, 1881, p. 17.

[49]Meyer to Billings, 2/2/81, Billings papers.
William A. Gellatly was a partner in Schieffelin and Co., founded in 1780, and probably the largest wholesale drug manufacturer in the country in 1881. The Schieffelin family not only controlled the New York College of Pharmacy, but also the National Wholesale Druggists' Association. Gellatly was one of the first presidents of the NWDA, and after his death in 1885 was succeeded by Henry H. Schieffelin, and then by William J. Schieffelin, Jr. Meyer singled out Schieffelin and Co. in his New Remedies letter for its aid to the NBT Committee. See Schieffelin & Co., 150 Years Service to American Health (New York, 1944).

[50]Squibb to Billings, 12/23/81, Billings papers.

[51]Proceedings of the American Pharmaceutical Association, XXIX (1881), 377-378.

[52]Sanitary Engineer, 6/15/81, 330-331.

[53]Sanitary Engineer, 7/1/81, 354.

[54]Sanitary Engineer, 8/1/81, 402.

[55]American Journal of Pharmacy, LII (1880), 382; quoted in Glenn Sonnedecker, Kremers and Urdang's History of Pharmacy (Philadelphia: J.B. Lippincott, 1976), p. 196.

[56]Proceedings of the American Pharmaceutical Association, XXVII (1879), 659.

[57]Ibid., 663-666, for the law, as passed. See Proceedings of the Medical Society of the County of Kings, II, no. 10 (December, 1877), 294-297, for original draft of the bill.

[58]Sonnedecker, pp. 189-195.

[59]See below, pp. 268-269.

[60]Sonnedecker, p. 216.

[61]Ibid., pp. 155-157.

[62]American Journal of Pharmacy, XLIV (1872), 137; quoted in Sonnedecker, p. 216.

[63]Proceedings of the New York State Pharmaceutical Association, V (1883), 19.

[64]John S. Billings, "Address to the Graduating Class of Bellevue Hospital Medical College," (delivered March 15, 1882), in Frank B. Rogers, Selected Papers of John Shaw Billings (Medical Library Association, 1965), p. 143.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[65]Times, 11/14/74.

[66]Proceedings of the American Pharmaceutical Association, XXII (1874), 305.

[67]Proceedings of the American Pharmaceutical Association, XXIV (1876), 403.

[68]Proceedings of the American Pharmaceutical Association, XXX (1882), 578. Allaire's estimates were based on the examination of one stock of drugs, from the supplies of a single Illinois pharmacist, and thus were virtually worthless, since he attempted to draw broad conclusions from this limited sample. He did report on samples tested by other pharmacists, in other states, but his table of results--a report on 416 samples--was based only on the single source.

[69]Ibid., 576. The depression of the 1870's had accelerated the decline of wholesale drug prices, already begun by the expansion of the industry. Becker, p. 175, provides the following chart, taken from U.S. Department of Commerce figures:

Wholesale Price Index for Drugs & Chemicals
(1910-1914=base of 100)

1855...178	1875...149
1860...175	1880...120
1865...300	1885...100
1870...199	1890... 90

[70]Ibid., 655.

[71]The Western Wholesale Druggists' Association, founded in 1876, became the present National Wholesale Druggists' Association in 1882. The organization was founded specifically to overcome "excessive and unmercantile competition." See Sonnedecker, p. 323; Becker, pp. 189-193; Henry Assael, ed., The Politics of Distributive Trade Associations: A Study in Conflict Resolution (Hempstead, New York: Hofstra University Yearbook of Business, 1967), p. 28.

[72]Proceedings, APhA (1882), 656.

[73]An analysis of the membership roll printed in the NYSPhA Proceedings for 1880, when the turnout was larger and more representative of the actual composition of the organization, demonstrates that the vast majority came from upstate; of the 122 whose names appeared, only six came from New York City, and four from Brooklyn. Nevertheless, the membership was primarily urban, most members coming from smaller cities like Buffalo, Utica, and Syracuse.

[74]Proceedings of the New York State Pharmaceutical Association, I (1879), 60.

[75]Proceedings of the New York State Pharmaceutical Association, II (1880), 140.

[76]Ibid., 19.

[77]Proceedings of the New York State Pharmaceutical Association, III (1881), 34, 46.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[78]Although the bill passed both houses comfortably in 1884, two companion bills, though supported strongly in the Assembly, died in the State Senate. These bills would have 1) forbidden the sale of drugs by non-professionals such as grocers, and 2) prohibited retail druggists from selling "wines and liquors." See New York State Assembly and Senate Journals, 1884.

[79]John M. Maisch (Chairman), "Report of the Committee on Legislation," Proceedings of the American Pharmaceutical Association, XX (1872), 148.

[80]Albert B. Huested (Chairman), "Report of the Legislative Committee," Proceedings of the New York State Pharmaceutical Association, VI (1884), 51.

[81]New York State Pharmacy Law of 1884, published in Proceedings of the American Pharmaceutical Association, XXXII (1884), 371.

[82]Times, 3/11/81.

[83]James H. Young, The Toadstool Millionaires (Princeton, New Jersey: Princeton University Press, 1961), p. 228. Young notes that the proprietary manufacturers felt confident about derailing such state bills; it was not until the possibility of federal legislation became a threat, at the turn of the century, that they "recognized that the time for concessions was near at hand."

[84]Young, pp. 106-108, citing several histories of the Proprietary Association, explains that the Association was begun to fight a special federal tax on patent medicines, that had been initiated in 1861, and continued since that time. This was indeed a primary early goal of the Association, and they were successful in having the tax repealed in 1883, as Prof. Young notes. This, however, does not explain adequately why the Association was formed at that particular time, especially since the tax had been in existence for twenty years.

[85]Young, pp. 211-222. This refers to the story of the "red clause," made infamous by Samuel Hopkins Adams, in his series "The Great American Fraud," published in Collier's in 1905. The "red clause" was contained in proprietary advertising contracts: "It is mutually agreed that this Contract is void, if any law is enacted in your State restricting or prohibiting the manufacture or sale of proprietary medicines." It was a device to pressure newspapers, which had become dependent upon nostrum advertising, to lobby against such legislation.

[86]Young, pp. 157, 169. Scribner's Monthly, XXII, no. 2 (June, 1881), 304-306, defended proprietary advertising by arguing that even the doctors fought among themselves as to the appropriate treatment of disease; who then could simply dismiss all patent drugs simply because some doctors attacked them? Besides, "it would be equally just to say that the doctors are all frauds, because some of them undoubtedly are." The editor, however, rejected out-of-hand proprietary ads "for the cure of disgusting and disgraceful diseases, involving immorality."

[87]Lambert and Company, St. Louis, Missouri, to Billings, 5/29/82, Billings papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[88]Proceedings of the American Pharmaceutical Association, XXXIII (1885), 394-396. The committee was comprised of Charles Rice, Frederick Hoffmann, and Albert B. Prescott. Prescott's "Remarks" had been published in the Sanitary Engineer competition Supplement. Hoffmann had been an analyst for the New York State Board of Health (see below, ch. X), was on the faculty of the New York College of Pharmacy, and a member of the APhA USP revision committee.

[89]See Young, p. 208.

[90]Proceedings of the New York State Pharmaceutical Association, VII (1885), 32. Speech of Arthur H. Rogers, of Geneseo, New York.

[91]American Grocer, 12/21/82, 1353.

[92]Proceedings, NYSPhA (1883), 18.

[93]Grocer, 5/9/84, 835.

[94]Squibb to Billings, 12/23/81, Billings papers.

[95]Ibid.

[96]From Squibb journals, quoted in Blochman, Doctor Squibb, p. 266.

[97]Ibid.

[98]Horatio C. Wood, pamphlet addressed to the members of the AMA, dated February 20, 1877. Dr. Squibb circulated, at his own expense, reprints of his own arguments, and those of his opponents, during the conflict. The final version is titled "The American Medical Association and The Pharmacopoeia," and consists of 157 pages. This material was made available by the Squibb Archives. Wood's comment is found on p. 61 of this material.

[99]Alfred B. Taylor, "The Pharmacopoeia of the United States and the American Medical Association," read to a special meeting of the Philadelphia College of Pharmacy, April 9, 1877; see Squibb, "The AMA and The Pharmacopoeia," p. 68.

[100]Proceedings of the Philadelphia County Medical Society (May 9, 1877); see Squibb, "The AMA and The Pharmacopoeia," p. 98.

[101]Ibid., p. 100. Though most of the pharmacists in attendance were not members of the Medical Society, they overran the session. See Blochman, p. 269.

[102]From Squibb journals; quoted by Blochman, p. 270. Squibb's criticisms were not ignored by all AMA members. Later that year the Medical Society of the County of New York, to which Squibb did not even, apparently, belong, heard a report from its committee on the pharmacopeia, "that the present United States Pharmacopoeia is a work of inferior merit, and in need of radical revision." The next year the committee suggested "a departure from its present plan, or an enlargement of its scope." See Minutes of the Medical Society of the County of New York (manuscript), 10/17/77, 10/28/78.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[103]An Ephemeris, I, no. 7 (January, 1883), 201.

[104]Sonnedecker, pp. 266-267.

[105]Maisch to Billings, 5/29/82, Billings papers.

[106]Maisch to Billings, 6/1/82, Billings papers.

[107]Dr. Rice was the chairman. The committee included Hoffmann, P.W. Bedford of NYSPhA, C. Lewis Diehl, as well as Maisch and eleven others.

[108]The Medical News and Library (May, 1877), 72; see Squibb, "The AMA and The Pharmacopoeia," p. 105.

[109]Hays to Billings, 5/30/82, Billings papers.

[110]Boston Medical and Surgical Journal, CX, no. 12 (March 20, 1884), 275.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER IX

ENFORCEMENT: AN UNEVEN HAND

The activities of the druggists and the pharmaceutical manufacturers, the businessmen, chemists, and sanitarians, can be tied together through what may at first seem an irrelevant event. On June 7, 1881, a new law, supported by Henry Meyer, but opposed by many of his "professional" readers, was passed for New York City and Brooklyn. This law called for the licensing of plumbers, and the inspection of their work by the State Board of Health. The Times commented, when the bill was first contemplated, that an ignorant and careless population needed protection from its own folly: "To any thoughtful person it is amazing that people in general are so wholly indifferent to the commonest sanitary observances....As for the mass, they go on heedlessly contaminating their homes, buying and using impure milk, unwholesome meat and vegetables, and adulterated food."[1]

In this era an entirely new concept of government was evolving: not just a socially-conscious government, but government in loco parentis. The Times editorialized, after the plumbers' bill became law, that "It is not enough that a paternal Government should protect /citizens/ against criminals, lottery ticket sellers, and three-card monte men--it must intervene in their dealings with artisans and tradesmen to avert the consequences of their own incompetence."[2]

In general, "professionals" not only shared this attitude, but were eager to assume their responsibilities as guardians of their specialized trade,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

whether it was pharmacy, medicine, or plumbing. In the same issue of Sanitary Engineer that announced the passage of the Plumbing Inspection Law, Meyer celebrated his success with the New York adulteration bill. He mixed two interesting observations. The first of these was that only "the most able, honest, and cautious men should be intrusted with the administration" of the adulteration law--the professionals of the State Board of Health. Secondly, Meyer commented that "if the new law is efficiently enforced...the public health will be protected, and the food products and pharmaceutical preparations made and sold in this State will command a premium over those of States where similar laws do not exist or are not enforced."[3]

If Lawrence Friedman is correct in saying that, in this era, "business generally welcomed state control, provided the control was not unfriendly, and provided it carried with it protection for their little citadels of privilege,"[4] the same was true for the professionals. Regulation was not so much imposed upon both groups, as it was urged by them. While it would be absurd to argue that all such business-inspired reform was "a fraud,"[5] certainly businessmen like Thurber did more than ride a wave of popular protest. They sought to guide and direct; in Prof. Leeds' words, "to control and shape the laws."[6] In an age of reckless competition, augmented by a rapidly-expanding transportation and communication network, businessmen sought to regularize competition. Like the insurance promoters discussed by H. Roger Grant, men like Thurber felt they "could generate business if they drove out dishonest promoters,"[7] particularly in view of the increasing publicity about irresponsible manufacturers and merchants.

But if the professionals were equally concerned about establishing their prerogatives, and also turned to government for protection and legitimatization, the businessmen were eager to turn this to their own advantage,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to use the professional as the instrument for legitimatizing commercial activities. Nor was money the sole inducement used, for the professional and the businessman needed one another, served one another. If, as Robert Wiebe says, the professionals were seeking to control the new fields of science, were trying to bring order out of chaos by bureaucratizing society, it was often through an alliance with men like Thurber.[8]

The "Thurbers" were more willing to entrust themselves to regulation because the professionals could be trusted to run the agencies established by the new legislation because they took pride in their skills and qualifications. But this alliance carried with it a great potential danger, for the professionals were becoming more dependent upon those whom they helped to regulate, and were often pitted against one another in defense of corporate clients. Moreover, the public health laws themselves could become two-edged swords: if no one could "object to a law that outlawed rancid cheese and watered milk,"[9] how could the law be kept from serving economic interests that claimed oleomargarine was in the same category?

If the professional came to depend upon the businessman, as the businessman needed him in turn, only professional pride operated to prevent their association from becoming an unholy alliance. More and more, society was coming to depend upon the professional, yet expected the professions to regulate themselves, once granted the fiat of occupational licensing. This was the challenge and temptation that Chandler faced, in his administration of the New York adulteration law he had helped to write.

* * * * * * *

The instrument through which the sanitarians could now supervise the salubrity of New York was the State Board of Health, created on May 18, 1880.[10]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

As president of the New York City Board of Health, Chandler automatically became a member of the new board. But if Chandler and the other members, which included Dr. Edward M. Moore (as president), Erastus Brooks, and Elisha Harris (its secretary), showed any sudden interest in adulteration, the records do not show it. Within two weeks they had met for organizational purposes, and soon had established permanent committees covering a broad range of sanitary concerns, but not adulteration.[11]

After a full year of operation the Board had still taken no initiative on this problem; its first Annual Report barely mentioned adulteration. The only specific example offered was that of "the simple article of candy, much of which is reported to be made from grape-sugar, glucose, and 'terra alba.'" It never discussed the frequently poisonous nature of the dyes used in confectionery. The Report, written by Dr. Harris, was trying to lay broad foundations for governmental intervention against sanitary evils considered far more important than the quality of food; much more space was devoted to "sewer gas," and--more appropriately--epidemic disease. As part of this over-all effort, however, it was the responsibility of the government "To prevent adulterations in food and drugs--not practiced, I hope and believe, to the extent reported or suspected." This would be accomplished by empowering and encouraging local governments to act against threats to "the general health of the people."[12]

All local boards of health in the state had long been empowered to pass ordinances to protect the public hygience.[13] Moreover, there existed a number of state and local laws specifically directed at the adulteration question; as the Board's Manual noted, the state milk laws were "still in force."[14] In addition, the Manual specified relevant court decisions to aid local prosecutors in litigation. Yet despite these long-established legal powers

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

no new ordinances were passed, nor prosecutions begun, related to adulteration, by either the State or local boards of health, in the year that the State Board was in existence before passage of the NBT law.[15]

An orchestrated assault upon adulteration of food, drugs and kerosene,[16] however, began with a fanfare soon after Governor Alonzo Cornell signed the bill drafted by Chandler into law. At its June 1881 meeting the Board discussed its responsibilities under the new law, and placed all work connected with it under the jurisdiction of a Sanitary Committee, headed by Prof. Chandler. Whether this interest stemmed merely from the Board's legal obligation under the new law, or whether Chandler and the other members were indeed eager to exercise their new powers, the eventual result was the publication of what must be considered the most comprehensive American examination of adulteration to that time.

The Board's press releases explained that Chandler's Sanitary Committee was dividing up the various foods and drugs into a dozen different groups, and assigning them to various analysts, in order to present a complete report the following year. Eight chemists were hired to complete the tests, while three inspectors were employed to gather samples. But while the analyses were being made there was no State Board enforcement of the new law. This meant that for two and a half years after its formation the State Board of Health took no direct steps to reduce adulteration, other than the preparation of its report. Yet section five of the adulteration law required the Board to take "such measures as may seem necessary to facilitate the enforcement of this act" within one month. A year later Chandler and Harris defended having delayed enforcement by explaining that the delay was necessary "to ascertain the nature and extent of the various adulterations found in articles sold within the State, and to determine the best methods for detecting them

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

under the law; also to secure the necessary data by which to fix the standards of purity."[17]

Though this explanation might be suitable for some types of adulteration --mustard, for example, where certain modes of sophistication might well prove acceptable--it surely was insufficient for others, such as yellow confectionery, which every study to that date had concluded was dangerously contaminated with chromate of lead. Meyer, who published a preliminary abstract of the Committee's findings in a special Supplement to Sanitary Engineer, applauded the delay in initiating prosecution. A "systematic" examination was necessary, he argued, to offset the "many conflicting statements" which had excited "the public mind on this subject."[18]

Meyer tried to respond more directly than Harris and Chandler to the growing complaints about the lack of enforcement:

> The Board of Health has been criticised for what has appeared to some as neglect in enforcing the provisions of the Act. Many favored the immediate prosecution of persons found adulterating articles of food or drugs; but the course pursued by the Board, has in our opinion been such as to best secure the ultimate success of the measure.... Having no previous legislation on this subject in the country to guide it, the Board is obliged to act with caution, lest by undue haste in enforcing the law its permanent efficiency be impaired.[19]

The final version of the Report and Meyer's earlier comments both openly admitted that the Board's intent was to avoid inflicting excessive restrictions upon commerce. In this, Chandler was on only moderately firm legal ground, for though the NBT's intention had been to draft a bill that imposed no unreasonable commercial restraints, the law, as passed, made no specific mention of such an objective. Harris' introductory essay carefully explained that the Board's administration of the law "will be based upon effectual co-operation...with the people and honest producers and tradesmen."[20] Meyer insisted that "it is essential that while the protection of the public health is to be first considered, the commercial interests be as little interfered

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

with as possible."[21]

Certainly one question that needs to be answered is Chandler's interpretation of Meyer's 1881 promise to Governor Cornell that it will be "the policy of the Board to be conservative and cautious in executing" the new law. Perhaps a clue to Chandler's attitude lies in some rough notes, in his handwriting, which strongly hint that he felt a show of strength and concern to be more important than actual enforcement:

> The Public expects the State B of H to do something under this law...
> Seems necessary for reputation of the State Board that something should be done
> Few prosecutions will be necessary--experience of England and Canada--
> Publication of dealers in adulterated goods.
> Therefore first thing to be done is to arrange for analysis and publication.
> San. Eng. will publish everything we wish. The slips will be gladly taken by the daily press.[22]

Another note similarly indicates that the "publication of names of dealers--very few prosecutions" should satisfy public expectations.[23]

In any case, whether or not Chandler was using the preparation of the twelve reports as a delaying tactic, work proceeded on the examinations, though not as smoothly as the published results would imply. A "Supplementary Report on Sugars" was added, delaying completion of the Report by two months, presumably because the original examination of glucose and sugar by Dr. W.H. Pitt was blatantly inadequate.[24] Letters from one of the chemists, Prof. S.A. Lattimore of the University of Rochester, to whom were assigned two of the topics, indicate that he was somewhat out of his depth. Lattimore had been given the relatively easy assignment of analyzing canned fruits and vegetables (for metallic contamination), pickles, mustard, and spices, as well as tea, coffee, and cocoa. He reported that he was having difficulty using the microscope for analysis, in organizing a reference library, and in getting pure spices for the purpose of comparison.[25]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Lattimore also noted something about the way he was gathering materials which might well provide food for thought about the entire study:

> During my recent visit with a number of large importers and manufacturers in New York, most of whom I found deeply interested in the success of the present effort to suppress adulteration, I was unexpectedly successful in arranging for samples of interest and importance, including samples of the adulterating materials themselves.[26]

One of the central questions facing the Board, as it finally stood on the brink of enforcement, would be whether to prosecute retailers, rather than wholesalers and manufacturers. Not only would the former approach have immediate results, since it would be easy to find violators, but the Board would avoid antagonizing influential and apparently cooperative businessmen. After all, Lattimore's positive encounter with the large dealers was only a faint reflection of Chandler's intimate ties with wholesalers and manufacturers. From the very beginning there existed a tendency to rely upon these men for assistance and advice; there was a likelihood that the Board would come to echo their prejudices and perceptions.

* * * * * * *

To test the goals and sincerity of purpose behind the Adulteration Law, it is obviously necessary to examine and evaluate the enforcement procedures of the State Boards of Health for the three states where the NBT bill had become law. The present study concentrates upon a representative group of commodities, and upon the activities of the New York Board, since no comprehensive examination could be made in any reasonable amount of space, were all foods and drugs to be considered. The reports and legal actions of all three Boards, through 1886, will be examined, beginning with the most fundamental of foods, milk.[27]

The experts in all three states agreed on two things. "It is absolutely

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

necessary," William K. Newton, the New Jersey Milk Inspector, explained, that milk, more than any other food, "should be easily obtained in a pure state, unadulterated, and free from the germs of disease. There is, however, no one article of food that is so frequently adulterated or sold in an impure state."[28] Massachusetts' Stephen Sharples similarly insisted that "injurious adulteration is by no means common," with the exception of "the single article of milk."[29] Prof. Chandler agreed with his colleagues in New Jersey and Massachusetts that milk adulteration had become "extremely common."[30]

There is no paradox in the fact that it was this most essential food that was most commonly adulterated. Milk was very easy to sophisticate, and passed through many hands on its way to the consumer; milk adulteration also remained difficult to detect, especially because "pure milk varies in its composition in a very marked degree, making it impossible to establish a standard of purity."[31] Attempts to remedy this situation antedate the NBT bill; all three states had milk laws on their statute books long before 1881,[32] and all three had already established a measuring system to determine milk adulteration.

While the New Jersey laws did not specify a test for purity, Dr. Newton accepted Prof. Chandler's "New York standard" lactometer, although he argued, in his report for 1880, that the minimum specific gravity used in New York --1.029--"is many degrees too low, and admits of watering from five to ten per cent."[33] By the next year, after passage of the general adulteration law, Newton had fixed 1.030 as the state standard, but concluded that each county in the state must be judged separately, since his tests had determined that the milk produced in different sections varied in quality. Newton also complained that the courts were often unwilling to accept the lactometer reading

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

alone, and he therefore made chemical analyses as well, "in case any dispute should arise."[34] In 1882 the New Jersey Milk Law set the state standard at 12% milk solids, necessitating a chemical test for purity.

In Massachusetts, the State Board rejected the lactometer except for spot-checks of questionable milk; in imitation of the English authorities, Massachusetts employed the method advocated by J. Alfred Wanklyn in 1873. Wanklyn had condemned the lactometer: "But, although it is so very popular, and although it has been so implicitly trusted, the lactometer is a most untrustworthy instrument. There hardly ever was an instrument which has so utterly failed as the lactometer."[35] According to Sharples, the Wanklyn test, which was an abbreviated chemical analysis, was accurate enough for the purpose of detecting adulteration, yet far quicker than "the very elaborate analyses that were made some twenty or thirty years ago."[36] Thus Massachusetts law specified that the only legal test for prosecution was a measurement of the total solids in the milk. However, state law adopted a standard (13% total solids) even higher than that used in England, a standard that Sharples felt was too high, since tests conducted on unquestionably pure milk had sometimes resulted in significantly lower amounts of solids.[37] In Massachusetts, therefore, the Board used a great deal of discretion in enforcing the law.[38]

Coincidentally, it was just at this time that the professional literature on milk began to increase dramatically.[39] This proliferation of material on milk may have been stimulated, in part, by the studies undertaken in the states in which new adulteration laws were passed, but it multiplied for unrelated medical reasons. In 1881 Dr. Ernest Hart of England published the first statistics on milk-related epidemics, initiating studies linking milk to typhoid fever, scarlet fever, and diphtheria. In that same year

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Robert Koch in Germany discovered how to cultivate bacteria in solid culture media, laying the foundation for the examination of milk bacteria.[40] Thus, at just the time that the State Boards were beginning to enforce the adulteration laws, milk had once again come to public attention.[41]

When Chandler divided up the dozen food and drug groups among the analysts in 1881, he retained "Milk fresh and condensed" for himself. Presumably because of its importance, and because of the continuing interest in milk purity, the 1882 Annual Report gave this topic first priority. Yet, bewilderingly, except for a brief summary of Chandler's "examination" no other material on milk is to be found in the two hundred pages of the Report. This one-page summary was printed, as were the other eleven summaries, preceding the bulk of the Report. But on the page where the twelve actual reports were to begin, a footnote explained that "This report is printed after the reports on the other groups." But it wasn't, and a closing note appended to the Report merely indicated that "the urgency" of Chandler's duties caused his report on milk to be deferred.[42]

Chandler's summary was mostly a rehash of old material and assumptions, defending both the use of the lactometer, and the current legal minimum specific gravity of 1.029. Chandler referred to new studies, conducted by Charles E. Munsell, a graduate student of his at the School of Mines,[43] but the Report printed nothing of them. It cannot be determined exactly why Chandler's and Munsell's full report was not included, although a letter from one of the eight analysts indicates that Chandler had been ill in this period.[44] Chandler's private notes on the progress of the twelve reports indicate only that topic number one, assigned to himself and Munsell, was being "held for revision."[45] In the next year's Annual Report the Chandler/Munsell material was still missing. A note from Chandler to Dr. Harris at

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

this time simply says "Regret that I have not been able to finish my milk report."[46]

Amazingly, in its place was a simple resolution of the Board of Health, concluding that, because of the prevalence of milk adulteration, and the importance of milk as a food, and because:

> The perishable nature of milk makes it impossible for the State Board, through its inspector and public analysts, to take charge of this subject, therefore
>
> Resolved, That the attention of the local boards of health be called to this matter in the hope that some system of inspection may be adopted by them to remedy the existing evil.[47]

Munsell's study was not published until 1884, by which time Chandler was no longer a member of the City or State Boards.[48]

A possible explanation for the absence of the milk material may be the fact that Chandler's method of determining adulteration was once again under fire. In a report to Chandler in December 1878 Dr. J. Blake White, who had been a milk inspector for the New York City Board for two and a half years, had indicated grave uncertainties about the accuracy of the lactometer. He was sure that "a crafty dealer" could outwit the instrument through the established technique of concurrently skimming and watering, and expressed concern because of the necessity of rigid temperature control of the milk being tested.[49]

Then in June 1881 Prof. Leeds, an old associate of Chandler and now Newton's colleague on the New Jersey Board, appeared before Chandler's own American Chemical Society to condemn the lactometer, giving specific examples of its inaccuracy.[50] A few days later Dr. Charles A. Doremus responded with glee that Leeds' statements, as well as the increasing demand of the courts for "an analysis as evidence of the adulteration" had vindicated the objections his father, R. Ogden Doremus, had once raised against the lactometer, and his own rejection of the instrument four years earlier.[51]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

An independent study conducted by John Morris for the Maryland Academy of Sciences, published just after Chandler's preliminary summary was printed, also defended the position taken earlier by Chandler's old opponent, the elder Prof. Doremus. Morris concluded that, although "the lactometer was at one time considered a useful instrument...the experiments of Professor Doremus and others prove it to be a most unreliable instrument."[52] Furthermore, although Newton and Chandler cooperated closely, and seem to have had nothing but praise for each other, Newton's rejection of Chandler's 1.029 s.g. standard may have opened the door to additional criticism. The Massachusetts Board, of course, had rejected even the lactometer itself, except as a handy, but unreliable tool.[53]

* * * * * * *

In the years between the Schrumpf decision of 1876 and passage of the NBT bill, relatively little attention had been paid to milk adulteration, possibly because of the publicity given to other forms of sophistication.[54] The sanitarians had suffered a serious setback in 1878, when the state legislature passed a law "to prevent deception in the sale of milk," a thinly-disguised attempt to protect dealers in skimmed milk from Chandler's prosecution. The law provided for the marking of all cans containing "skimmed milk," and so at first might seem to be directed against adulteration. But the key to the law was that it permitted the sale of skimmed milk at all.[55] In addition, the Senate had amended the original bill, by striking out the words "stamp or," thereby requiring only "marking" of the identifying words --presumably with very removable paint. The Senate also reduced the size of the required lettering from two inches to one inch.[56]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

This law created a situation in which the City Board's Sanitary Code was in direct conflict with state law. Chandler's continued enforcement of the Code regulations prohibiting the sale of skimmed milk merely encouraged the milk dealers to rub the identifying paint "off by a cloth dipped in kerosene, while crossing the ferry,"[57] because the inspectors destroyed all skimmed milk found entering the city, marked or not. This decision that the City Sanitary Code superceded the state law--an interpretation the city courts permitted--led the skimmed milk interests to attempt to override the Code through passage of a law specifically legalizing its sale.

In May 1882 such a bill passed the State Senate, and Chandler organized a campaign to defeat it before it could become law. Beyond getting the support of the friendly press--such as Sanitary Engineer[58]--he worked with William Newton on the wording of a public letter strongly opposing the bill, which Chandler published.[59] The City Health Department also published its own public "letter," further elaborating on the tricks the milk dealers would play upon the inspectors and the public, if the door were once opened to them. The Health Department letter even stated that the bill would "certainly" lead to an increase in infant mortality.[60] Chandler also induced Edward G. Janeway to provide a similar letter. Janeway pronounced that the law would "be the death-knell of five hundred children a year, at least."[61]

But perhaps Chandler's greatest coup was in obtaining support from James Gallatin's Sanitary Reform Society, probably, by the mid-1880's, the premiere reform organization in the state. The Society's flyer, which condemned the bill as an attempt "to legalize fraud in milk," was signed by such social, economic, and political notables as Gallatin, F.B. Thurber, James A. Roosevelt, Joseph W. Drexel, Morris K. Jesup, James W. Pinchot,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

William E. Dodge, Jr., and Henry E. Pellew.[62]

The next year, after this bill had been defeated, Chandler found himself once again facing an attempt to legalize skimmed milk--the fifth attempt in as many years. In addition to mobilizing past supporters, Chandler also enlisted the aid of Dr. H.A. Pooler and William P. Richardson, a railroad man who worked with the organized farmers, and Elbridge Gerry's Society for the Prevention of Cruelty to Children.[63] Chandler prepared a report on the bill:

> As usual the title of the bill is very innocent in its terms. This year it was called "An Act for the protection of the consumers of milk and to prevent deception in the sale of milk." The "colored gentleman" in the bill is the clause providing that if the milk contains less than 8% of cream, the cans from which it is sold must be distinctly marked with a statement to this effect.[64]

Not only was the bill, Chandler argued, a device to swindle the public under the guise of protecting it, but its passage would stimulate an epidemic of cholera infantum for New York's children, since the "creameries" delay the shipment of the milk which they skim, thereby promoting the sale of stale milk. He delighted in the bill's failure to get past even the Committee on General Laws, to which it had been referred.[65]

Chandler's second effort in relation to milk adulteration dealt with inter-state cooperation, in an effort to halt the shipment of skimmed milk into the city. Chandler's success in this endeavor was made possible because of three things: his friendship with Newton, the New Jersey Milk Inspector;[66] the growing cohesiveness of the dairy farmers; and cooperation from the railroads. The farmers and the railroads were both acting, understandably, out of economic, rather than humanitarian, motives. On February 24, 1881, the largest of the dairy farmer organizations, the Orange County Producers' Association, had been formed in an attempt to control prices through regulating the supply of milk.[67] By 1883 the Association represented approx-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

imately 700 dairy farmers.

The railroads had been under fire from Thurber's Cheap Transportation Association and other business organizations under his influence.[68] Thurber also utilized his position as president of the New York Dairymen's Association to recruit farmer support for the reduction of freight rates. With the threat of rate-regulation legislation in the state legislature the Erie R.R. had "voluntarily" reduced milk rates slightly, and began to evince interest in improving its public posture. Thus, when Chandler approached William P. Richardson with a proposal to get the company's cooperation in derailing the traffic in skimmed milk, Richardson eagerly accepted.[69]

The skimmed milk was being shipped from creameries upstate, through New Jersey, in an attempt to evade Chandler's inspectors. Chandler wrote to City milk inspector White that the State Board had two apparent choices: either attempt to prosecute the dealers "in their own village," with the dubious cooperation of local authorities; or "put inspectors on the Erie trains at night and examine every can of milk that is put on the trains." Chandler reported that it was Richardson's advice to send a representative of the Board to see if Newton would help them implement the second alternative.[70] Chandler sent Inspector Munsell. "You and Mr. Richardson should meet in Patterson, in Dr. Newton's office, so that the whole work might be carried on jointly by the New Jersey officers, the New York State officers, and the New York City Board."[71]

Newton "deputized" Munsell a New Jersey Inspector, to lend legal authority to his activities, and soon did the same for Inspector Edward W. Martin, on Chandler's request.[72] Thus Munsell and Martin were now officials of three separate health departments. The program was a great success, Chandler's men confiscating and destroying thousands of gallons of skimmed milk before it

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

could enter the city. In the New York Board's Annual Report for 1884 Martin and Munsell reported that their efforts, "to which the aid given to the inspectors by the railroads was of the greatest importance," were effective in deterring city dealers from buying skimmed milk, which in turn discouraged the shippers from sending it to New York. "The result was that the sale of at least 40,000 quarts of adulterated milk daily was prevented."[73]

Chandler's third effort in relation to milk was in the area of prosecution. No matter how effective the Board's preventive measures may have been, there was still surely some degree of adulteration taking place. In fact, according to the figures presented by Munsell in the 1884 Report, there seems to have been a growing incidence of centralized corporate adulteration, undeterred by any actions of the Board. There had even come into existence a sort of adulterators' union.

Mirroring the organization of the Orange County Producers' Association, the creameries and larger milk dealers had formed the New York Milk Exchange Limited, an attempt to control the milk supply through blatant price-fixing. According to the By-Laws of the Exchange, members would hold fast, under threat of disciplinary action, both in the rates paid to farmers, and the prices charged the consumer.[74] Unspoken, but ill-concealed, were the Exchange's activities in the skimming business. In testimony of this practice there are repeated statements in Board reports and newspaper accounts that "creameries" exist, half for the purpose of producing butter and cheese, and half for the sale of the skimmed milk left over from these operations.[75]

Yet, despite these developments, and despite the Board's inter-state operations, there is nothing to indicate that any of the men leading the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

creamery operations were prosecuted. Only unimportant dealers, employees, carters, and the like, were arrested. The arrest records of the 1880's for the sale of adulterated milk are not significantly different, in any manner, from the records of the City Health Board, before the State Board had been formed. Yet the inter-state operation almost immediately netted some very big fish indeed. It was discovered by Munsell and Newton that the New York Dairy Company was deeply involved in the shipment of adulterated milk.

New York Dairy was a "model" milk company, organized for the purpose of providing the city with unquestionably pure milk at reasonable prices, and owned by some of the most noted reform and philanthropic leaders of New York. Henry E. Pellew, a leader of the Sanitary Reform Society, who had signed the Society's flyer condemning the skimmed-milk bill the previous year, a leader of the tenement-reform movement, the Charity Organization Society, and the night refuge movement, was one of the directors. Another director was Cornelius R. Agnew, a noted New York doctor, a sanitary reform leader, and a close associate of Chandler. Chandler found himself in the embarrassing position of having to write to Pellew that "I find myself placed in a very disagreeable predicament with regard to you and several of my other friends."[76]

Pellew's and Agnew's sales agent, R.R. Stone, was caught shipping skimmed milk to a New York City distributor. When the inspectors seized the company's records they discovered that this operation had been going on since at least August 1881, and involved the president and the treasurer of the company--Alex Campbell and Walter Stillman--as well. Obviously Chandler wished to avoid prosecuting his friends, yet he was obligated to do something to stop the company's traffic in adulteration. He continued in his letter to Pellew:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> I write to you in order that you may bring this matter to the attention of your fellow directors, as I am confident that no one of you would ever have countenanced any such deliberate violation of the law as your agent has practiced....It will be extremely disagreeable to be compelled to have your agent indicted, but you can understand that we cannot make fish of one and flesh of another. At the same time if your Company forbids the illegal traffic in skimmed milk by its agents, and arrays itself on the side of the farmers and honest milk, and your agent withdraws from the organization which we are engaged in fighting, we should feel that there was nothing to be gained by prosecuting Stone and Campbell.[77]

Pellew quickly responded to Chandler's letter, denying that he and Agnew had any active part in running the company. "I am very much obliged to you for writing in so friendly a manner and in giving me such timely notice: Please wait a little longer." Pellew promised that, although he personally saw nothing wrong with skimmed milk--and even credited it with having saved his wife's life when, apparently, she could eat nothing else for a two-month period--he would straighten things out.[78] The very next day he mailed Chandler the agent's "confession" and resignation from the company. In a separate letter Pellew also mailed identical confessions from the company's president and treasurer.[79]

Chandler communicated with his own agents, in an effort to keep the discovery quiet. He wrote to Dr. White:

> I didn't think it would be just to have these gentlemen paraded in the newspapers as guilty of selling skimmed milk in New York, so I wrote to them...and they have assured me that it was without their knowledge and shall never happen again.
>
> I do not propose, therefore, to have any action taken against this company at the present time, either under the City or the State law....
>
> I would also suggest that care should be taken that the newspaper reporters learn nothing whatever with regard to this case. Many of them would take the greatest delight in making an excuse for throwing mud at some of the best and most philanthropic of our citizens.[80]

Chandler also sent similar letters, on the same day, to Inspectors Martin and Munsell.[81]

W.P. Richardson, however, was dissatisfied with Chandler's solution.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Richardson's idea of patrolling the trains had borne fruit within a week of its initiation, yet Chandler was throwing away an iron-clad case. He urged that the people running New York Dairy get "the punishment they richly deserve." Richardson correctly pointed out that this was the first case that could be made against the producers of skimmed milk, not just the retailers. Speaking for the railroads and the farmers, Richardson urged the case be "pushed to the full extent of the law...your action in the matter will be awaited with greatest interest by both producer and milk dealer." Richardson also argued that the farmers would want to see the case publicized, and pressed Chandler to release information to the press.[82]

But Chandler answered Richardson to the effect that Pellew, Agnew, and the other directors were honorable men, "who have always been ready to give their time and their money for benevolent and philanthropic objects." He refused to have them "humiliated through the newspapers because their agent, without their knowledge or consent, has been sending skim milk to New York City." Chandler pointed out Pellew's pledge to clean house. "Now this is a bloodless victory and I think is sufficient." He refused to prosecute Stone, because it would drag Pellew and Agnew into the picture.[83] He even sent copies of Richardson's letter, and his own reply, to Pellew, and apparently sent him copies of the letters to White, Munsell, and Martin as well.[84]

Setting aside the question of Chandler's friendship with Pellew and Agnew, his sincerity must still be examined. How successful could his pure milk campaign be, if he continued to prosecute only the milk dealers, and not the producers? Did a similar pattern become evident in Chandler's prosecution of other kinds of food adulterators? The peculiarity of his position was magnified by the fact that, only a few days after the Pellew affair, the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

New York Tribune began a series on the milk trade and the inspection system aboard the trains.[85] A public relations coup could have been created if Chandler had pursued the prosecution of the Dairy Company officials, and released the information to the press.

Instead, he wrote to Munsell for information to give the reporters, pleading that "I have run dry of material. Unless you can give me something I don't know what to tell the reporter the next time he calls."[86] Similarly, he had written to Richardson for "some ammunition....Now we must keep the ball moving."[87] In light of his reluctance to pursue the producers, Chandler's letter to Dr. White a few weeks later also takes on an uncomfortable coloration: "Catch as many milk dealers as you can, who are selling watered and skimmed milk, and show them no mercy. They are a set of villains and I only wish we could get them all into the penitentiary at once."[88]

* * * * * * *

Whether or not the retail grocers suspected, early on, that the enforcement procedures of the Board would concentrate on themselves, rather than on manufacturers and wholesalers, they soon became adept at reading straws in the wind. Shortly after the Board's preliminary report on foods and drugs was published the New York City retailers formed a protective union. It was obvious that, even with the best of intentions, the Board would find it easier to inculpate retailers, than to trace more remote origins of adulteration. Moreover, anxiety among the retailers must have been raised when Chandler reported in his summary that the Board was temporarily ignoring all of the "numerous applications" for elaboration of the provision of the 1881 law relating to "mixtures or compounds recognized as ordinary articles of food," and refusing, for the meantime, to rule on special exemptions and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

exceptions.[89]

There were a number of reasons, beyond fear of the law, that induced the small businessmen to form the New York Retail Grocers' Union on May 18, 1882. Although some of these reasons involved the establishment of a grocer's library, better information on deadbeats, legislation against itinerant peddlers, and an "intelligence bureau" to provide a blacklist of clerks "detected in wrong doing," the primary objective was to achieve equity with the manufacturers and wholesalers. The very first of the "aims and objects of the union" was an attempt to bring "the manufacturers, wholesalers and retailers together on a platform that shall guarantee their equal trade rights." One of the first accomplishments of the Union was the establishment of a Roll of Honor, rapidly signed by the important wholesalers, pledging to abstain from selling at retail. This early success surely encouraged the grocers to believe that, united, they could press the Board to enforce the adulteration law with an even hand.[90]

The Board's preliminary report on adulterations stimulated speculation among the grocers as to what allowances would be made on an assortment of the most common goods. Mustard, for example--a staple if unimportant part of the grocer's trade--was openly adulterated, at least in a technical sense. Pure mustard was merely the "flour," or ground contents, of the black or white mustard seed. The best mustard was a mix of both kinds, with much of the natural oil removed, improving the "keeping qualities" of the product.[91] The common mustard sold in stores was usually thinned with flour, and then colored with turmeric to restore its natural yellow. There is no indication that mustard of this era contained vinegar, which is the diluent of most modern mustards.

It is clear that even respectable manufacturers and dealers regarded the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

use of flour in mustard as an attempt to satisfy the public taste, not to cheat the public pocket. F.B. Thurber, for example, had been accused in 1880 of using artificial coloring in his mustard. Such coloring, the retail accuser assumed, "showed that the same had been adulterated, else why should there be turmeric or other coloring matter? Genuine mustard does not need coloring." Thurber responded that some manufacturers used "an arsenical preparation--a deadly poison" for coloring, while his mustard division used only turmeric, "a harmless vegetable coloring." This reply left the crucial question unanswered: was there flour in "Thurber's Best"? Probably, because the retailer was correct--had the mustard not been diluted there would be no need for added coloring.[92]

But it was also assumed that even "simon-pure" wholesale mustard would be thinned by the retailer. Prof. Chandler, in his first public statement after the Board met to discuss the newly-passed adulteration act had said: "Some substances are never sold unadulterated. Table mustard, for instance, is always mixed with flour, the pure mustard being too strong for use; this is a legitimate adulteration."[93] Yet, in the 1881 New Jersey Annual Report Prof. Leeds found at least one exception to this rule. He had tested twenty-five mustard samples, and found all of them adulterated with flour, and most with turmeric. But then Dr. Newton gave Leeds "a sample of mustard which he had obtained from the manufacturer as a perfectly pure article." In contrast to all the other samples--none of which was named by brand, manufacturer, or dealer--this sample had "no starch or any other impurity."

"Learning that this sample came from H.K. & F.B. Thurber, I obtained from a shop a quarter-pound package of their mustard, labeled E.G. Mustard," and found that it, too, was "pure, unadulterated mustard."[94] Why had Newton --a friend of both Chandler and Meyer--gone out of his way to provide Leeds

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

with a sample of Thurber's product which he knew to be unadulterated? Did he wish to give Thurber a piece of valuable publicity? And how can these two results be reconciled? How can Thurber's mustard be colored with turmeric and--presumably--contain flour one year, and then be pure the next? Thurber's mustard, like his coffee and most of his other products, came in a number of varieties, all "pure," but some purer than others.

Still, with Chandler's disclaimer on mustard in mind, the retailers could be fairly sure that when the Board finally released its list of exemptions and acceptable admixtures, mustard mixed with flour would be included. But how much mustard to how much flour? And Chandler had not specified any other commodities. It was pretty certain that chicory in coffee would be pronounced legal, but once again, the conditions of its certification were unknown. Spices were, all the experts agreed, almost universally adulterated. Would they be regarded by the Board as "ordinary articles of food" in their diluted form? It was expected that the exemption list would be released quickly.

The highly-respected Sanitary Record of England had pronounced the New York law superior to the British law because of this provision for exemptions:

> This law contains, in section 4, one extremely valuable new regulation ....It is reasonable to suppose that the State Board of Health will do their duty; and if so the State of New York will be saved from all those foolish squabbles as to the desirability or otherwise of selling mustard containing ten per cent. of farina, and pepper containing two per cent. of sand, which have so disgraced our own national administration of the Sale of Food and Drugs Act.[95]

The Massachusetts Board Report issued in January 1882 had also complimented the New York and New Jersey laws exactly because of this feature, since "many of the prominent articles of commerce, though they may be said to be adulterated, are quite harmless, in some cases useful."[96] Yet in New York months went by, not only without prosecution, but without publication of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

exemptions. The grocers awaited the delayed Annual Report, for in it further clues might be found as to the Board's future policies.

The preliminary report, reviewed in all the newspapers, the grocery press, and Sanitary Engineer, has cast suspicion upon many of the most important grocery items. Of the one hundred eighty samples of mustard and spices tested by Prof. Lattimore, to whom this group was assigned, one hundred twelve were found to be adulterated--with, however, "harmless" materials. But this early abstract of the report failed to detail the nature of these materials, and gave no clue as to what action the Board might take. Lattimore's review of coffees, though more specific, also left much to be desired. The indications of his inexperience in the field, revealed in his letters to Chandler, were verified by his uncertain discussion of "facing" colors possibly used on some samples of unroasted coffee beans. He was probably correct, however, in his conclusion that nineteen of the twenty-one samples of ground coffee tested contained adulterants, "chiefly chicory and beans."[97]

The complete version of Lattimore's report, when it was finally published in midyear as part of the Second Annual Report, detailed the conventional adulterants used--flour, peas, beans, etc. He also noted that spice adulteration had become a trade in its own right, "a branch of manufacturing industry of no insignificant magnitude." He reminded the readers that "So long ago as 1820, when Frederick Accum made his memorable revelation," the sweepings of the pepper warehouses, known as "pepper dust," or "P.D.," were often sold as a separate item. Lattimore noted that "much of this curious old and somewhat rare book reads as if it had just been written."[98]

Lattimore's recommendation was to enforce the adulteration law to the letter, forbidding virtually all mixtures. His reasoning was that:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> advantage would immediately be taken of the fact that it would generally be difficult in the extreme, and, in some cases at least, absolutely impossible, to establish the fact in a court of justice, whether a definitely fixed proportion had been exceeded or not....the administration of the law would be simplified which should prohibit the manufacture and sale of all mixtures, with possibly a few exceptions.[99]

Moreover, Lattimore specifically condemned coffee/chicory mixtures, and he implied that no spices should be adulterated in any manner, and mustard only to the extent that excess oils could be removed.

Rather than first establish Board policy on any of these grocery items, however, Chandler prepared to bring suit against selected adulterators. After all, his report on milk had never even been submitted, yet Chandler continued to prosecute milk dealers. In fact, a number of milkmen had organized, in August, to protest Chandler's policy of arrest and confiscation. They complained that the Board's inspectors were cavalier in their attitude, and wantonly destructive of suspected milk that had been subjected to only a cursory examination by lactometer. If chemical analysis later proved the milk to have been pure, there was no recourse for the dealers to recover the value of the milk that had been destroyed.[100] But the milkmen's union proved ineffective; on October 4 eleven dealers were fined, and one imprisoned, and two days later forty-one more were convicted on the testimony of the inspectors.[101] It remained to be seen if the Grocers' Union would be more effective in resisting prosecution, for they would soon echo the complaint of the milk dealers: only the retailers were arrested, never the producers.

Chandler prepared to establish a test case against the retailers by writing to Dr. Harris that he wanted his old associate, Col. Prentice, to act as the Board's prosecutor.[102] The very next day Chandler and Prentice initiated prosecution against five men for selling adulterated cream of tartar. In all, during the month of December, fifteen retailers were ar-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

rested on that charge, plus two for selling adulterated coffee, four for selling mustard mixed with flour, and one for selling adulterated precipitated sulphur.[103]

The Board's test case was selected from those accused of adulterating cream of tartar with terra alba. Terra alba was a very common adulterant, although there is really no one substance that can be called "terra alba," which literally means "white earth." As Prof. Chandler wrote to one of the Board's analysts, Dr. W.G. Tucker, who was preparing a report on cream of tartar for the next annual report: "put in place of 'terra alba' the article which you understand by that name. Some persons call gypsum 'terra alba,' and some call Kaolin 'terra alba,' so the term is not a safe one to use. I regret to notice that Dr. Love uses it in his report."[104]

Dr. E.G. Love had been assigned Group IV, which included cereals, baking powders, and alum. Of all the two hundred eighty-three assorted samples he tested, only thirty-seven were found to be adulterated. Virtually none of the cereals, flours, or breads had been sophisticated in any manner, baking soda was rarely adulterated "on account of its cheapness," and Love found alum tentatively acceptable, although his reasoning can be faulted, and this entire question will be taken up below. Of the products examined by Love the creams of tartar were by far the most commonly fraudulent; sixteen of the twenty-four samples tested were adulterated, since "its comparatively high price renders it an article of very general adulteration."[105]

The test case was chosen from among the cream of tartar arrests, partly because terra alba lent itself to simple analysis, would make for a clear presentation in court, and because Col. Prentice was seeking a prosecution without complications related to the healthfulness of the product. Cream of tartar was felt by Prentice to have an advantage over the mustard or coffee

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

cases because it was sold by druggists as well as grocers, and therefore was listed in the United States Pharmacopoeia. Col. Prentice decided that a clearer case could be brought if the retailer was charged with selling an adulterated drug, rather than an adulterated grocery item. Prentice calculated that it would be easier to prove that an established standard existed for cream of tartar by using the USP definition, since the 1881 law specified that officinal drugs must conform to the USP standard, while no official standard existed for cream of tartar as a food.

The case finally selected for trial was that of Henry Fulle, whose cream of tartar tested out as being 92% gypsum, with the remainder tartaric acid, a cheaper and more acidic substitute for the genuine ingredient. Predictably, both Sanitary Engineer and American Grocer applauded the arrests, reminding the retailers that they had had ample time to learn about the law. Both papers, however, consoled the grocers with the reassurance that they could "in turn bring action against the wholesaler."[106] Sanitary Engineer conceded that it "was doubtless true" that the retailers did not know their products were adulterated, and urged that the Board clarify the law by issuing a list of exemptions and standards "at the earliest possible moment."[107] Still, both papers left unresolved the obvious question: "Would it not have been better to have commenced with the manufacturers of impure articles of food, rather than with the retailer?"[108]

The Grocers' Union went further, at a meeting three days after the arrests were made, one of the speakers declaring that "there was hardly a groceryman who understood how to adulterate such an article as cream of tartar, a proof of the grocer's innocence and helplessness in the matter." The animated discussion that followed was all in this vein: that the retail grocer was at the mercy of both the wholesaler and the Board. Although it

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

was agreed at this meeting that all manufacturers and wholesalers should follow the "house of Thurber" example of affixing guarantees of purity upon their products,[109] the retailers would soon take a less charitable attitude toward the wholesalers.

Thurber, for example, had been a welcome guest at a recent meeting of the Union, insisting that "there is no competition so objectionable as an unfair or dishonest one. A grocer who sells good goods cannot afford to sell them at the same price that those of inferior quality can be furnished at." He urged the cooperation of all legitimate businessmen in enforcing the adulteration law.[110] But at the second meeting of the Union after the arrests, the members took a much stronger position vis-a-vis the manufacturers and wholesalers: "It is the manufacturer and wholesaler who ought to be held responsible, if any arrests are to be made, they ought to be arrested." Veritable war against the wholesalers was declared, and Thurber was not exempted. "I understand," said the principal speaker, Mr. M. Hahn:

> that Mr. Thurber refused to give...a guarantee when a member of this Union wanted to buy a new brand of his spices. I am also informed that a very prominent wholesale house in this city had engineered this whole adulteration law, and is pushing it at present in actually furnishing the State Board of Health with names and addresses, whom and where to arrest![111]

Although the accusation surely went too far, it almost certainly was Thurber's "wholesale house" to which Hahn was referring.

The German-American Grocer, edited by John Fredericks, and "the official organ of the New York Retail Grocers' Union,"[112] continued to record the anger and determination of the retailers. After all, by the end of December at least eight members of the Union were among those arrested. The retailers decided to hire an attorney to defend all members brought up on charges of "selling impure goods," although this resolution was cautiously amended to

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

read "which said member has purchased in good faith as being pure, paying a fair price for them."[113] Meanwhile Sanitary Engineer defended the Board's policy: "It does seem a little hard that the grocer who supposes the goods he sells to be pure, should be prosecuted before the manufacturer who fraudulently adulterates the goods. At the same time such a course seems quite unavoidable."[114]

Meyer's reasoning was that it would involve "a useless expenditure" for inspectors to buy "five or ten pounds of an article for analysis" from the wholesaler or manufacturer, and that it would be suspicious if the inspector asked for smaller quantities. This is surely specious reasoning, since the law empowered the inspectors to obtain samples as and how they wished. Yet Meyer concluded that "the action of the State Board of Health must not be considered as in any way a persecution of the retail grocers. The evil exists, and the Board has taken what seems to be the best means for checking it."[115]

A reply to this argument is contained in an anonymous letter published in the German-American Grocer, by correspondent "H.F.," whom, it may be assumed, was Henry Fulle, whose court date was now set, and who was to become the first subject of the Board's enforcement. "H.F." justifiably complained that manufacturers and wholesalers, even when they were explicitly in the adulteration business, were left "unmolested." "But when the retailer tries to sell the adulterated articles--without knowing the real nature of them--to the consumers, then the officers of the Board of Health interfere, arrest and prosecute him. If that is the proper interpretation of the adulteration law, a more ridiculous law could hardly be imagined."[116] The next issue of the paper reported that a committee of the Union had met with Prof. Chandler on exactly this complaint. Chandler argued that the Board had

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

found it "impracticable to pursue any other course than the one adopted, but would prosecute any wholesaler or manufacturer if the retailers would bring satisfactory evidence that they bought adulterated articles of them."[117]

Yet when the trial began, on January 3, the Union's lawyer, Henry T. Atwater, was accompanied by two attorneys paid for by a coalition of manufacturers and wholesalers.[118] Chandler commented, in a letter to Harris, that he and Prentice had "found some of the best counsel in the State retained by the manufacturers to defend the retail dealers."[119] The German-American Grocer strongly objected to this situation, feeling that the members coming up for trial had given "the wholesalers and manufacturers a chance to smuggle themselves into this trial, and through their able attorneys, /ex-/Judges /William A./ Beach and Flammer, to divert the real issue into a question of unconstitutionality of the law in question." Fredericks wanted the cases:

> tried on their own merits. If the wholesalers want to fight the law, let them do so; but the retailers ought not to be mixed up with such a course, which naturally creates the impression that manufacturers, wholesalers and retailers combined together to defeat the law, which, so far as the latter are concerned, is not the case, as they want to sell only pure goods.[120]

After a postponement, so that the three attorneys could confer, the Fulle case took two more days to be heard. On the basis that Fulle had sold an adulterated drug, he was convicted, and fined $10.00. At the trial, however, counsel Beach had argued that "he represented a large number of merchants who had applied for and had long been in constant expectation of information and instruction from the State and local Boards of Health concerning their right to sell cream of tartar, but such had never been received."[121] Surely the Board now had to issue pronouncements on standards and exemptions, for by Prentice's own reasoning, until such standards were set, the Board would be obliged to continue prosecuting only adulterators

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of USP pharmaceuticals.

But while Chandler made ready to release such a list he was under fire from members of his own Board. He wrote to Harris, defending his decision to prosecute only retailers. "We have not fined the milkmen $35,000 in the last ten years without acquiring a great deal of experience in this kind of litigation, and we have learned that it is impossible to reach the wholesale dealers except through the retailers."[122] Chandler also wrote to Meyer, complaining that Sanitary Engineer had not devoted enough space to the trial.[123] The retailers were in an unenviable situation, and their "own" newspaper, Thurber's American Grocer, was cold comfort, repeating, at the very time that the trial began, that "to avoid trouble under the new law simply requires that retailers shall sell pure food. Otherwise they invite arrest and have no one but themselves to blame."[124]

At the Board meeting in January a short list of exemptions and standards was finally agreed upon. The Board would permit a coffee/chicory mix, so long as at least half was coffee and no other substances were added, and allowed a similar mix of mustard and flour, forbidding "any coloring matter." In both cases the product had to be properly labeled as to both contents and proportions. The Board also fixed a standard for vinegar. But, having made these three rulings, "the Board deems it inexpedient at present to authorize any other mixture or fix any other standards." Chandler had asked for greater latitude from the Board, but was outvoted.[125]

There was an immediate and angry response from both retailers and wholesalers, complaining about the labeling restrictions and the lack of exemption for many other standard food items. But it was the support of "the best and most honorable manufacturers of food products"--presumably including F.B. Thurber--that Chandler worried about, not the retailers. Chandler brought

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the matter to Board President Moore:

> if we insist upon the position we have taken in the matter it will array in opposition to us the very persons who secured the passage of the law. As I am almost the only member of the Board who comes in contact with the manufacturers, it is very difficult for the other members of the Board to realize the conditions surrounding the question. I think it would be extremely desirable to hold a session in New York and make arrangements to have the manufacturers come before the Board and state their case themselves....I think we should keep the meeting private as otherwise the reporters would get hold of it and these manufacturers would be paraded in the newspapers as adulterators.[126]

With Moore's approval, Chandler planned the meeting for February 24. He wrote to Harris that four of the analysts would be present.[127] He explained to Dr. Moore that he wanted members of the Board to hear "the arguments of the business men." It was Chandler's difficult chore to sway the Board members and the analysts to a more pro-business position, so as to retain the support of Thurber and the other large manufacturers, and still make a show of force in regard to the law. "I think if we can manage the exemptions clause of the law so as to secure the cooperation of those manufacturers who appear to be willing to aid us, we shall have no difficulty in making a success of the whole movement."[128]

Despite the confidentiality planned for the meeting, Chandler sent notice of the event to Henry Meyer, asking him to print it in Sanitary Engineer. Elisha Harris questioned this decision, but Chandler responded that, since the Sanitary Engineer "makes a specialty of this sort of thing," the notice "would reach the proper persons." Yet he repeated that reporters must not be admitted, and urged that Harris "leave the whole matter to me."[129] He sent Meyer a package of invitations, to distribute "where they will do the most good,"[130] and hired a private stenographer to take verbatim minutes, but keep them secret "till they are wanted...although there might not be anything which is particularly secret."[131]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Chandler made the decision to keep the more controversial food products out of the discussion entirely. Ex-Senator Roscoe Conkling, who had been hired to protect the interests of Thurber's oleomargarine company, wrote Chandler about whether standards for this product would be discussed at the meeting. Chandler, after reviewing the goals and special position of the Commercial Manufacturing Company, decided that such arguments "would be ruled out of order." Chandler felt that this first, delicate meeting was not the place to push the special demands of the company, although Chandler too had been working for Commercial Manufacturing for some time.[132]

Although "newspaper representatives were excluded" from the meeting, John Fredericks gained admission as a representative of the New York and the Brooklyn retailers' associations.[133] The representatives of American Grocer and Sanitary Engineer were not, apparently, considered "newspaper" people at all, and both journals presented full coverage of the meeting. The manufacturers and wholesalers invited to the meeting were asked to vote on certain key questions, and then the Board met and passed new resolutions, taking the opinions of these grocers into consideration.

The coffee standard was amended so as to allow chicory, peas, or cereal as diluents, so long as half the mixture consisted of coffee. The mustard standard was amended so as to allow turmeric coloring, and the minimum percentage of mustard was reduced to 40%. In both cases, content labeling would be required, but only the percentage of the main ingredient, i.e., the coffee or the mustard, need be given.[134] One month later the governor, as required by law, approved the resolutions.[135]

From the retailers' point of view the most important achievement of the meeting was a concession from the Board: "We were successful in exacting from the State Board of Health the unanimous consent that in the future

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

it would prosecute the wholesale merchants from whom adulterated goods are bought, instead of the retailers, providing the latter are willing to furnish the evidence, and were acting in good faith."[136] The value of this concession is debatable. The law explicitly instructed the Board to investigate, obtain samples, and bring charges in cases of suspected adulteration. Yet here the retailers would be obliged to do the Board's work for it. Also, how might the Board weigh the "good faith" of the complaining retailer? In any event, whatever the sincerity of the commitment at this time, the Board never honored its pledge.

But if the retailers were unable to sway Chandler from his path, the court system now challenged either his wisdom or his honesty. On February 23 Judge Cowing of the Court of General Sessions reversed the conviction of Henry Fulle, and ordered a new trial. This decision was based on a technicality. While the Board had brought charges against Fulle for having sold the cream of tartar as an adulterated drug, Fulle's original attorney --Atwater, who had been hired by the Grocers' Union--had argued that Fulle had sold the tartar as a food. Judge Cowing accepted this appeal, and also found that it had not been proven that Fulle had "criminal intent."[137] But Cowing had gone even further:

> if the State Board of Health really desires to put a stop to the practice of food adulteration and clear the worthless and deleterious stuff from the market, the proper course to take is to prosecute the manufacturers directly and not allow them to escape while the retail dealers, who are the minor offenders, are very indifferently and weakly attacked.[138]

The Cowing decision had repercussions within the Board. Harris, who had been critical of Chandler's policy, now redoubled his protests. Chandler responded, arguing with a strange lack of logic, that "Just as the physician and surgeon are liable to be sued for mal practice, so the retailer is liable to be punished for neglecting to supply honest articles to his

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

customers," even if "he bought the goods supposing them to be pure." Prof. Chandler continued to insist that his policy of prosecuting the retailers was correct: "No other plan is at all feasible."[139]

A month later Chandler was still being criticized by Harris, who had apparently persuaded Erastus Brooks that something was wrong with Chandler's strategy. Chandler responded that his success in prosecuting milk dealers justified the same approach for retail grocers. He insisted that "We can not get evidence against the wholesale dealer," and asked that "you and Mr. Brooks will realize that in a new enterprise of this kind we have to make haste slowly."[140]

Meanwhile, some of the other retailers who had been indicted in December were brought to trial. They pleaded guilty, paying a nominal fine of $10.00.[141] The State Board, during the entire tenure of Prof. Chandler--until November, 1883--had a record of indicting a total of twenty retailers for violation of the Food and Drug Act. All the indictments were made in the one month of December 1882. Only five men were tried and convicted.[142] Ironically, the "crimes" of four of them were decriminalized after their indictment by the Board's announcement of standards for mustard and coffee. In addition, in all of 1883, the Board inspectors had only six persons indicted for selling adulterated milk.[143] No food manufacturer or wholesaler, nor any milk processor, was arrested.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER IX

[1]New York Times, 11/14/80. The licensing legislation was Laws of 1881, ch. 450.

[2]Times, 6/12/81.

[3]Sanitary Engineer, 6/15/81, 325.

[4]Lawrence M. Friedman, A History of American Law (New York: Simon and Schuster, 1973), p. 397.

[5]H. Roger Grant, Insurance Reform (Ames, Iowa: Iowa State University Press, 1979), p. ix, categorizing Gabriel Kolko, The Triumph of Conservatism (Chicago: Quadrangle, 1963).

[6]See above, p. 247.

[7]Grant, p. 3.

[8]See Robert H. Wiebe, The Search For Order, 1877-1920 (New York: Hill and Wang, 1967).

[9]Friedman, pp. 399-400.

[10]See Sanitary Engineer, 7/15/80, 317, for an abstract of Stephen Smith's explanation of the process by which the law was put through the legislature.

[11]Times, 5/30/80, 6/10/80.

[12]First Annual Report of the State Board of Health of New York (Albany, 1881), pp. 82-83.

[13]State Board of Health of New York, Duties and Procedures of Local Boards of Health and their officers (Publication No. 27, n.d.), p. 3: "Full power is given every board to make and enforce regulations and orders of general obligation, which shall be published and obeyed as laws." In a note from Col. Prentice to Chandler, 7/27/80, Chandler papers, he explained that under Laws of 1850, ch. 324, local boards can "make and publish 'regulations,'" and enforce them by Laws of 1870, ch. 559.

[14]Manual of the State Board of Health of New York (Albany, 1880), p. 9.

[15]Elisha Harris, "Report of the Sanitary Committee," Second Annual Report of the State Board of Health of New York (Albany, 1882), p. 500, made a point of noting: "The State Board of Health desires the fact to be well understood by the public that this /adulteration/ law originated as a national measure for the protection of the people, as recommended by the National Board of Health and the National Board of Trade."

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[16]Kerosene adulteration is discussed further below, ch. X. Though obviously neither a food nor drug, Chandler and other members of the Board consistently included references to illuminating oils in their attack on adulteration, and worked to acquire additional legislation for its regulation.

[17]Second Annual Report, N.Y., pp. 17-18.

[18]Sanitary Engineer Supplement, 3/30/82, 377.

[19]Ibid.

[20]Second Annual Report, N.Y., p. 500.

[21]Sanitary Engineer Supplement, 3/30/82, 377.

[22]Notes, n.d., Chandler papers.

[23]Note, 3/16/82, Chandler papers.

[24]Chandler privately marked Pitt's report "not suitable for publication." He obviously decided to include Pitt's glucose/sugar study with the other eleven reports, but asked Albert L. Colby to prepare an additional report on the topic. This accounts for the delay in the presentation of the final twelve reports. The March 30, 1882 preliminary report, and the abstract published by Meyer, did not include Colby's work.

[25]Lattimore to Chandler, 7/13/81, 12/10/81, Chandler papers. According to Chandler's private notes Lattimore's reports were very late in arriving. The only other report marked similarly by Chandler was the one by W.G. Tucker, who was considered by Chandler to be incapable of conducting certain analyses.

[26]Lattimore to Chandler, 12/10/81, Chandler papers.

[27]In addition to the reports of the New York, New Jersey, and Massachusetts Boards, the reports of the Brooklyn and Boston Boards were examined.

[28]William K. Newton, "Our Milk Supply," Fourth Annual Report of the Board of Health of the State of New Jersey (Camden, New Jersey, 1881), p. 209.

[29]Stephen P. Sharples, "Adulteration of Food," Fourth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement for 1882-1883 (Boston, 1883), p. 6.

[30]Charles F. Chandler, "Report of the Sanitary Committee of the State Board of Health on the Adulteration of Food and Drugs," Second Annual Report, N.Y., p. 503. In his 1870 report on milk Chandler had stressed the fraudulent practices of skimming and watering; he now emphasized that these practices were deleterious, reducing the nourishment received by infants and the elderly.

[31]Ibid., p. 502.

[32]James A. Tobey, The Legal Aspects of Milk Control (Chicago, 1936), pp. 1-3, notes that the first U.S. milk law prohibiting adulteration was a Massa-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

chusetts act of 1856. The first recorded court decision on milk /Commonwealth v. Flannelly (1860), 81 Massachusetts (15 Gray) 195/ ruled that, under this act, prior knowledge was necessary for conviction. A Massachusetts law of 1864 made milk adulteration a crime regardless of the dealer's knowledge or ignorance of the act.

The New York law of 1862 prohibited swill milk; the 1864 law added watering as a crime. It was not until the Schrumpf decision that it was established that guilty knowledge need not be proven. Also, see John Duffy, A History of Public Health in New York City, 1625-1866 (New York: Russell Sage Foundation, 1968), pp. 427-437.

[33]Newton, "Our Milk Supply," p. 216.

[34]William K. Newton, "Report of the Milk Inspector," Fifth Annual Report of the Board of Health of the State of New Jersey (Mount Holly, New Jersey, 1881), pp. 116, 120.

[35]J. Alfred Wanklyn, Milk-Analysis, A Practical Treatise on the Examination of Milk (New York, 1874), p. 13.

[36]Fourth Annual Report, Mass., pp. 39-40. Sharples continued to recommend the lactometer within limits: "As a preliminary test to enable the inspector to judge as to whether it will be better to go further with his test, it is extremely valuable." (p. 44)

[37]Stephen P. Sharples, "Specimens of Milk From the Vicinity of Boston," Proceedings of the American Academy of Arts and Sciences, New Series III, Whole Series XI (May 1875-May 1876), pp. 149 ff. Sharples reported that he had been able to find a herd of cattle producing milk approaching the unusually high standard of 14.55% total milk solids reported by Prof. J.F. Babcock in 1873. The next year, however, in Proceedings of the American Academy of Arts and Sciences, New Series IV, Whole Series XII, pp. 102-103, Sharples reported that it was unreasonable to expect such high yields as an ordinary event, and argued that the Massachusetts standard should be set at 12.5%.

In the Third Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement (Boston, 1882), pp. 40-42, Sharples discussed this topic further, declaring that the Massachusetts law, "like all other attempts to measure the purity of milk by a single standard, is open to grave objections."

[38]Massachusetts State Board of Health: A Brief History of Its Organization and Its Work, 1869-1912 (Boston, 1912), p. 50, reports that the findings of the Massachusetts milk inspectors were as follows:

1883...50% adulterated
1884...58% "
1885...44% "
1886...42% "

(The figures given in the annual reports varied slightly from these.) These unusually high figures are the result of an impossibly high standard. Were all milk producers and dealers prosecuted, whose goods failed to meet the state minimum, chaos would surely have resulted. In actual practice, only milk testing below 11.5% solids served as a basis for prosecution. See statement of Dr. Charles Harrington, chemist for the Massachusetts State Board of Health, Boston Medical and Surgical Journal, CX, no. 11 (3/13/84), 255.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[39]Charles E. North, "Milk and Its Relation to Public Health," in Mazyck P. Ravenel, ed., A Half Century of Public Health (1921; rpt. New York: Arno Press, 1970), p. 237, has commented that between 1839, when the first scientific article on milk appeared, and 1879 "only thirteen writers felt it worth while to write scientific or medical articles on this subject."

[40]Ibid., pp. 243-244.

[41]John Duffy, A History of Public Health in New York City, 1866-1966 (New York: Russell Sage Foundation, 1974), p. 133.

[42]Second Annual Report, N.Y., pp. 509, 704.

[43]Robert L. Larson, Charles Frederick Chandler, His Life and Work (unpublished doctoral dissertation, Columbia University, 1950), p. 144.

[44]G.C. Caldwell to Chandler, 9/20/81, Chandler papers.

[45]Note, n.d., Chandler papers.

[46]Chandler to Harris, 3/15/83, Chandler papers. It will be remembered that Chandler appears to have had similar problems completing his milk study for the Metropolitan Board of Health in 1869-1870.

[47]Third Annual Report of the State Board of Health of New York (printed as Assembly Document Number 110, 1883), p. 100.

[48]C.E. Munsell, "Milk, Fresh and Condensed," Fourth Annual Report of the State Board of Health of New York (printed as Assembly Document Number 89, 1884), pp. 269-311.

[49]White to Chandler, 12/78, Chandler papers, pp. 31-35. The lactometer's calibrated scale was designed for testing milk at a temperature of 60° F. Since specific gravity varies irregularly with temperature, even a slight variation from the "normal" 60° would throw off the reading, requiring a computation of the actual s.g., which would be at variance from the lactometer reading. At the Schrumpf trial Chandler and the sanitary inspectors testified to their inability to make this calculation with any accuracy.

[50]Times, 6/6/81. The Journal of the American Chemical Society, III (1881), 60-62, in its abstract of Leeds' speech, failed to mention this challenge to the lactometer. Prof. Chandler, in 1881, was president of the Society.

[51]Times, 6/11/81.

[52]John Morris, Milk: Its Adulterations, Analysis, Etc. (pamphlet, 1882), p. 2.

[53]The Massachusetts legislature acted with more determination upon the milk question than either New York or New Jersey. In addition to its rigorous testing requirement and unreasonable "purity" standard, it legislated that the bulk of the Board's funds go to preventing and prosecuting milk adulteration. The original appropriation of $3,000 made in 1882 was raised to $5,000 the next year, with the proviso that 2/5 of it "should be expended in enforcing

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the milk law"; in 1884 the appropriation was raised to $10,000, with 3/5 devoted to the milk situation. See Massachusetts Reports for 1883 and 1884.

In New York, the state standard eventually adopted was fat-content, measured by a "gravimetric or weighing method." See George L. Flanders, "Accurate Determination of the Amount of Fat in Milk," (three-page pamphlet, August 3, 1909), p. 2; Raymond A. Pearson, Facts About Milk (Washington, 1906), pp. 19-20.

The definitive word about the accuracy of the lactometer was the report by R.H. Shaw and C.H. Eckles, The Estimation of Total Solids in Milk by Use of Formulas (Washington, 1911 /U.S. Department of Agriculture Bulletin 134/), pp. 15-16: the lactometer can result in discrepancies as great as "one per cent of total solids calculated" by weighing, and is therefore unreliable.

[54]American Grocer did continue to run a number of routine items on milk throughout the period. It should be understood that milk was not a large part of the grocer's business, since it was mostly sold door-to-door, scooped out of cans. Some early experiments were made at this time in selling milk in glass jars. See Times, 2/28/81; American Grocer, 10/30/79, 1053.

[55]Laws of 1878, ch. 220. The bill passed both houses of the legislature virtually without opposition.

[56]Journal of the Senate of the State of New York, 1878 (Albany, 1878), pp. 442-443.

[57]Fourth Annual Report, N.Y., p. 308.

[58]Sanitary Engineer, 5/25/82, 533, 540.

[59]Newton to Chandler, 4/24/82, Chandler papers.

[60]Printed letter from "Health Department, 301 Mott Street," dated 5/23/82, Chandler papers.

[61]"Letter From Dr. E.G. Janeway, Late Commissioner of Health and Chairman of the Committee of Hygiene of the County Medical Society," dated 5/23/82, Chandler papers. Janeway was professor of pathological anatomy at Bellevue, and a noted diagnostician and consultant.

[62]Untitled letter from the Sanitary Reform Society, Chandler papers.

[63]Chandler to Pooler, 3/5/83; Chandler to Richardson, 3/5/83; Chandler to Gerry, 3/5/83, Chandler papers. See Larson, Chandler, pp. 153-155. Pooler was a doctor, president of the Board of Health of Goshen, N.Y., and vice-president of the Milk Association of Orange County. Richardson was president of the Orange County Producers' Milk Association; his stationery was imprinted "New York, Lake Erie, and Western Railroad Company."

[64]Notes in Chandler papers, n.d. Chandler's genteel reference illustrates the casual racism of the day.

[65]Ibid. Cholera infantum is a diarrheal disease, closely associated with bacteria in milk, and commonly fatal, especially in children.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[66]Chandler had established friendly relations with Newton at least as early as 1881, when he replied to Newton's request for a copy of the Schrumpf trial records, and advice to help prepare for New Jersey prosecutions. See Newton to Chandler, 11/11/81, Chandler papers.

[67]Times, 2/25/81.

[68]Lee Benson, Merchants, Farmers, and Railroads (New York, 1955).

[69]At about the same time Richardson had made the same proposal to an organization of dairy farmers, along with several other concessions for their convenience. See Times, 12/27/82. On efforts to legislate special freight rates for milk see Times, 3/20, 4/2, 6/20/79.

[70]Chandler to J. Blake White, 1/31/83, Chandler papers.

[71]Chandler to Munsell, 1/31/83, Chandler papers.

[72]Chandler to Newton, 2/8/83, Chandler papers.

[73]Fourth Annual Report, N.Y., p. 268. This report also contains Munsell's long-delayed milk studies, conducted in 1880-1882, which had not been printed while Chandler was the officer in charge.

[74]By-Laws of the New York Milk Exchange Limited, Chandler papers. See also Larson, Chandler, p. 150.

[75]Chandler reported, in his preliminary summary of March 1882, printed in Sanitary Engineer Supplement, 3/30/82, that "So openly are these frauds practiced that 'creameries' have been established in many localities; the names and locations of seventy-three of such establishments being known to the writers, of which sixty-three are known to send skimmed milk to New York city, all of which is sold as whole milk on its arrival." In the final version of the Report, Second Annual Report, N.Y., p. 503, Chandler changed the wording by inserting "(pure)" after the words "as whole."
Chandler may have known their locations, but he never brought suit against any of the creameries.

[76]Chandler to Pellew, 2/13/83, Chandler papers. Present at the original meeting setting up the cooperative, according to the New York Tribune, 9/24/79, but perhaps no longer involved in its operation by 1883, were fifty civic leaders, including John Jay (Pellew's brother-in-law, and organizer of the company), Senator William H. Robertson, Manton Marble's father Joel, and other rural gentry.

[77]Chandler to Pellew, 2/13/83.

[78]Pellew to Chandler, 2/13/83, Chandler papers. Chandler agreed with Pellew about skimmed milk: "I do not believe that skimmed milk is unwholesome or without nutritive properties. That is not the issue. I consider it a fraud to sell skimmed milk for whole milk, and I consider it unwholesome to make the chief article of diet of an infant to consist of skimmed milk." See Chandler to Pellew, 2/14/83, Chandler papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[79]Pellew to Chandler, 2/14/83 (two letters), Chandler papers.

[80]Chandler to White, 2/14/83, Chandler papers.

[81]Chandler to Martin, 2/14/83; Chandler to Munsell, 2/14/83, Chandler papers. Martin responded: "I have not said a word about the N.Y.D. Ass. to anyone and of course shall not, now anyway." (Martin to Chandler, 2/15/83, Chandler papers.

[82]Richardson to Chandler, 2/14/83, Chandler papers.

[83]Chandler to Richardson, 2/16/83, Chandler papers.

[84]Chandler to Pellew, 2/16/83; Pellew to Chandler, 2/16/83, Chandler papers. Chandler's letter indicates that he was sending just the two letters, but Pellew's response thanks Chandler for copies of all the correspondence.

[85]The Tribune ran a major interview with Chandler on 2/21/83, with follow-ups for the next two issues. A final story on the train-board inspections, including an interview with Richardson, was run on 2/25/83, but by then the story was played out, with no new information forthcoming.

[86]Chandler to Munsell, 2/23/83, Chandler papers.

[87]Chandler to Richardson, 2/21/83, Chandler papers.

[88]Chandler to White, 3/13/83, Chandler papers.

[89]Second Annual Report, N.Y., p. 509; Sanitary Engineer Supplement, 3/30/82.

[90]"New York Retail Grocers' Union," (four-page booklet, n.d.). Philadelphia, Baltimore, and New England had such associations operating by 1881; See Grocer, 7/30/81, 96.

[91]Report of the Commissioner of Agriculture for the Year 1886 (Washington, 1886), pp. 298-299.

[92]American Grocer, 3/4/80, 602.

[93]Grocer, 7/2/81, 4.

[94]Fifth Annual Report, N.J., pp. 91-92.

[95]"Repression of Adulteration in America," The Sanitary Record, III New Series (September 15, 1881), 98.

[96]Third Annual Report, Mass., p. xlvii.

[97]Second Annual Report, N.Y., pp. 505-506.

[98]Ibid., p. 594.

[99]Ibid., p. 595.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[100]*Times*, 8/17/82.

[101]*Times*, 10/5, 10/7/82.

[102]Chandler to Harris, 12/7/82, Chandler papers.

[103]*Third Annual Report*, N.Y., p. 99. None of the tartar cases involved alum. One tartar case was dropped because of the grocer's illness, two grocers were twice charged with selling adulterated tartar, and the same two were also charged with selling adulterated mustard.

[104]Chandler to Tucker, 1/23/83, Chandler papers.

[105]*Second Annual Report*, N.Y., pp. 559-573.

[106]*American Grocer*, 11/21/82, 1354.

[107]*Sanitary Engineer*, 12/14/82, 30.

[108]*American Grocer*, 12/14/82, 1296.

[109]*Ibid*.

[110]*Sanitary Engineer*, 9/21/82, 328.

[111]*German-American Grocer*, 12/30/82, 3687.

[112]*Sanitary Engineer*, 12/28/82, 78.

[113]*German-American Grocer*, 12/30/82, 3687.

[114]*Sanitary Engineer*, 12/28/82, 78.

[115]*Ibid*.

[116]*German-American Grocer*, 12/30/82, 3688.

[117]*German-American Grocer*, 1/6/83, n.p.

[118]It is not possible to determine the membership of this coalition. Fulle bought the cream of tartar from James E. Armstrong, and presumably Armstrong, and other wholesalers who would be named by the defendants, hired the lawyers to assist Atwater, with Fulle's permission.

[119]Chandler to Harris, 1/4/83, Chandler papers.

[120]*German-American Grocer*, 1/6/83, n.p.

[121]*Times*, 1/9/83, 1/10/83.

[122]Chandler to Harris, 1/25/83, Chandler papers.

[123]Chandler to Meyer, 1/27/83, Chandler papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[124]American Grocer, 1/4/83, 8.

[125]American Grocer, 2/1/83, 225; Sanitary Engineer, 2/1/83, 200.

[126]Chandler to Moore, 2/5/83, Chandler papers.

[127]Chandler to Harris, 2/20/83, Chandler papers.

[128]Chandler to Moore, 2/20/83, Chandler papers.

[129]Chandler to Harris, 2/20/83, Chandler papers. (second letter.)

[130]Chandler to Meyer, 2/21/83, Chandler papers. Meyer had editorialized against the excessive restrictions, the "needless interference with trade," of the Board's unilateral rulings. He cautioned that the Board should "avoid unnecessary antagonisms." Presumably he was reflecting not only Thurber's position, but Chandler's as well. See Sanitary Engineer, 2/8/83, 225.

[131]Chandler to James W. Tooley, 2/23/83, Chandler papers.

[132]Chandler to Conkling, 2/23/83, Chandler papers. See ch. XI, below, on Conkling on oleomargarine.

[133]German-American Grocer, 3/3/83, 383l.

[134]Notes in Chandler papers; Sanitary Engineer, 3/1/83, 300; American Grocer, 3/1/83, 445.

[135]Sanitary Engineer, 4/5/83, 421.

[136]German-American Grocer, 3/3/83, 383l.

[137]Tribune, 2/24/83.

[138]Times, 2/24/83.

[139]Chandler to Harris, 3/2/83, Chandler papers.

[140]Chandler to Harris, 4/12/83, Chandler papers.

[141]Sanitary Engineer, 3/1/83, 300.

[142]Fourth Annual Report, N.Y., p. 260. The figure given in this 1884 report--eight convictions--has been adjusted to account for multiple charges against the same defendants. Fulle's conviction, which was ultimately reversed, is also counted in the Report, but subtracted in the present study.

[143]Ibid., pp. 267-268.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER X

ENFORCEMENT: ONE MAN'S POISON

By the time Chandler left office, in November 1883, and began to work more intensively in the interests of private corporations, not only the popular press, but leaders in the sanitary movement itself, were reassessing the question of enforcement. Chandler's friend Newton, in a speech to the American Public Health Association, confessed his disillusionment:

> I am afraid that we place too much trust in laws themselves. Some people with whom I have talked on this subject seemed to labor under the delusion that the moment a law is placed on the statute-books a moral revolution takes place, and that the end sought for would be attained without more trouble. I once had great faith in laws myself ....But one hour on the witness stand...dispelled the delusion, and I came to the conclusion that there was no such a thing as justice any more.
>
> With this experience in mind, I would say that the only way to prove the value of our food laws is to enforce them vigorously.[1]

When F.B. Thurber reviewed Newton's speech in his new newspaper, Justice, he gave only lip service to this sense of disenchantment, merely stating that "Dr. Newton is right in his conclusion that the only way to test the value of our food laws is to enforce them vigorously."[2] The remainder of Thurber's two columns repeatedly stressed the harmlessness of adulteration, and attacked sensationalism. While this perspective may have been effective a few years earlier, it rang hollow three years after passage of the National Board of Trade law, and surely persuaded few people of the law's effectiveness.

Was prosecution the key to stopping adulteration, or had Chandler been

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

right in his private memo that "few prosecutions will be necessary"? Involved in this question is the motivation of the experts empowered to enforce the new laws. Chandler's activities and behavior were surely not unique. When he began working for the Metropolitan Board of Health his salary was meagre. Apparently he worked gratuitously for the first few months; when the position of Chemist to the Board was created for Chandler in 1867, his pay was $2,000.[3] Unhappy with this amount, Chandler attempted to get it raised, but was informed by Dr. Harris in no uncertain terms that "the salary of the Chemist is fixed."[4] In 1883, as President of the Health Department, and an officer of the State Board, Chandler's annual pay had risen to $6,500.

His teaching pay probably added about as much again to his income,[5] especially since Chandler's work at the College of Pharmacy was gratuitous.[6] It is doubtful that Chandler kept his three teaching positions, and fought so vigorously for the presidency of the Board, both in 1873 and 1883,[7] because of the munificence of the reimbursement. Men of Chandler's training and ambition sought such positions partly, no doubt, out of a sense of public responsibility, but also because of the prestige related to them, and because such positions enhanced the opportunity for private consulting work. The reputability transmitted by his titles surely facilitated his success in obtaining hundreds of such jobs, for which he was very well paid.[8]

A recent periodical article, describing the historical value of the Chandler collection at Columbia University, stresses that:

> Chandler's life-style was essentially that of the New York City clubman at the turn of the century....In addition, the collection also contains the household bills and receipts for Chandler's two homes in Manhattan (East 48th and 54th Streets) and his summer home at Westhampton, Long Island. The collection, therefore, gives important details of the costs and problems of living the affluent life in a New York brownstone between 1880 and 1925.[9]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The funds for this "affluent life" did not come from Chandler's more public occupations.

It took great care to thread the narrow path between private consultation and public service, especially when the majority of the companies employing Chandler were involved in manufacturing the very items that Chandler had been appointed to supervise and regulate. The polite rivalry that later developed between Chandler and Dr. Harvey W. Wiley, repeatedly putting the two men into opposition over enforcement of the Pure Food and Drug Act of 1906,[10] was ethically unimpeachable. After 1883 Chandler was free to advise corporations resisting regulation. But how disinterested could Chandler have been in rendering judgments on products he had been paid to endorse, or for which he testified in court cases, while he was Health Department president?

Chandler roundly condemned chemists who allowed their names to be used for product endorsements. For example, he sent a very interesting reprimand to Jesse P. Battershall, the United States customs analyst for the Port of New York:

> I have been dreadfully mortified to see your name attached to a certificate for porous plasters. How could you do such an imprudent thing? It will prejudice every chemist in the country against you. One of the plaster men came to me and I declined, under any circumstances, to give such a certificate, and when he asked me to recommend somebody else I told him that no respectable chemist would give him such a certificate, unless he was dreadfully pressed for money.
>
> Two or three certificates of that kind will ruin your reputation.[11]

In this era each of the new professions developed a "code of ethics," not to restrict the profitability of the profession, but to lend it a certain dignity. The new professions distained mere materialism, and replaced commercial advertising with "Degrees, diplomas, and honorary awards."[12] From Chandler's perspective, once the professional chemist was employed to perform a legitimate task, such as analysis of the chemical properties of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

a product, his testimony--the technical results of his investigation--became the property of his employer. Battershall had committed the sin of allowing his name to be used without the specific employment of his technical skills. Chandler did not consider this a respectable use of his training, expertise, and reputation.

In this genesis of professionalism, new to American society in the post-war period, many naive errors of judgment and many ethical difficulties must have arisen: the Chandler/Ricketts sugar imbroglio is but one example. Dr. Squibb had warned of the dependence of medical men upon their pharmaceutical suppliers; in 1883 Prof. Leeds similarly warned sanitarians that, since businessmen could pay more than government for professional services, "most of the so-called chemical experts....are desirous of being in the employ of the manufacturers and not of the state," in suits brought under the new adulteration laws.[13]

Leeds also repeated what Newton had said: what was needed now was not "information concerning facts, or the passage of new laws," but enforcement. To accomplish this, Leeds urged "the appointment in each state of a public analyst of high professional attainments, undoubted honesty, and secure of honorable pay."[14] Surely this is what the people of New York thought they already had.

* * * * * * *

Certainly, if there was any food item outside of milk that required prompt and rigorous supervision, it was confectionery. Sharples had declared that "No article of food is so liable to be injuriously adulterated as candy and all kinds of confectionery."[15] Dr. Smart, in the National Board of Health Bulletin Supplement No. 11, had not only reviewed prior

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

investigations of candy colorings, but conducted tests of his own. All the studies agreed that confectionery was frequently colored with dangerous materials. Most common was the presence of chromate of lead in yellow-colored candies.[16] Dr. Pitt had also examined candies, for his part of the New York State Board of Health's 1882 Report, and found seven of the ten yellow candies he tested similarly contaminated.[17]

Considering the obvious danger of candy adulterated with lead coloring, the lack of concern on the part of the Board is most peculiar. Pitt's few lines in his report merely confirmed the presence of this poison. Dr. Colby's "Supplementary Report on Sugars," printed to ameliorate the inadequacies of Pitt's work, never mentioned confectionery. The Board Report for the next year reveals that a total of one sample of candy was purchased and tested in all of 1882. (It was found to be unadulterated.)[18] Harris' introductory remarks in this Report emphasized the tartar, mustard, and coffee cases which the Board had brought to court, claiming, peculiarly, that these "were instances of dangerous substitutions and frauds."[19] Nor can this lack of concern for poisoned candy be explained away by Harris' plea for additional funds for the administration of the adulteration law, when one considers that the Board did make 286 purchases, including thirty-three additional samples of cream of tartar, in that year.[20]

Most of the Sanitary Committee's 1884 report consisted of Munsell's delayed milk study. Nonetheless, despite the continuing lack of funds, a number of miscellaneous samples were purchased for testing, but no candies were included.[21] By the time the Board's Fifth Annual Report was published the state adulteration law was a dead letter, and the Sanitary Committee all but extinct.

But surprisingly, the Massachusetts Board seems to have been similarly

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

unimpressed with the need to investigate candies. Battershall reported on a Boston case of confectionery containing chromate of lead, in which the accused was acquitted "on the plea that candy was not an article of food within the meaning of the existing law,"[22] and perhaps this is a partial explanation. In any case, the law was then amended in that state to include candies specifically.

Except for Sharples' statement on the likelihood of injurious adulteration in candy in the Massachusetts Report of 1882 (reprinted from his essay in Buck's Hygiene and Public Health), the first discussion of the problem in State Board reports did not occur until July 1884. In this instance Dr. Edward S. Wood, the new Analyst of Food for the Board, simply stated that "The poisonous colors are not now, so far as I can learn, commonly found in candies."[23] Wood gave no statistics, nor reported on samples tested. The next year's Report ignored candies completely, though the 1886 Report did list candy among the foods found to be adulterated, and specified "colored with poisonous pigments."[24] Of the 119 prosecutions initiated by the Massachusetts Board between December 1, 1884, and May 31, 1886, only three were for selling adulterated candies.[25]

The Board reports for New Jersey, from 1880 to 1885, completely ignored candy adulterations. The Brooklyn Board, prior to 1884, by its own admission, performed virtually no work relating to food adulteration beyond routine milk and meat inspections.[26] In 1884-1885, however, the Brooklyn Board began a broad range of inspections, seeking evidence of "injurious adulterations."[27] During 1885 ninety-three samples of candy were analyzed, with the result that nineteen were found to be adulterated, eighteen of them with chrome yellow. Eighteen samples of candy colorings were also analyzed, one of them turning out to be lead chromate.[28]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The inspector tracked down the source of the candy, and confiscated the contaminated dyes, but no suit was brought against the manufacturer, upon his promise of future caution. The inspector then visited six retailers who were selling similarly adulterated candy. Presumably these stores (the addresses of which were published) had been identified by the manufacturer as having received supplies from him. The Report explained several times that these adulterations were unusual, and that the supply of candy was generally perfectly safe.[29] The next year the Brooklyn Board inspected 183 confectionery stores, but the Report did not provide statistics on candy adulteration.[30]

The most intense campaign against chromate of lead in candies was conducted by the New York City Board, under its new chief sanitary inspector, Cyrus Edson. Edson was the son of Mayor Franklin Edson, and his appointment was a blatantly political move, which was accompanied by considerable noise in the press. It may be that Edson needed to prove he was serious about the job, for in 1884 the Board destroyed 72,700 pounds of adulterated confectionery,[31] which may well have been the inspiration for the sudden activity of its sister Board in Brooklyn. Sanitary Engineer congratulated Edson upon his work, but complained about the Board's refusal to publish the names of the offenders. Such publication would protect "the honest manufacturers" from being tarred with the same brush.[32] American Grocer added a comment from "one of the leading manufacturers" to the effect that the guilty parties were surely "ignorant" of the injurious nature of their colorings.[33]

Overall, considering that this was almost certainly the most common poisonous food adulteration to be found, there seems to have been disproportionately little interest in confectionery, with the one exception of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Edson. As Sanitary Engineer indicated, "What little has been done to enforce the food and drug adulteration law of this State seems to have been done by the Health Board of this city," rather than the state sanitary officers.[34]

* * * * * * *

The furor over the possibility of sugar bleached with tin acids that had hit the city by storm in 1878-1879 had pretty much died down by the end of the year. The reassurances by Chandler, and the efforts of Thurber and Havemeyer, may not have completely cleared the air of the "discovery" by Dr. Ricketts of "tin" in De Castro and Donner's sugar. Still, the Times could deny, in October, that there had been any "possible foundation" for the excitement, and declare that "In sugars, adulterations of any kind are exceedingly rare."[35]

By the end of 1879, however, a new alarm was being raised, concerning the possible presence of granulated glucose in cane sugars. Dr. Kedzie, it will be recalled, had found a majority of the syrups he tested, in 1874, to be adulterated with glucose. Dr. Leeds' November 1879 speech to the Academy of Sciences had repeated Kedzie's conclusion, and Kedzie himself reprinted his findings in the NBH Bulletin Supplement No. 6, published in early 1880. Both Kedzie and Leeds, it is true, categorically denied that white granulated sugars could be so adulterated without it being obvious to the merest tyro. But Kedzie had admitted that "adulteration by glucose is more feasible" in brown sugars.[36] Both Kedzie and Leeds, however, insisted that glucose was perfectly harmless.

But by the beginning of 1880 Angell's accusations had been well circulated: not only was even the whitest sugar adulterated with glucose, but glucose was a rank poison. Some foundation had been laid for these claims,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

inadvertently, by Sharples. He had said, in his chapter in Buck's book, "The glucose itself is harmless; it is only its impurities that are to be feared."[37] Angell, in addition to claiming that glucose was commonly made from rags and sawdust, stated that the sulphuric acid used to convert starch to glucose sugar could sometimes leave a deadly residue.

Although these claims were denied by most chemists, no comprehensive study of glucose had ever been undertaken. Then, in April, claims of widespread adulteration of sugar with glucose were made, not by either Angell or the chemists, but by the major New York sugar refiners themselves. A statement issued to the press by four of the largest refiners announced that, unlike the "indefinite and unproven" charges of 1878 (which had nonetheless hurt their sales badly), current rumors of the sale of "new process" sugar were true, although they were not personally involved. But the refiners warned that unless this trade was prohibited, they would have to participate in the fraud, for they could not compete with the adulterators and still make a profit. They called for "legislation in every State making it a misdemeanor for manufacturers and wholesale and retail dealers to sell adulterated goods without full notice to purchasers."[38] It was this new sugar scandal that would lead the New York sugar interests to support so wholeheartedly Meyer's lobbying activities in Albany in 1881.

Although little was heard about these accusations for the next several months, a lawsuit against one of the glucose companies (in a case unrelated to adulteration) brought the situation to public notice once again. The Times used the occasion to emphasize the rapid growth of the industry, and to recapitulate old alarms.[39] But a reporter from the Evening Post interviewed a number of sugar merchants, and quoted Prof. Chandler at some length. Chandler pointed out the chemical fact that we all "eat glucose with every

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

mouthful we take; every bit of starchy food we take turns into glucose." In reality, of course, Chandler was twisting the facts; he was trying to establish that glucose was a "natural" food, but in the process ignored the substantial difference between the chemical processing of corn to produce glucose, and the natural digestive processes.[40]

He might have safely made this claim, and his additional statement that there was no cause to fear sulphuric acid in glucose, but Chandler foolishly took a further step. He said that "So long as the mixers only put one part of glucose to five parts of sugar there need be no trouble. When they get to mixing one part of sugar to five parts of glucose it may be time for some one to protest."[41] Readers could legitimately wonder about just how effectively the new State Board would protect the health, if not the pockets, of the people. The public might have been further upset if it had known that Chandler's impartiality was being tested by this issue. It will be recalled that he was privately employed by three New York sugar refiners, his relationship going back to 1866 with at least one of them.

The state legislature, in response to the demands of the sugar refiners,[42] passed a bill to prevent fraud in sugar and syrup at about the same time it passed the NBT adulteration bill. This former bill was vetoed by Governor Alonzo Cornell, partly because of some uneven wording, but basically because the bill was made "unnecessary" by passage of the general law.[43] But by this time the people had received reassurances about glucose from other sources. The U.S. Department of Agriculture reported glucose to be "perfectly healthy."[44] The NBH Bulletin Supplement No. 11, by Charles Smart, testified to some adulteration of dark sugars, but affirmed that none of the samples tested "show any free sulphuric acidity or excess of iron or lime. They are indeed a wholesome article of food."[45]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Smart was also apparently the first chemist to publicly explain that a form of glucose, or "reducing sugar," naturally occurs in syrup and molasses. Although he failed to elaborate upon this fact, he was clear in refuting Prof. Kedzie's report on glucose adulteration in syrups. In other words, the amount of "glucose" found in all the syrups tested by Kedzie could readily be accounted for by natural causes. Smart speculated politely that perhaps, at the time Kedzie conducted his study, "the market was stocked with a manufactured article which failed to please the public taste and has since disappeared."[46]

Dr. Pitt, to whom Chandler had assigned the sugars for the extensive State Board Annual Report, devoted four pages to an explanation of the nature of glucose and the processes followed in three glucose factories in Buffalo, New York. Pitt's report tended to support the assertions of Harvey Wiley, who warned of the possibility of contamination in glucose, and felt that it was being manufactured in "immense quantities."[47] An editorial in Science had contrasted the opinions of Leeds and Wiley, Wiley contending that adulterations of sugar must exist on a large scale because of the sheer extent of glucose manufacture. Leeds, addressing the American Chemical Society, had stated that he failed to find such extensive adulteration. Science responded: "We believe that Professor Leeds reported correctly on the samples as he found them; but, if Professor Wiley is correct, the former must have been very fortunate, or, perhaps, unfortunate, in the selection of his samples."[48]

Pitt concluded that "Physiologically considered, glucose, pure and uncontaminated with other compounds, is certainly a good and wholesome food."[49] He then devoted a total of only one page to sugar, maple syrup, honey, and confectionery. He tested only fifteen samples of sugar, finding

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

no adulteration. The small amounts of glucose present in his samples could be accounted for by natural causes.[50] Prof. Colby's supplementary report, prepared on short notice upon Chandler's request, was a more direct attempt to respond to the growing public concern over the actual status of sugar. Colby tested 116 samples of commercial sugars. He concluded that "the sugars now in the market are free from the long list of insoluble mineral matter alleged to be used in former times," and that contamination by sugar-mites and other "organic impurities" were "now absent." Several of the white sugars had been bleached, but with harmless ultramarine; Colby never even mentioned the possibility of tin acids being used for this purpose.[51]

All forty-nine samples of white sugar were pure, but four of the sixty-seven brown sugars had been adulterated with glucose. Colby stated that "the use of glucose as an adulterant is practiced to a considerable extent."[52] This was a peculiar conclusion to reach on the basis of 6% adulteration among the brown sugars tested. Moreover, the consecutive numbers for these four samples of brown sugar would indicate that they came from the same source. If this is true--and the normal sampling technique followed in this period would indicate that it was--Colby's actual finding was that one merchant had added glucose to his cheap varieties of dark sugar.

Yet Colby went on to state very positively that:

> These so called "mixed sugars" are sold in the wholesale market under certain trade names, such as "New Process Sugar,"...which signify to the purchaser their character. They are, however, usually disposed of in the retail trade as pure sugars. As most of these "mixed sugars" are sent to the country, they are rarely to be found in the hands of retail city grocers.[53]

Colby was saying that the very fact that he was unable to find greater frequency of adulteration in New York City merely indicated that the adul-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

terated sugars were sold in vast quantities elsewhere in the state. "Absence of evidence is not evidence of absence," but Colby made it into evidence of presence, as if he had been instructed that it was a "given" that glucose adulteration was very common--but only among dark sugars! Colby not only stressed that white sugars were completely unadulterated, but also that the glucose present in dark sugars was "not a question of a deleterious adulteration; but one of fraud."[54]

Still, no definitive study of glucose had yet been conducted, and a bill was pending before Congress "to tax and regulate the manufacture and sale of glucose."[55] Thus, at the very time that Colby was preparing his supplementary report, Chandler was being commissioned to participate in a federal study of corn sweetener. On April 27 Green B. Raum, Commissioner of the Office of Internal Revenue, had written to William B. Rogers, President of the National Academy of Sciences, requesting an investigation of glucose by the Academy. In light of the pending bill the government was interested, not only in glucose's sweetening properties, but especially in "its deleterious effects when used as an article of food or drink."[56]

In addition to Chandler, the original committee members included Ira Remsen and George F. Barker, of the Academy. Barker, a noted chemist and physicist, was a professor at the University of Pennsylvania. There is no indication that he had any predisposition regarding glucose. Remsen, however, had written about the subject to Dr. Billings a year and a half earlier, after returning from his confrontation with Angell at the American Social Science Association. At that time, it will be recalled, he admitted his lack of general knowledge concerning adulteration. He also wrote that "I know simply that glucose is now largely used in syrups and to some extent in sugars themselves."[57] Thus, though more concerned about the possibility

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of tin salts in bleached sugar, Remsen was apparently predisposed to regard glucose as an undesirable--though not necessarily an unhealthy--adulterant.

As for Chandler, he had just been hired by G.H. Nichols and Company, manufacturers of glucose, to testify on behalf of their product at hearings conducted by the House Ways and Means Committee, which was studying the glucose regulation bill.[58] He was also approached by F.B. Thurber, on the same day that Raum wrote to Rogers requesting the investigation by the Academy, to use the facilities of either the city or state Boards to investigate arguments against discriminatory taxation of glucose. Thurber wanted Chandler to quash the allegations about its unwholesomeness, though he "would with pleasure join in the demand for restrictive legislation" if Chandler found that the accusations were justified. Thurber was probably the city's largest wholesale distributor of glucose, openly selling several varieties.[59]

The final version of the Academy Committee's Report contained a history of the industry, a study of the varieties of glucose manufactured, and an examination of the product's healthfulness. The Report completely exonerated glucose from any suspicion of being deleterious. It noted that:

> the manufacture of sugar from starch is a long-established industry, scientifically valuable and commercially important; second, that the processes which it employs at the present time are unobjectionable in their character, and leave the product uncontaminated; third, that the starch-sugar thus made and sent into commerce is of exceptional purity and uniformity of composition, and contains no injurious substances.

Even "when taken in large quantities" there was no cause for worry.[60]

This glowing report ignored the fact that carelessness in the neutralization of the sulphuric acid used in its manufacture could produce a harmful batch of glucose, and that the substitution of glucose for cane sugar is a fraud if the buyer is not made aware of the sophistication. At

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

best, glucose has about 60% the sweetness of sugar. The "commercial" argument against restricting its manufacture or use could apply just as well to outrageously criminal activities--after all, money is invested, and people are employed, in a variety of anti-social activities. Yet after the preliminary report of the Committee was issued, on September 18, 1882, and glucose received this overwhelming endorsement from the Academy's elite committee of experts, no reputable chemist could very well object to the use of glucose, or to the committee's conclusions, without threatening his professional standing.

Even William Newton's fairly pessimistic report on foods ended up supporting glucose. Newton made the point that ten pounds of glucose were manufactured per capita each year: "we naturally ask, What becomes of it? No one ever heard of a person asking for the substance at a grocery store; yet it is sold and consumed somewhere." Newton quoted Dr. Squibb's sarcastic comment that glucose "marks the progress of the age." He noted that the bill passed by the New Jersey legislature to restrict the sale of glucose was vetoed by Governor Ludlow on the basis that glucose manufacture could be a boon to the:

> utilization of the corn crop...and the consequent employment of a large amount of capital and labor. Scientists of acknowledged ability and integrity have declared it to be a healthful article of food, and there is no reason why the result of its mixture with cane sugar should be marked "adulterated," as if it were a debasement or pollution.

Yet, despite these comments even Newton felt constrained to point out that the manufacturers "strenuously avoided" errors that would result in contamination of the product, and "that glucose may be considered a harmless article of food. As to the use of this article as an adulterant, I hold that it does not come under the jurisdiction of health officers."[61]

Dr. Leeds, who had recently questioned the extensiveness of the glucose

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

industry as a rationale for inaction against its use as an adulterant, now noted its "extensive manufacture" and concluded that the manufacturing techniques, "though leaving much to be desired, are advancing in precision."[62] Yet he had conducted no new research on the issue, and apparently reached his conclusion on the basis of the Academy report.

Prof. William H. Brewer of Yale, President of the Board of Health of New Haven, and an added member of the Academy Committee, presented a paper on glucose in which he stressed its lengthy history as a legitimate manufacturing enterprise, and the large extent of its present production. Although he noted that its use could be "an unmitigated fraud" in some cases--when used as an adulterant for honey or cane sugar, for example--Brewer's presentation of glucose was as a natural product in its own right, not an adulterant, but a "perfectly legitimate and honest" substance, used for fruit jellies, confectionery, canning, syrups, and beer.[63] In line with this reasoning, presumably, the third, fourth, and fifth Annual Reports of the New York State Board of Health never even mention glucose as an adulterant.

There was apparently only one sanitary expert who dared to disagree with the Academy's conclusions, and even he judiciously tempered his statements. Dr. Edward S. Wood, Massachusetts analyst of food, in his July 1884 report, while admitting the wholesomeness of glucose "when properly and carefully manufactured," noted that "when carelessly made it may...rightly be considered a dangerous article to be taken into the system." Wood warned that "disturbances of the digestion" would result if all the sulphuric acid used in processing were not removed, and pointed out that "the contaminations which are ordinarily present in commercial sulphuric acid, will, of course, be present with the acid." Wood tested four samples of commercial glucose. Three were "perfectly pure and wholesome," but the fourth, from "a Buffalo

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

firm (now happily defunct)...contained a very large amount of free sulphuric acid, and moreover, a large trace of arsenic."[64]

* * * * * * *

Alum--aluminum sulfate--is an astringent, used from time immemorial by bakers to whiten and improve the texture of their goods. For home baking in antebellum America alum was avoided. Homemakers purchased two separate powders, one an alkali, and the other a weak acid. The chemical combination of the two produced a gas which made dough porous. The difficulty of such home "chemistry" in achieving the correct proportions of the two ingredients led to the establishment of companies that manufactured ready-mixed powders. The first company to produce the commercial product on a large scale appears to have been the Royal Baking Powder Company, established in 1867. Royal used a combination of cream of tartar and bicarbonate of soda, as the acid and alkali. This combination of ingredients could not be patented, and other companies soon manufactured the same product.

With the rising price of cream of tartar, however, a number of companies substituted alum; by 1879 the comparative wholesale prices were 30¢ per pound for pure cream of tartar, while alum sold for only 3¢ a pound. But in post-war America there was, at first, no agitation concerning the manufacture of alum baking powders. In fact, when the New York City Board of Health reported on bicarbonate of soda, cream of tartar, and the baking-powder mixtures, in 1873, the only adulterations discovered were of flour and terra alba, in some of the sodas and tartars.

The inspector, Elwyn Waller, dutifully reported that alum was traditionally "mentioned" as an adulterant of cream of tartar, but was "not detected in the samples purchased in this city."[65] Waller never discussed

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the possibility of the soda-tartar mixtures being adulterated with alum. Considering that studies conducted only a few years later would disclose that the overwhelming majority of the baking powders were alum mixes, it is difficult to credit Waller's statements, but perhaps the price differential had not, in 1872-1873, become significant enough to drive manufacturers to adulterate their product.

By 1879, however, a furor had arisen over the use of alum in baking powder. Virtually every chemist and sanitarian agreed that commercial alum powders were irritants that could upset the mucous membranes of the stomach and intestines. In a short period of time an extensive literature on the subject had appeared. Both the Brooklyn and New York City Boards of Health had ruled alum deleterious, Waller had publicly condemned the product, and Dr. Willard Parker, Dr. Alonzo Clark, president of the College of Physicians and Surgeons, Dr. William A. Hammond, former surgeon-general of the United States, Dr. E.A. Parkes, famous author of the first public hygiene manual, Dr. Lewis A. Sayre, founder of Bellevue Hospital Medical College, and a score of other leading medical and chemical experts had all publicly testified to the danger of alum.

Perhaps one of the inspirations for this aroused reaction was the fact that the great German chemist, Baron von Liebig, had conducted experiments indicating that alum was deleterious. But certainly the immediate cause for the furor was the publication, in the November 16, 1878, issue of Scientific American of an article by Dr. Henry A. Mott, pointing to the proliferation of alum baking powders, and calling the substance an outright poison. What was not immediately apparent was that, in writing this article, Mott had been the employee of the Royal Baking Powder Company, paid by them to discredit their competitors.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Mott was an example of the professional out for the main chance. Having once held a minor federal post, he liked to be referred to as a "Government chemist." His business card tells his story well:

> DR. H.A. MOTT,
> Analytical and Consulting Chemist,
> Expert in Patent Cases,
> Scientific Investigation Conducted
> Chemical Advice to Manufacturing
> Establishments by the Year
> Analysis of Portable /sic/ Waters and Articles of Commerce
>
> Office, 10 Spruce Street[66]

The Royal Company, besides employing traditional types of advertising, was an old hand at placing more subtle puffery. For example, back in the earliest days of American Grocer, long before its ownership came into Thurber's hands, the paper ran a series of articles on the most common grocery products, as a "service" to its retail readers. The second item covered was "Baking Powders." More than half of the full-page article, purportedly a general study of the product and its manufacture, was an outright "plug" for Royal. The article described the Royal plant, the history of the company, interviews with its officers, and the company's bright prospects. The article never mentioned any other manufacturer of baking powder.[67]

In 1878 Royal was using a similar technique. Mott reported that most of the forty-two baking powders he had tested were adulterated with alum. He praised only the Royal powder by name, while providing analyses of four "deleterious" competitors. He rather disingenuously explained:

> I do not mean by signalizing the Royal Baking Powder, that it is the only properly made powder on the market, as there may be others equally as good. I simply introduce it as I had to select one, and thought the one I had used in my kitchen for years, and which had always proved satisfactory, would be the best illustration.[68]

Scientific American was soon filled with responses to Mott's article. The manufacturers of Dooley's powder--one of those analyzed by Mott--re-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

sponded that his analysis had been incorrect, and the editors, evidently trying to get out from under a libelous situation, supported their protest:

> Those who know the gentlemen in question will not need to be told that they would not be guilty of making and selling for public consumption an article either adulterated or injurious. The whole matter, indeed, seems, on examination, to resolve itself into a rivalry between different methods of producing baking powders; and in lauding one form, at the expense of another equally wholesome, Dr. Mott, we fear, lays his communication justly open to...criticism....[69]

Dr. R.O. Doremus, having been paid by Dooley's to analyze their product, was not quite so ready to assert that alum was an "equally wholesome" ingredient; he simply certified that Dooley's contained no alum "or any other deleterious substance."[70]

In the following issue of the magazine another manufacturer sarcastically expressed the hope that Mott's "services have been liberally requited" by Royal. "Professor Mott, in attempting to prove a fraud in food, has perpetrated a fraud in facts."[71] Mott responded that he could not list all the healthful powders, "and have my name on every baking powder can in the country, as I have been asked to do by a large number of manufacturers already."[72] But, despite Mott's protests, it is clear that the trap that awaited all professionals in this commercializing society had been sprung, and Royal's strategy apparently backfired, because their chemist's objectivity was in question.

Royal tried to respond to these doubts and questions, apparently, by soliciting a second "expert" opinion; Royal chose Dr. William W. Hall. The new article tried to explain exactly why alum was "poisonous" to some, and not to others. It was a melange of pseudo-scientific mumbo-jumbo, an embarrassing performance that certainly could not have persuaded any chemist or physician. But Dr. Hall's Journal of Health was a popular "prevention" magazine, and it may be that the general reader was convinced

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by anti-alum arguments such as:

> Out of a family residing in a malarial district, some of its members will suffer half the year with fever and ague, while the others will enjoy excellent health during the entire year. Foods that are wholesome to some persons are actually poisonous to others. This is especially true of some kinds of fish.[73]

The article admitted that not all users of alum powders would die on the spot--though it hinted that some might, and that one could never tell what dire poisons were accumulating in the body. The main point of the article, however, was its statement that Dr. Hall's own "careful examination of the Royal Baking Powder confirms our belief that Dr. Mott, the Government Chemist, when he singled out and commended this powder for its wholesomeness, done it wholly in the interests of the public."[74]

It is doubtful that this article, although it was apparently reprinted in a number of newspapers, convinced the professionals of Mott's sincerity and honesty. But over the next few years, while Royal kept up its campaign, disinterested chemical and sanitarian evaluation of the poisonous nature of alum was exceedingly circumspect. Since the rules of governmental employment in this era did not prohibit potential conflicts of interest, few government chemists hesitated to undertake private commissions. In this instance the other experts apparently believed that discretion was the better part of valor--or ethics--and their treatment of the entire question of alum was typified by the conclusion of the Massachusetts State Board of Health that "Much has been written on each side of this question, without any very definite results having been arrived at."[75]

After the publication of Mott's analyses the alum-powder companies realized they were fighting for their corporate lives. But what one company could do, another could imitate; if Royal had hired Mott, the alum companies could hire their own experts to dispute his contentions. Both Dr.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

R.O. Doremus and food "expert" Jabez Burns were employed to present counter-arguments. Doremus prepared a "card"--a booklet--defending alum, and distributed it to chemists, professional societies, and editors. At this point Royal decided that they required a more prestigious expert than Mott (who continued in their employ, however), and asked Mott to hire his friend Prof. Chandler to perform services for the company. Mott wrote to Chandler: "I am authorized by the Royal Baking Powder Co. to direct you to procure at once a can of Dooley's Baking Powder and submit the same to a quantitative analysis." Mott also mentioned that Prof. Henry Morton, president of the Stevens Institute of Technology, was working for Royal, and later the same day sent another note to Chandler: "I will send you my answer to a card published by Prof. Doremus--which card contains two disgracefull tricks or better frauds."[76] Receipts in the Chandler papers indicate that in 1878-1879 he several times received checks from Royal for analytical work.

Chandler began to receive requests from alum baking-powder companies requesting analyses and/or testimonials on behalf of their products, but there is no indication that Chandler was working both sides of the street. But a letter from one of these alum companies raised a particularly interesting point. Chandler had immediately responded to Mott's request, and sent Royal his analysis of Dooley and Brothers' baking powder. Royal's new advertisement cited Chandler's analysis, using his title of "President of the New York City Board of Health" in their text. Dooley complained that "Royal Baking Powder Company advertise that their powder has the endorsement of the Board of Health--Will you please inform us if such is the fact."[77]

Considering the strongly-worded letter that Chandler would send to Dr. Battershall in 1883, this question should be examined. Where is the line between the expert allowing his name and title to be used in an advertise-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ment, and being paid for an outright endorsement, if both achieve the same objective? As Dooley's letter indicated, to the public there was no distinction between the two practices. In 1883 Chandler judged that so long as the expert was "really" being paid for the employment of his professional skills, there was no violation of ethics. But it is obvious that Chandler understood he was huckstering his title, not his analytical skills, because he charged Royal $250 for each of the analyses he conducted for them. This was at least ten times the going rate for a routine analysis by a qualified chemist.

Jabez Burns, meanwhile, had not been idle. Burns had become the editor of a small Chicago trade-paper, the Spice Mill. In addition to using his own paper as a forum on alum, he published an article in the Grocer, accusing an "ignorant or bigoted class of assumed educated men" of attacking alum powders, "acting from motives of personal interest, which has ever been the prime agent of despotic oppression and suppression." He presented alum as being, not only cheaper than cream of tartar mixes, but perfectly safe, and chemically better for baking purposes.[78]

Shortly after Burns' attack Mott published, with the open support of Royal, a report on an elaborate experiment on alum. Mott had fed alum to dogs, and then performed partial vivisection upon them, to test the effects of their food. The experiment caused a sensation, and was reported in most major newspapers, and in a cross-section of the professional press as well.[79] Mott had read his paper before the American Chemical Society on January 8, and it was then published as an article in the February 7, 1880, issue of Scientific American. It was certainly the most highly-publicized food experiment of its time, unsurpassed until Prof. Wiley conducted his famous "poison-squad" experiments of 1902-1907.[80]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The synopsis of the Scientific American article published in the Tribune included the editorial comment that Mott's experiments "prove conclusively that the most dangerous adulteration that a community has to guard against is alum in baking powders." The Tribune also concluded that "It is a clear and triumphant corroboration of the assertions of the Royal Baking Powder Company, and entitles them to the gratitude and support of the community they are endeavoring to protect."[81] But from a scientific standpoint Mott's findings are questionable. Most of his observations were highly subjective and unaccompanied by quantitative support. The amount of alum fed to the dogs far exceeded any conceivable normal intake.

Their diet consisted exclusively of biscuits made from one quart of sifted flour, twenty teaspoons of alum, two cups of water, and one tablespoon of butter. This disproportionate amount of alum was explained away by the statement that "'Tis true, in the bread of domestic consumption there may not be as large a proportion of baking powders as was in the bread used by Dr. Mott, and that accounts for the fact that the symptoms in the reader are not so well defined as they were in the experiments in question."[82]

Mott put together a sixty-page booklet that reviewed every previous scientific statement that threw doubt upon alum's healthfulness, and then repeated the account of his "vivisection" experiment. This booklet was then widely distributed by Royal.[83] In response, Jabez Burns published a scurrilous attack in the Spice Mill, accusing Mott and the Royal Company of trying to "dupe" the American public. Mott was accused of being "bribed" to print his reports, and Royal of attempting to destroy competition by a "libelous and unprincipled" method of business. Mott was "a mercenary, unscrupulous individual" who endeavored to gull the public "by professing

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

comprehensive scientific learning."[84]

With support from Royal, Mott decided to bring charges of slander against Burns. But Royal wanted the trial to be, not just a civil suit, but a testimonial for their product. To this end, while Burns hired Prof. Doremus to support his own statements, Royal employed Chandler, Morton, Dr. Samuel W. Johnson of Yale, and Prof. Joseph H. Raymond, Sanitary Superintendent of Brooklyn, to speak on the truthfulness of Mott's claims against alum. Undoubtedly the testimony of Chandler and the other experts was instrumental in the decision. Chandler testified "emphatically" that alum was "injurious," and "liable to produce serious disturbances of the liver of the individual making use of such powders." Morton, Johnson, and Raymond were just as emphatic as Chandler.[85]

The Grocer editorialized that the people must "trust the conscientious and disinterested testimony, based on careful experiments, of such men as Professors Chandler, Morton, and others."[86] Yet there is no indication that any of the four had conducted experiments upon the harmfulness of alum. Moreover, Chandler and Morton, at least, had been in the pay of Royal for a minimum of two years, and Mott had promised to share any award he received from the trial with Chandler and, presumably, the other witnesses.[87] "Mott got verdict for 8000d in ½ hour," Col. Prentice gleefully wrote Chandler.[88]

In 1881 Dr. E.G. Love, shortly before he was hired as one of the New York State Board of Health chemists, wrote a letter to Sanitary Engineer:

> I am not now nor ever have been interested in any brand of Baking Powder; that, as an analytical chemist, I have merely analyzed such products as were submitted to me, or as I was requested to buy, without a thought as to whether the results of such analyses would please the parties for whom they were made....[89]

When the Board conducted its extensive study of food and drug adulteration for the Second Annual Report, Dr. Love was assigned Group IV, which included

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"the alum question."

His report was without doubt the most thorough disinterested review of the evidence regarding alum to that date. Love analyzed every possible aspect of the question, summarizing and evaluating the scientific testimony of nineteen different chemists and food experts, as well as the legal status of alum in European countries. He responded to negative findings and opinions on alum by offering variations of the statement that "Most or all of these opinions seem to be based on theoretical grounds, and I do not find that any systematic experiments have been made to settle the question." His conclusion, in contrast to Chandler's testimony at the slander trial, was that "it may be said that at the present time there does not seem sufficient evidence as to the injurious effects of alum upon the human system to warrant legislation against it."[90] It is significant, considering the thoroughness of Love's review, that he never once mentioned Dr. Mott.

The successful conclusion of the trial against Burns did not end Chandler's relationship with the Royal Company. Over the next few years a number of companies sent inquiries to Chandler, and he kept many newspaper ads for baking powders among his papers. A typical letter is one from Cleveland Brothers, of Albany,[91] which complained that a Royal advertisement used Chandler's name "to condemn our baking powder as being dangerously adulterated....we cannot but believe that the use of your name by the Royal Baking Powder Co. in the manner indicated above is wholly unauthorized. Will you kindly let us hear from you on the subject."[92]

Two months earlier J.C. Hoagland, president of Royal, had written Chandler, requesting that he testify in a suit against Cleveland Brothers, who had alleged that Royal's use of ammonia in their powder was deleterious. Chandler noted that his fee would be $250.[93] The Cleveland ad was a strong

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

condemnation of Royal. It quoted James F. Babcock, State Assayer of Massachusetts:

> Cleveland's contains only pure and unobjectionable materials, while the Royal contains Ammonia, a drug derived from disgusting sources, powerful in its action upon the system, and unfit to enter into the composition of human food. The adulteration of the Royal Baking Powder with Ammonia is in my opinion nothing less than a crime against the public health.

The ad also contained an endorsement from R.O. Doremus, implying that the Royal powder was not only unwholesome, but short-weighted.[94]

Using Dr. Morton and Chandler, Royal prepared to do battle with Cleveland Brothers. Hoagland wrote to Chandler, accepting his fee request, and adding:

> Noting your suggestion as to the fact of your aversion to figuring in advertisements, I beg to say that this is no part of an advertising scheme. It is simply this: the competitors referred to, have sought through the aid of Prof. Doremus and some other chemists of that ilk to create an unjustifiable prejudice against the Royal Baking Powder on account of the insignificant amount of ammonia which we have seen fit to employ as an ingredient.[95]

While the libel suit was being prepared Hoagland published an ad in response to Cleveland's. He accused Cleveland Brothers and seventeen other companies of being "most largely adulterated" with lime or alum. The ad included testimonials by Mott, William McMurtrie, "chief chemist, United States Department of Agriculture," Morton, and even E.G. Love, who had apparently decided that it was time that he got in on a good thing, despite the protestations of disinterest in his 1881 letter to Sanitary Engineer, and the clean bill of health he had given alum in his report in 1882.[96]

The ad also used Chandler's name, indicating that he not only testified as to the healthfulness of Royal, but joined in the accusation against the other eighteen companies. A similar ad two months later, thoroughly disguised as a news story, used Chandler's name to condemn all baking powders but Royal's, and noted that it had been tested by the New York State Board

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of Health, implying that the Board gave similar endorsement.[97]

A few days earlier Hoagland had written to Chandler, getting clearance for the use of his name.[98] Apparently Chandler did not object, despite his "aversion to figuring in advertisements." By his reasoning, he had performed chemical analyses for Royal, which entitled them to use his name. This, he apparently felt, kept him from being like Doremus and "chemists of that ilk." There is no record that he responded to the query from Cleveland Brothers.

* * * * * * *

Except for oleomargarine, which is discussed below in a chapter by itself, because of the complexity of the issues involved, there are few other foods of this era that warrant extended consideration, whether regarded from the basis of deleteriousness or simply fraud. Though, by the standards first employed under the new state laws, many foods were considered adulterated, for most foods enforcement came to follow the practices of the marketplace. Not only were most of the prosecutions initiated by Chandler in 1882 made irrelevant by the rules adopted shortly thereafter, but by the actual practices of the New York, New Jersey, and Massachusetts boards, by 1883, the varieties of foods in use came to be almost universally accepted. Although most of the analysts stopped short of accusing the fathers of the movement--such as Accum and Hassall--of outright fabrication, they denied that most of the "traditional" adulterations existed any longer. And, though the sanitarians found many frauds in current usage, they seemed content generally to stop at condemnation, rather than proceed to legal action.

Of the other "food" items, a few words should be said concerning

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

alcoholic beverages. The sanitarians suspected wide-spread adulteration, especially watering, but found it difficult to deal with this as a serious problem. It seemed incongrous for reformers to urge a strengthening of the alcoholic content of liquors. Dr. F.E. Engelhardt, to whom was assigned "wines, beers, spirits and cordials" for the 1882 Report, even went so far as to declare that "it is evident that the worst and most injurious ingredient in our so-called strong or distilled liquors is the alcohol itself."[99]

Canned food was another item suspected of being deleterious. Accusations were made about canned fruits and vegetables and, especially, canned meats. Prof. Lattimore found no evidence of adulteration or of harmful qualities in the canned fruits and vegetables. Prof. A.H. Chester similarly gave his seal of approval to canned meats, so far as the canning process was concerned, but warned that "the quality of the meat is not the best, perhaps not even good. The scraps and bits that formerly went into the manufacture of fertilizers are undoubtedly often used up in this way," even though he presented no evidence to substantiate his claims. He warned especially about canned pork, because of the danger of trichinosis.[100]

No amount of reassurance, however, was enough to convince the public about the safety of this relatively new process, and accusations continually surfaced about poisoning from canned foods. The grocery press responded to these claims vehemently: after all, commercial canning was proving to be a boon to the business, both wholesale and retail. After the publication of the supportive 1882 reports, American Grocer felt armed with a potent weapon. The opening salvo was fired by Thurber's paper in December, after the New York Herald reprinted a story from the Minnesota press, recounting as fact a typical rumor of fatal poisoning. Using the Lattimore report as ammunition, American Grocer challenged the Herald to prove its accusation

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

that acidic vegetables could cause tinware to become poisonous, or indeed that the death had actually occurred as reported.[101] Over the next two years American Grocer made canned-goods information a regular feature, and consistently attacked unsubstantiated stories about canned-food poisoning.

The Grocer was far more circumspect in regard to canning, and perhaps the reason for its hesitation was its hatred of Thurber, who had entered the canning business with great enthusiasm, and rapidly cornered a large share of the market. Thurber produced his own lines of canned goods, and also canned for distributors under different labels. The Grocer perceived this as a danger of "Monopoly in the Grocery Trade": "now it is Thurber's canned goods or Leggett's ground spices...and so on throughout the entire list. In other words, the wholesale grocers are going outside of their legitimate business of selling and going into the manufacture of all the fancy groceries they sell."[102]

Events in 1884, however, brought the canning industry into notoriety. In March the New York papers carried a brief account of a case of purported poisoning in Brooklyn, allegedly caused by a can of stewed tomatoes. The tomatoes had carried a private label, and the packing firm was at first unidentified. But ultimately this case of the Kolyer family, though no death was caused, deeply involved both trade papers, the entire canning industry, the New York legislature, and F.B. Thurber.

The family physician called into the case, Dr. John G. Johnson, provided the diagnosis of poisoning, and was widely quoted in the press. The Brooklyn health officer supported his diagnosis, based solely on Johnson's statements, since neither the can nor the tomatoes were made available for his examination.[103] Dr. Johnson, perhaps enthused by the publicity, quickly became a self-styled expert on canned foods and their poisons.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

On April 10 he presented a paper to the Medico-Legal Society, "Poisoning by Canned Fruits and Meats," which declared that muriatic acid, used in soldering, had accidentally entered the tomatoes. He proceeded to attack many other practices of the canning industry. Virtually all of Johnson's statements were effectively refuted by spokesmen for the canning industry and the grocery trade, present at the meeting. Under questioning it became apparent that Johnson's "knowledge" was acquired solely from reading newspaper stories about canning, and that he had conducted no actual tests for poison upon the tomatoes, the can, or the Kolyer family. The New York City Board of Health chemist, to whom Johnson had given the can, reported that "there was not enough tomatoes left in the can to analyse, and he could find no trace of poison."[104] Nonetheless, the result of the meeting was increased publicity for Johnson, and a new flurry of unsubstantiated stories about canned poisons.

The Grocer attacked Johnson unmercifully, pronouncing canned goods to be the new refuge for incompetent medical men--when incapable of diagnosing an illness, they made canned goods their convenient scapegoat. As the paper pointed out, "of all the doctors present" at the Medico-Legal meeting, "not one had ever had an accused can of food analyzed; not one had ever witnessed the operation of putting up such food; and not one could say he had ever in any way authenticated a case of canned goods poisoning."[105]

But the Kolyer "poisoning" case had raised at least one legitimate question: should not the name of the packer appear on the label of all canned goods? Presumably in anticipation of the Medico-Legal Society meeting, representatives of the grocery and packing houses had met on April 7. This committee of the Mercantile Exchange presented a draft of a bill "prohibiting the sale of canned goods under fictitious labels." Reputable canners

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

should support such a motion, for, in their own defense, such labeling would prevent the activities of an unscrupulous packer from redounding upon the whole industry. The Grocer supported the motion, and agreed with the further step taken by the committee to raise a fund to investigate all cases of alleged poisoning from canned goods.[106]

In contrast, when the labeling bill was acted upon at the next year's state legislative session, American Grocer attacked it as the promotion of a minority of the packers, attempting to "make it difficult for the packers of other states to sell their goods in this market." In actuality, the bill would hinder Thurber's activities, by restricting his production of private-label goods of varied quality and price. In addition, preliminary hearings on the Kolyer case had, by this time, revealed that Thurber had wholesaled the "poisonous" tomatoes, and a $50,000 lawsuit had been brought against Thurber, Whyland and Company. The paper failed to mention these points in its editorial, and merely decried the publicity surrounding the measure, which had "raised a cry against the wholesomeness of canned goods...needlessly alarming consumers." American Grocer's argument that competition between canners made the law unnecessary was rather thin, for how could a manufacturer be held "responsible for the quality of goods he sells" if the labels were anonymous?[107]

The canning bill was signed into law, to go into effect on January 1, 1886. It required that can labels "shall bear the name, address and place of business of the person, firm or corporation that canned or packed the articles so offered, or the name of the wholesale dealer in this State who sells or offers the same for sale."[108] American Grocer found many faults in the law, calling it "a glaring specimen of needless piecemeal legislation" and "a travesty."[109] Meanwhile the Kolyer case, which had

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

inspired the law, approached its trial date, and one of the central questions would be in whose hands the responsibility for the tomatoes lay, since the information required by the new law, of course, was absent from the can in question. Dr. Johnson, for his part, kept the topic in the public eye by publishing another article on the evils of the canning industry.

At the trial itself, which commenced on March 1, 1886, fully two years after the alleged poisoning took place, the testimony was filled with lively contradiction and inexactness. It was never even established who had actually packed the tomatoes, the judge halting the cross-examination of F.B. Thurber when the attorney for the plaintiff tried to draw out from him the ownership of the packing company.[110] Although Dr. Johnson's diagnosis was pretty thoroughly refuted, the trial never precisely established the cause--if any--of the Kolyer "poisoning," leaving a taint upon the canning industry. Judge Brown's instructions made it clear that, in his opinion, the technique used in sealing cans could have resulted in accidental poisoning. The case against Thurber was thrown out, not because the tomatoes were given a clean bill of health, but because the judge ruled that a suit against Thurber, simply because he had sold the can to the retailer, was unacceptable.[111]

With the dismissal of the charges against Thurber, American Grocer boasted that "This trial has been a battle for the entire canned goods trade, fought out with skill and power in the interest of fair play to a great industry and the public. The brunt of it fell upon one firm, that unflinchingly fought only for justice."[112] Not surprisingly, the Grocer, instead of celebrating the service Thurber had (inadvertently) performed for the entire industry, emphasized Judge Brown's warning that "In cases where articles of food are sold for immediate use the retail seller of the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

goods must be held responsible for their purity and wholesomeness." It hinted that Thurber got out from under in this case "by what is usually termed hard swearing," and that it was in the best interests of retailers to avoid dealing with wholesalers suspected of selling shoddy goods.[113]

* * * * * * *

Even considering the rather haphazard enforcement of the NBT law in the three states in which it had been passed, the lack of attention paid to the adulteration of drugs is surprising. The most active of the three states was Massachusetts, which finally appointed an inspector of drugs a year after the law went into effect. Dr. Bennett F. Davenport's first report, finding 41.67% of the 680 drug samples examined to have been adulterated, was published in the Board's Supplement of July 1884. Despite this large number of adulterations, only seven cases were brought to court, five of them successfully.[114] There was little improvement the next year, when out of 682 samples examined, fully 36.8% were found to be adulterated.[115] Yet only one new prosecution was initiated, and again only one more the following year.[116] Of course, the amended Massachusetts law required that 60% of the monies spent by the Health Department be devoted to the inspection and analysis of milk. Nonetheless it is interesting that, while the food analyst received a salary of $1,500, the drug analyst--whose work was more exacting--was paid only $1,000 a year.[117]

For the first year under the new law in the state of New Jersey, the Board pleaded inability to evaluate drugs due to the meagre appropriation of only $500.[118] Little was done the following year, aside from some milk analysis and a report on infant foods, since the legislature failed to appropriate any additional funds for the enforcement of the law, and the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

analysts had to make do with the small amount left over from 1881.[119] Finally, in 1883, an annual appropriation of $1,000 was made, but apparently none of this was applied to drug analysis over the next three years.[120]

In New York, where $10,000 was initially appropriated for the enforcement of the new law, considerable attention was paid to drugs in the Annual Report of 1882. Although Dr. Frederick Hoffmann, to whom the drugs were assigned by Chandler, failed to analyze any compound drug preparations, he did examine 659 samples of crude vegetable drugs, pharmaceutical chemicals, and powdered drugs. Although Hoffmann found a fairly large percentage to be either "adulterated" or "deteriorated," especially among the powdered drugs, it is impossible to judge the extent of intentional adulteration from his report, since many of the specimens he condemned were clearly deficient only because of aging or improper storage. Hoffmann also went out of his way to condemn proprietary drugs, although he tested none of them for his report.[121] This is understandable, since Hoffmann was a leader of APhA, and in 1884 became a member of its committee recommending full content labeling of patent drugs.

The next year only seventy-five samples were analyzed by the Board, with 42.66% found to be adulterated.[122] In 1883 the number examined had fallen to forty-two, and though the rate of adulteration had dropped to 26%, the selection of drugs for analysis was rather peculiar, the least important--and generally cheapest--drugs being evaluated, while the more commonly adulterated items, such as the opiates, were totally ignored.[123] By the following year the Sanitary Committee was essentially inactive. Although the appropriation for 1883 had been raised to $30,000, Governor Grover Cleveland had stricken this from the state budget; the Board never recovered from this catastrophe. Still, none of the prosecutions initiated

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

by the State Board in this entire period was for drug adulteration.

The present study can only speculate as to the reasons for the neglect of enforcement in the area of drugs. Certainly this era saw a tremendous increase in the number of patent medicines produced and sold; although many of the proprietaries were really variations of standard prescription drugs, a majority of the medicines purchased in this country, by the 1880's, were these over-the-counter preparations.[124] In all three states the board drug analysts made no attempt to examine non-prescription drugs, and indeed the NBT laws passed in these states did not provide for regulation of non-officinal medicines. Only those drugs and drug ingredients included in the United States Pharmacopoeia were covered, and although the formulas of some patent medicines were gradually added to the editions of the USP,[125] the vast majority remained outside the direct jurisdiction of the boards.

There may also have been an understanding on the part of the board analysts that the responsibility for policing the "legitimate" drug trade should lie within the profession itself. In this era the pharmaceutical associations were emerging as strong advocates, not only of honesty in the trade, but of internal regulation, aided by laws shaped by themselves. Apparently all the board chemists appointed to examine the drug market were members of the professional associations, and leaders of the local colleges of pharmacy.

In addition, the explanation was offered, both here and in England, that the public demanded cheap medicines. Ernst Stieb suggests that, in England, the pharmacists hoped that they could educate the public to pay reasonable prices for pure drugs, rather than accept impure alternatives, though they cost less.[126] In America, faced with the rivalry of the proprietaries, it may be that many professionals acquiesed in the adulteration

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

alternative as the only means of coping with the competition.

It must also be understood that the American neglect in the drug area was in no way unique. Stieb reports that each of the various Parliamentary Select Committees concentrated on food adulterations, rather than on drugs. In 1873 only two convictions out of 260, under the British law, had been for drug adulteration. The Select Committee of 1874 heard testimony from many witnesses, yet its final report dealt exclusively with foods, and totally ignored drugs. When Parliament next addressed the question of adulteration, in 1878-1879, there was no interest whatsoever in the extent of drug adulteration, and Stieb notes that this pattern continued for the rest of the century.[127]

* * * * * * *

Aside from foods and drugs, three related items fell under the jurisdiction of the health authorities, either because of their interpretation of the National Board of Trade law or because of additional legislation. These were decorative papers and fabrics, cosmetics, and kerosene. Considering that it was widely authenticated that poisonous coloring materials were commonly used, in clothing, curtains, wrappers for candies, and, particularly, wallpapers, it is noteworthy that the authorities did virtually nothing other than issue public warning. A typical treatment was that of the Massachusetts Board:

> The most dangerous article that enters into every-day use is paper colored with pigments of which arsenic forms a component part.
>
> This paper is met with in great abundance. The bright green glazed paper boxes used so freely in fancy-goods stores are always covered with paper of this kind. Car and theatre tickets are printed on it, and it is quite freely used as a wall-paper. It has even been met with as a covering for lozenges.
>
> There is no good reason for its use, except that it is cheap. It should be condemned whenever met with.[128]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Dr. Frank W. Draper had warned of these dangers as early as the Massachusetts report for 1871. Yet a law prohibiting arsenical coloring did not go into effect in that state until 1900.[129]

Although Chandler had been active in the war against poisonous cosmetics, in the period 1870-1872, he ultimately surrendered on this adulteration. In 1870 Chandler had tested a number of hair remedies. Finding most of them to be heavily contaminated with lead, he published a list, giving brand names and quantity of lead detected. Only two were found to be uncontaminated,[130] one of which was Dr. I.J. O'Brien's "Restorer America," which "was free from lead and other poisonous metals." But Chandler reported to Col. Emmons Clark, then secretary of the Metropolitan Board of Health, that he had been duped. His sample had been purchased "from a druggist on 8th Avenue," upon the direction of Mr. O'Brien. But a second bottle, bought "at Macy's on 6th Avenue corner of 14th Street...is one of the most dangerous of the poisonous hair restorers....And I have reason to believe that I was imposed upon by the druggist of whom I purchased the /first/ sample."[131]

Chandler grimly entered into a war with O'Brien, sending special notices to the press about the great danger of this product, which claimed to be "The greatest discovery of this century for restoring the original color of the hair....Removes Dandruff, Prevents The Hair From Falling Off...."[132] O'Brien sent an indignant letter to Col. Clark, protesting being "wickedly and maliciously" singled out by Chandler, and complaining that the lead content of several other preparations were as bad, or worse, than his own. Moreover, he insisted that lead wasn't harmful, even when swallowed.[133]

But the number of such nostrums merely multiplied faster than Chandler could examine and condemn them, many of the manufacturers even having the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

effrontery to write Chandler for endorsements.[134] The manufacturers also found a clever method of using Chandler's condemnation for their own purposes: they republished his 1870 list, merely leaving out their own product, as a public warning against buying competing brands.[135] As Dr. Haven Emerson noted, "the health officer is at the mercy of the consuming public," and Chandler abandoned his efforts "to save a beauty-mad generation" from their own folly.[136] The State Board, after its formation, did not include cosmetics in the category of drugs, and the New Jersey and Massachusetts Boards similarly ignored these poisons.

It will be remembered that a menace far deadlier than any of the food or drug adulterations was the adulteration of kerosene with naphtha, or other light petroleum distillates. These adulterations were sometimes so volatile that a nearby stove could set them afire, or even cause an explosion. Hundred of deaths could be traced to fires caused by sophisticated kerosene. The early efforts of the New York City Board had had some positive impact upon this problem, yet kerosene fires continued to occur regularly, and Chandler urged legislation that would give the new State Board authority to move on this hazard. In New York City, still the only place in the state with any law controlling kerosene, the fire commissioners reported that in 1880, out of 1783 fires, fully one hundred three were proven to have begun by kerosene lamps--and fifty-four of these were classified as "explosions."[137]

In 1881 Chandler successfully lobbied for a bill to regulate kerosene state-wide, and to take jurisdiction away from the Fire Department in New York City,[138] but Governor Cornell issued a veto of the measure. His veto message clearly explained that he wished to avoid "hampering trade," but Cornell's reasoning was bizarre. He argued that "It can hardly be maintained that safe oils must be inspected simply because unsafe oils are sometimes

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

manufactured and offered for sale....the inspection of oils ought to be confined to such as are fairly presumed to be dangerous."[139] As Dr. Love objected, "No one would think it necessary to inspect safe burning oils, but how are the safe oils to be protected and the unsafe ones condemned, except by a system of inspection?"[140]

A modified version of the law was finally passed in June of the following year, giving jurisdiction to the State Board, except for the City of New York. The Board urged that the City fire commissioners adopt the Board instrument for measuring kerosene safety, but a year later noted that they had not received any response to their resolution.[141] The law allowed for the appointment of only one oil inspector for the entire state;[142] in his first year of testing the Board's inspector discovered that only thirty-two out of 236 samples met the standard set by the law.[143] On December 21, 1882, the Board initiated its test case, in an incident at Batavia, New York, in which a kerosene explosion caused one death, and destroyed a house.[144] The local justice of the peace refused to indict the oil dealer, and conviction was not obtained until the Board took the case to a grand jury.[145]

Chandler's enforcement of the new law, however, was complicated by the fact that he had been receiving private payments for analyzing oil samples for dealers, and because of his connections with Standard Oil, a major supplier to the New York wholesalers. The situation came to a boil when a Pottsdam dealer, George W. Bonney, refused to accept delivery of four carloads of oil ordered from Standard. Bonney had had the shipment tested by Dr. Tucker, and received notification from Dr. Harris that the oil failed to meet the state standard. Chandler reprimanded Bonney for allowing Tucker to test the oil, claiming that Tucker:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> did not know how to use the instrument of the State Board of Health, he didn't use it properly, & the results which he obtained were not correct....it was a very unfortunate circumstance that you should have sent the samples of oil to Albany, & I never have been able to understand why you did it, particularly as I had been testing oils for you from time to time....The blunder was entirely on your part. You knew that the whole business was in my hands.[146]

Chandler then sent a letter to Thomson McGowan, of Standard Oil, expressing regret for the inconvenience, and sending him a copy of the letter written to Bonney.[147] He also wrote Harris the same day that Bonney's continued refusal to accept delivery of the oil could well result in a suit for payment, which would make public the opposite findings of his and Tucker's analyses, and "put the State Board of Health in a most mortifying position--a house divided against itself."[148] Chandler sent Harris a copy of the letter to Bonney--but not a copy of the letter to McGowan.

A month later the issue was still unresolved. Chandler wrote Bonney, reaffirming his determination that the Board members would no longer "enter into any entangling alliances with any business man...as we should if we received fees from him." Chandler explained that "The law never contemplated providing chemists to make analyses and tests for private parties for the convenience of their business. You might as well expect that H.K. Thurber should send samples of all the groceries he buys to me to be analysed."[149]

Yet six months later Bonney was still writing to Chandler for assistance. Chandler repeated the Board's new resolution: "The only safe policy for us to pursue was not to act as umpires between the buyers and sellers of oil."[150] At this very time, of course, Chandler was still receiving fees from sugar, glucose, oleomargarine, and baking powder manufacturers.

* * * * * * *

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

When Prof. Leeds warned that chemists might eschew public service for the monetary rewards offered by private employers fighting regulation, he did not contemplate the problems created when chemists served both masters simultaneously. If there was but slight interest in carrying out the law--as demonstrated both by deficient legislative appropriations and the casual attitude of the experts entrusted with enforcement--the work was further complicated by these ethical questions.

There is no reason to doubt that Chandler's concern about kerosene safety was genuine, but even here his own commercial involvement jeopardized his performance. Perhaps the acid test--to see if there was, in Newton's words, "such a thing as justice any more"--was oleomargarine, the most complicated and controversial "adulteration," which eventually involved virtually every leading chemical expert in the nation.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER X

[1]William K. Newton, "The Sanitary Control of the Food Supply," Public Health Papers and Reports, IX (1883; pub. 1884), 157.

[2]Justice, 10/18/84, 7.

[3]Robert L. Larson, Charles Frederick Chandler, His Life and Work (unpublished doctoral dissertation, Columbia University, 1950), pp. 68, 70.

[4]Harris to Chandler, 5/20/69, Chandler papers.

[5]New York Herald, 5/13/81, at a time when there was once again much criticism of the Board's inactivity, claimed that Chandler was receiving $10,000 a year from Columbia. This was probably an exaggeration, since the Herald was complaining that Chandler was being paid too much for his Board post, and devoted too little time to it. The Office of the Secretary of Columbia University was unable to verify this figure, but said (personal communication) that it was possible that Chandler received that much.

[6]Larson, p. 55. Chandler received an "allowance of $400, out of which he would have to provide apparatus and lecture material."

[7]See letters of recommendation, Chandler papers, many of which were apparently dictated by Chandler himself.

[8]One contemporary newspaper, Truth, 5/1/83, estimated Chandler's income from private consultations at $25,000 a year. See Larson, pp. 135-136.

[9]Margaret W. Rossiter, "The Charles F. Chandler Collection," Technology and Culture, XVIII, no. 2 (April, 1977), 223.

[10]Larson, pp. 226ff., especially p. 229.

[11]Chandler to Battershall, 5/23/83, Chandler papers.

[12]Burton J. Bledstein, The Culture of Professionalism (New York: W.W. Norton, 1976), pp. 95-96.

[13]Albert R. Leeds, "The Adulteration of Foods," Public Health Papers and Reports, IX (1883; pub. 1884), 170.

[14]Ibid.

[15]Stephen P. Sharples, "Adulteration of Food," in Albert H. Buck, ed., A Treatise on Hygiene and Public Health (New York, 1879), II, p. 363.

[16]Charles Smart, "Report of an Investigation to Determine the Prevalence of Adulteration...." National Board of Health Bulletin, Supplement No. 11 (Washington, January 1, 1881), p. 5.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[17]"Report of the Sanitary Committee," Second Annual Report of the State Board of Health of New York (Albany, 1882), p. 601.

[18]Third Annual Report of the State Board of Health of New York, (printed as Assembly Document Number 110, 1883), p. 97.

[19]Ibid., p. 36.

[20]Ibid., pp. 62, 97. More samples of cream of tartar were bought than any other item, presumably to lend credence to the Fulle prosecution. As the Board surely expected, most of these samples were adulterated.

[21]Fourth Annual Report of the State Board of Health of New York (printed as Assembly Document Number 89, 1884), p. 256.

[22]Jesse P. Battershall, Food Adulteration and Its Detection (New York, 1887), p. 8.

[23]Fifth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement (Boston, 1884), p. 128.

[24]Seventh Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement (Boston, 1886), p. 71.

[25]Ibid., p. 87.

[26]Annual Report of the Department of Health of the City of Brooklyn, 1884 /-1885/ (Brooklyn, 1885), p. 57.

[27]Ibid., p. 66.

[28]Ibid., p. 69.

[29]Ibid., pp. 74-75, 135-138.

[30]Annual Report of the Department of Health of the City of Brooklyn for the Year 1886 (Brooklyn, 1887), p. 24.

[31]Battershall, p. 6. John Duffy, A History of Public Health in New York City, 1866-1966 (New York: Russell Sage Foundation, 1974), p. 77, cites the non-reappointment of Chandler in 1883 as "the advent of politicization" of the Health Department. General Alexander Shaler took Chandler's place as president, while Edson was appointed as part of a "package deal."

[32]Sanitary Engineer, 1/1/85, 104.

[33]American Grocer, 1/1/85, 14.

[34]Sanitary Engineer, 1/1/85, 104.

[35]New York Times, 10/26/79.

[36]Robert C. Kedzie, "The Adulteration and Deterioration of Food," National Board of Health Bulletin, Supplement No. 6 (Washington, 1880), p. 32.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[37]Buck, p. 363.

[38]Grocer, 4/9/80, 509-510; see American Grocer, 4/8/80, 925.

[39]Times, 12/30/80.

[40]Grocer, 12/30/80, 838.

[41]Ibid.

[42]See American Grocer, 4/14/81, 845.

[43]Times, 7/13/81.

[44]Report of the Commissioner of Agriculture for the Years 1881 and 1882 (Washington, 1882), p. 544.

[45]NBH Bulletin, Supplement No. 11, p. 3.

[46]Ibid., p. 10. Other chemists could soon clarify the fact that a form of glucose is always present in all sugars.

[47]Harvey W. Wiley, "Glucose and Grape-Sugar, Popular Science Monthly, XIX (June, 1881), 251-257, notes that the use of sulphurous acid in bleaching would be dangerous, creating free sulphuric acid in the finished product. But Wiley noted that he had never found a sample of this kind, and declared the glucose of the marketplace "wholesome." H.W. Wiley, "Mixed Sugars," Proceedings of the American Association for the Advancement of Science, 30th Meeting (August, 1881), pp. 61-64, estimated production at 1,500 barrels a day, and warned about fraudulent sale by retailers. See also Oscar E. Anderson, The Health of a Nation (Chicago, 1958), p. 22.

[48]Science: A Weekly Record of Scientific Progress (no number; 6/18/81), 281.

[49]Second Annual Report, N.Y., p. 596.

[50]Ibid., pp. 600-601. Pitt found one of the three syrups to contain artificial glucose, one of three honeys similarly adulterated, and candy widely adulterated with glucose. Also, as previously mentioned, seven of the ten yellow candy samples contained chromate of lead.

[51]Ibid., p. 601.

[52]Ibid., p. 604.

[53]Ibid., p. 605.

[54]Ibid., p. 607.

[55]H.R. 3170, 47th Cong. 1st Sess. (1/16/82). The bill initially proposed a tax of 10¢ per pound or $1 per gallon (in liquid form) on glucose.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[56]Raum to Rogers, 4/27/82, copy in Chandler papers.

[57]Remsen to Billings, 9/10/80, Billings papers.

[58]G.H. Nichols to Chandler, 3/2/82, Chandler papers.

[59]F.B. Thurber to Chandler, 4/27/82, Chandler papers.

[60]Report on Glucose, Prepared by the National Academy of Sciences (Washington, 1884), pp. 31-32. See also A History of the First Half-Century of the National Academy of Sciences, 1863-1913 (Baltimore, 1913), pp. 293-294.
The final report was not submitted until 1/12/84. See Barker to Chandler, 1/7/84; Remsen to Chandler, 1/10/84, Chandler papers, blaming Chandler for this delay. See Larson, Chandler, pp. 202-203. The Commissioner of Internal Revenue was, by this time, Walter Evans, who had replaced Raum.
The report was also signed by William H. Brewer and Wolcott Gibbs.

[61]Newton, "Sanitary Control," 160-161.

[62]Leeds, "Adulteration of Foods," 167.

[63]William H. Brewer, "Glucose in Its Sanitary Aspects," Public Health Papers and Reports, X (1884; pub. 1885), 100-105.

[64]Fifth Annual Report, Mass., pp. 127-128.
Through the years manufacturers have kept trying to find a more acceptable name for this product; from early in this century, until World War II, it was called Dextrose. Today it is known as "corn syrup" or "corn sweetener."

[65]Third Annual Report of the Board of Health of the Health Department of the City of New York, 1872-1873 (New York, 1873), pp. 292-294.

[66]Card in Chandler papers.

[67]American Grocer, 5/9/70, 191.

[68]Henry A. Mott, "The Deleterious Use of Alum in Bread and Baking Powders--Alum Being Substituted For Cream of Tartar," Scientific American, XXXIX, no. 20 (November 16, 1878), 308.

[69]Scientific American, XXXIX, no. 23 (December 7, 1878), 353.

[70]Ibid.

[71]Scientific American, XXXIX, no. 24 (December 14, 1878), 376.

[72]Scientific American, XXXIX, no. 26 (December 28, 1878), 404.

[73]Times, 9/27/79, quoting from Journal of Health. Frank L. Mott, A History of American Magazines, II (Cambridge, Massachusetts, 1957), p. 87, calls Hall's Journal of Health "a standard popular magazine; it specialized in preventive medicine and in articles on consumption--Hall's specialty."

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[74]Ibid.

[75]Fourth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts; Supplement /July, 1882/ (Boston, 1883), p. 74. See also NBH Bulletin Supplement No. 11, p. 4; Annual Report of the Commissioner of Agriculture for the Year 1878 (Washington, 1879), p. 135; Leeds, "Adulteration of Foods," 167.

[76]Two letters from Mott to Chandler, 11/18/78, Chandler papers.

[77]Dooley and Brothers to Chandler, 11/26/78, Chandler papers.

[78]Grocer, 9/13/79, 374.

[79]See, for example, Sanitarian, VIII (1880), 263-270.

[80]In these experiments Wiley fed suspected "poisons"--questionable foods--to volunteers, while continually monitoring their health. See Anderson, Health of a Nation, pp. 148-152; Harvey W. Wiley, The History of a Crime Against the Food Law (Washington, 1929), pp. 57-77, explains that "alum in any form should not be used in human food." Harvey W. Wiley, An Autobiography (Indianopolis, 1930), pp. 268, 264-266, gives an account of his difficulties in enforcing the federal law of 1906, particularly in opposition to Prof. Ira Remsen's Referee Board, especially on the alum question.

[81]New York Tribune, 3/5/80; reprinted in the Times, 3/6/80, American Grocer, 4/15/80, 987.

[82]Tribune, 3/5/80.

[83]Henry A. Mott, Jr., The Effect of Alum Upon the Human System, When Used in Baking Powders. Elaborate Experiments Upon Living Dogs. Researches Made Under the Auspices of the ROYAL BAKING POWDER COMPANY (New York, 1880).

[84]Grocer, 5/28/80, 766-767. Burns' criticism of all scientists who served private interests, the Grocer editorialized, was "a singular comment on Drs. John Welch and Francis Sutton, whose paid testimonials are quoted in favor of a certain alum powder."

[85]Grocer, 12/9/80, 775.

[86]Ibid.

[87]Mott to Chandler, n.d., Chandler papers.

[88]Prentice to Chandler, 11/15/80, Chandler papers.

[89]Sanitary Engineer, 4/1/81, 204.

[90]Second Annual Report, N.Y., pp. 567, 573.

[91]According to testimony in the Report of the Industrial Commission on Agriculture, XI (Washington, 1901), Royal later merged with two other tartar baking-powder companies, Price and Cleveland, to form a virtual monopoly of cream of tartar manufacture. See pp. 117-124.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[92]Cleveland Brothers to Chandler, 12/15/84, Chandler papers.

[93]J.C. Hoagland to Chandler, 10/25/84, Chandler papers.

[94]Newspaper ad, clipping in Chandler papers; Babcock's letter quoted in the ad was dated 8/14/84, Doremus' was dated 7/11/84. Doremus had made a similar endorsement for Dr. Price's Cream Baking Powder on 5/24/84; see ad in Chandler papers.

[95]Hoagland to Chandler, 10/31/84, Chandler papers.

[96]Newspaper ad dated 12/12/84, Chandler papers.

[97]Newspaper ad dated 2/5/85, Chandler papers.

[98]Hoagland to Chandler, 1/27/85, Chandler papers.

[99]Second Annual Report, N.Y., p. 634. Engelhardt did find traces of fusel oil--the result of insufficient distillation--in some brandies, and recommended a law regulating its removal. His analyses of lager beer revealed that their average alcohol content was only 2.781%.

[100]Ibid., p. 557.

[101]Herald, 12/24/82, 12/25/82; American Grocer, 12/28/82, 7.

[102]Grocer, 10/29/81, 390.

[103]Annual Report, Brooklyn, 1884, pp. 116-117.

[104]Grocer, 4/18/84, 711.

[105]Grocer, 4/18/84, 703-704.

[106]Grocer, 4/11/84, 661.

[107]American Grocer, 5/14/85, 9.

[108]Laws of 1885, ch. 269.

[109]American Grocer, 5/21/85, 9.

[110]Grocer, 3/12/86, 7-8.

[111]American Grocer, 3/10/86, 24.

[112]American Grocer, 3/10/86, 9.

[113]Grocer, 3/19/86, 6.

[114]Fifth Annual Report, Mass., pp. 153, 173-174.

[115]Sixth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts (Boston, 1885), p. li.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[116]Ibid., p. 112; Seventh Annual Report, Mass., p. 87. It should be noted that there is some discrepancy in the Massachusetts Reports as to how many drug samples were actually analyzed. See Seventh Annual Report, p. 66.

[117]Newton, "Sanitary Control," 153.

[118]Fifth Annual Report of the Board of Health of the State of New Jersey (Mount Holly, New Jersey, 1881), pp. 112-113.

[119]Sixth Annual Report of the Board of Health of the State of New Jersey (Woodbury, New Jersey, 1882), p. 31.

[120]Seventh Annual Report of the Board of Health of the State of New Jersey (Woodbury, New Jersey, 1883); Eighth Annual Report of the Board of Health of the State of New Jersey (Trenton, 1884); Ninth Annual Report of the Board of Health of the State of New Jersey (Trenton, 1885).

[121]Second Annual Report, N.Y., pp. 687-696.

[122]Third Annual Report, N.Y., p. 97.

[123]Fourth Annual Report, N.Y., p. 257.

[124]James H. Young, The Toadstool Millionaires (Princeton: Princeton University Press, 1961), pp. 106-110; William H. Becker, The Wholesalers of Hardware and Drugs, 1870-1900 (unpublished doctoral dissertation, The Johns Hopkins University, 1969), p. 178.

[125]Becker, p. 163.

[126]Ernst W. Stieb, Drug Adulteration: Detection and Control in Nineteenth-Century Britain (Madison, Wisconsin: University of Wisconsin Press, 1966), p. 153.

[127]Ibid., pp. 118-119.

[128]Fourth Annual Report, Mass., p. 75.

[129]The Massachusetts State Board of Health, A Brief History of Its Organization and Its Work, 1869-1912 (Boston, 1912), p. 47.

[130]"Report on Dangerous Cosmetics," Fourth Annual Report of the Metropolitan Board of Health (New York, 1870), p. 5. Chandler reported on skin lotions and powders, and on enamels, as well. In the Report he noted only one hair tonic to be safe, but later added a second to his list.

[131]Chandler to Clark, 4/9/70, Chandler papers.

[132]Advertisement copy.

[133]O'Brien to Clark, 4/15/70, Chandler papers. Times, 1/6/70, reported three deaths attributed to "the use of Laird's Bloom of Youth" hair dye.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[134]Letters in Chandler papers.

[135]Chandler papers, speech given 6/3/78, to New York Medical Society, p. 90 of stenographic minutes.

[136]Haven Emerson, "Charles Frederick Chandler," Science, LXXXVI (November 19, 1937), 457.

[137]Arthur H. Elliott, "Report on the Methods and Apparatus for Testing Inflammable Oils," New York State Board of Health Report #45 (Albany, 1882).

[138]Grocer, 7/2/81, 4.

[139]Alonzo B. Cornell, veto message to State Assembly, Sanitary Engineer, 8/1/81, 399.

[140]Letter to the editor, Sanitary Engineer, 8/1/81, 399.

[141]Third Annual Report, N.Y., p. 96; Laws of 1882, ch. 292.

[142]A similar law went into effect in New Jersey in July, 1883, although at first there was no provision for a paid state inspector. No indication was found in the Massachusetts Reports of this period that a comparable law existed in that state.

[143]Times, 2/18/83.

[144]American Grocer, 12/28/82, 1408.

[145]Third Annual Report, N.Y., p. 96; Larson, p. 149.

[146]Chandler to George W. Bonney, 12/8/82, Chandler papers.

[147]Chandler to Thomson McGowan, 12/8/82, Chandler papers.

[148]Chandler to Harris, 12/8/82, Chandler papers.

[149]Chandler to Bonney, 1/19/83, Chandler papers.

[150]Chandler to Bonney, 6/9/83, Chandler papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CHAPTER XI

OLEOMARGARINE: THE EVOLUTION OF LEGISLATION

No food generated more acrimony and excitement than oleomargarine, which in this era was produced from the fatty residue slaughter-houses normally sent to be rendered into candle tallow and soap.[1] Oleo was invented in 1869 by a Frenchman, Hippolyte Mège, in response to a prize offered by Napoleon III for a substitute for butter. Mège patented his product in a number of European countries, and in 1871 sold his patent rights to various investors. On December 30, 1873, the Mège process was patented in the United States, initiating a debate about both its wholesomeness and its legitimacy that culminated in the first federal law regulating a domestic food.

Since the controversy over oleo was complicated by the rapid appearance of a multitude of imitators, it is important to understand the basic process by which the Mège product was manufactured. The patent called for the use of the "caul" fat of cattle--the "choicest" fat surrounding the stomach. This fat had to be processed immediately after slaughtering, while the animal heat still remained. This material was then washed and cooled in ice-water, put through a grinding machine, and melted at a temperature that had to remain below 120° F. The oil was extracted, and the residue of tisse and fiber sent to the tallow-works. After extended heating at low temperatures the stearine--the solid portion of the fat--was isolated by hydraulic pressure and rejected. The remaining oil--now called oleomargarine oil--was

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

churned with fresh milk at a ratio of eighty pounds of milk to five hundred pounds of oil, along with salt, and annatto for color. The Mège patent allowed for no other ingredients.[2]

Although it is not possible to date precisely the establishment of the first oleo factories in this country, an imitator of Mège had established at least one plant by 1873, even before Mège's patentee began operation. Little is known of the actual processes employed there, and it may be true that "the fat of dead horses and other offal has been introduced into this so-called 'butter.'"[3] The New York Butter and Cheese Exchange appointed a special committee to investigate this "fraud," and its members were clearly alarmed about the threat to their trade. One of the committee's proposals, even at this early date, was a federal law requiring the branding of all "butter" packages, but no further action was taken, and the press had little more to say about the danger for the next two years.

But in early 1876 the United States Dairy Company, holders of the Mège patent, began operation in New York, and the rapid expansion of their production stimulated an almost desperate concern on the part of the butter interests. The central manufacturing arm for U.S. Dairy was the Commercial Manufacturing Company, Consolidated, and its exclusive wholesale distributor was H.K. & F.B. Thurber & Co. It is likely that Francis Thurber had a controlling interest in U.S. Dairy; although Thurber disavowed ownership of Commercial Manufacturing, he never testified about possible ownership of the parent company. Whether or not Thurber directly owned either company, his control of oleo distribution tied him intimately to the product; the Tribune, which opposed Thurber's political activities, dubbed him "Oleomargarine Thurber."[4]

Many chemists regarded Mège oleo as a new method of making butter, rather

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

than a sophistication, but no one, including the manufacturers, publicly suggested that it should be sold as anything but oleomargarine. Continuing suspicion of fraud, however, was stimulated by the fact that it was virtually impossible to distinguish between the two products by sensory examination. Though the dairymen rejected Thurber's proposal that oleo be displayed at the International Dairy Fair of 1878 as "an insult to dairymen,"[5] samples were smuggled in disguised as butter, and the experts of the Butter and Cheese Exchange were unable to identify the counterfeit samples.[6] Even chemists could identify oleo only after elaborate tests, and there is good reason to suspect that oleo mixed with milk or butter could defy any microscopical or chemical test known in this era.[7]

This analytical difficulty led some chemists--such as Prof. Chandler, who became one of the strongest oleo advocates--to argue that the Mège product was simply butter produced by a method superior to that of the milch cow and the dairy. Once again, however, Chandler's objectivity must be brought into question, for as early as 1876 he was receiving substantial sums of money from both U.S. Dairy and Commercial Manufacturing for testimony against those who infringed upon the Mège patent. He was receiving a regular retainer of $500 a year to guarantee his availability in future patent suits, as well as a variety of fees for his chemical work for the two companies.[8]

Another chemist who was wholeheartedly supportive of Mège oleo was Henry Mott. Although Mott had performed yeoman's service for the Royal Baking Powder Company he had an even greater loyalty to Commercial Manufacturing, perhaps because he was the brother-in-law of James Wilson, the vice-president and manager of Commercial Manufacturing. Right after the factory began operation Mott prepared an elaborate description of the processes employed, which was published, along with half-a-dozen flattering illustrations, in

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

two issues of the Scientific American Supplement. This was then revised into booklet form, not just as a celebration of oleomargarine, but as an advertisement for Commercial Manufacturing. Mott disparaged other manufacturers' products as poor imitations that "in no way resembled butter."[9]

Mott managed to keep oleo in the public eye. Chandler, whose scientific approval of the Mège product was cited by Mott, invited him to address the American Chemical Society.[10] This paper then became the incentive for another story in Scientific American. Though the magazine regretted the duplicity of those selling oleo as butter, it concluded that "if people cannot distinguish the made from the natural product, and if the former is, as reported by Professor Chandler, actually more healthful than the average cow butter sold, it would be difficult to prove any damages save to the moral sense."[11]

Mott also took credit for perfecting the manufacturing process employed by the company, yet strangely denied, in an address to the American Dairymen's Association, that he was in any "way connected with either the Commercial Manufacturing Company or the United States Dairy Company." He spoke to them about oleo, he claimed, because of "pride in the success of a process" and because he could not believe the dairymen were "willing to condemn the introduction of this product from no higher motive than that of dollars and cents."[12] Mott remained in the employ of the company throughout its existence, and was not only its resident chemist, but acted to recruit the services of other experts; he was the intermediary between the corporate leaders and the professionals.

Meanwhile, with relatively little fanfare, the state legislature of New York acted upon the prodding of the dairymen by passing a law "to prevent deception in sales of butter." This act was straight-forward and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

simple--and proved impossible to enforce. It required that oleo manufacturers "distinctly and durably stamp, brand or mark upon every tub" an identification of the contents, and that retailers present a slip of paper with the printed word "oleo-margarin" with every sale of the product.[13] Only an army of inspectors and chemists could have enforced the law, since the grocers scooped out and weighed retail purchases of both butter and oleo from large wholesale tubs.

Coincidental with a renewed discussion of oleo at the 1878 annual convention of the American Dairymen's Association, the New York State Senate began an inquiry as to the efficacy of the branding law.[14] In response to the Senate's request, Prof. Chandler issued a brief official report of the Board, in which he claimed that oleo was "a good and wholesome article of food," and "That no legislation is necessary to prevent its imposition upon the public as pure butter, the product of the dairy, additional to the law of 1877."[15]

But these reassurances did not begin to touch the concern of the dairymen; oleo had already captured a substantial share of the "butter" export market, and no one knew to what extent oleo was being sold domestically, whether under its own name or disguised as butter. A second attempt by Thurber to have the dairymen openly accept an oleo display at the next annual dairy fair was defeated.[16] Thus, by 1879, sharp lines were being drawn on the oleo issue, and its opponents, hesitating to ask for restrictive legislation on strictly economic grounds, tried to establish oleo's unwholesomeness. However, so long as Mège oleo dominated the market there was little chance of success; no testimony was ever presented that proved carelessness, or deviation from the patented process, at the Commercial plant.

Not only Chandler and Mott, but chemists who were probably independent

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of the Company, continued to testify as to oleo's wholesomeness. Stephen Sharples' treatment of oleo in Buck's Treatise on Hygiene even concluded that oleo was, by 1879, one of those foods that were "frauds in their inception" because sold as butter, but which had been "sanctioned by usage." Sharples admitted that such sales were fraudulent, but accepted the situation because, like diluted mustard and coffee, oleo was harmless to health.[17]

Nonetheless, a number of dairymen and amateur chemists and microscopists continued to issue unsubstantiated charges about oleo, all of which was brought into focus in 1879 by George T. Angell. Angell's infamous "Public Health Associations" speech, which had inspired the intensification of the anti-adulteration movement, certainly did not ignore oleomargarine. Though his comments about this "butter" made from "horse fat, fat from bones, and fat such as is principally used for making candles" added no new facts to the controversy, it succeeded in pulling together the accusations and fears concerning oleo, and in raising public concern.[18]

The grocery press, which had addressed oleo only in passing before this time, now began to deal with it at some length. The Grocer began its attack in February, reprinting a lengthy speech by farm leader Joseph H. Reall. Reall placed the blame for the disastrous losses of the dairy industry in 1878--when prices for butter and cheese fell below the cost of production--upon over-production and oleomargarine. The chief responsibility for the spread of oleo was laid upon Mott and other "humbugs," and upon dairy organizations which had sold themselves "for one consideration or another." He especially singled out the American Dairymen's Association, which had been "prostituted to discussions of patent rights and selfish schemes." Though neither Reall nor the Grocer mentioned him by name, Francis Thurber was president of the American Dairymen's Association.[19]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

By the end of 1879 the dairymen and butter merchants had organized the National Association for the Prevention of the Adulteration of Butter. Headquartered in New York, and led by Reall, Washington Winsor (President of the Butter, Cheese, and Egg Exchange), and attorney T. Mortimer Seaver, the Association's premise was that if the retailers were compelled to sell oleo as oleo, no consumer would buy it; oleo had become a threat to their livelihood only because it was disguised as butter. Thurber was also singled out, with the comment that "it was very strange, to say the least, that the President of the International Dairy Fair Association, (Mr. F.B. Thurber,) should be one who is more largely interested in the manufacture and sale of oleomargarine than any other person in the community." The Association adopted a resolution to raise $5,000 "to prosecute offenders" who violated the New York law of 1877.[20]

The Association's efforts in this direction, however, were quickly disappointed, for in a trial of five food dealers charged with selling oleo as butter, held only a few weeks later, the butter "experts" were unable to agree on whether the chief exhibit was a cheap grade of "Western" butter or oleomargarine.[21] The very next day a committee of the Association drafted a resolution condemning oleo as a fraud, and called a general meeting of the Association.[22] But beyond condemning those "certain firms" which were responsible for keeping this "swindle" from being "driven from the market," the butter men could only recommend increased efforts to prosecute recreant retailers.[23]

Horace Thurber, who had been invited to the meeting, argued that sooner or later every butter merchant would be compelled to sell oleo because of its value as a product. He admitted that "some unscrupulous retail dealers were in the habit of selling it for butter," but insisted that his company

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

had always obeyed the law of 1877. Faced with this challenge from Thurber, Mortimer Seaver made his charges more specific: oleo would have vanished from the market had it not been for Thurber & Co. Horace Thurber's effort to refer Seaver's resolution back to the committee was lost.[24]

Following this meeting the Thurbers attempted to bolster the image of oleo. On January 29, 1880, the Produce Exchange Bulletin reported on a visit to the Commercial Manufacturing factory in a manner Thurber's American Grocer categorized as "written in a disinterested and independent spirit." Although it cannot be established that the Thurbers "placed" this article, certainly their influence in the Produce Exchange was powerful, and the article was anything but "disinterested." It lauded the manufacturing process as "a beautiful sight," and waxed poetic about its "neatness and cleanliness." American Grocer added the comment that, since "oleomargarine is handled by the Thurbers," the public was afforded "a very sufficient guarantee of the cleanliness and wholesomeness of the article."[25]

The president of the New York State Dairymen's Association, where Francis Thurber had long been powerful, gave a speech which was reported (without comment) in even the Grocer. Mancelia Folsom stated that "There is no doubt that oleomargarine is a perfectly legitimate product when sold as oleomargarine, and the dairymen have not the slightest objection to meeting it in honest competition." A week later Folsom declared that the market for the products of the dairy were good enough to "satisfy the most enthusiastic amongst us"; oleo had not injured the farmers of New York.[26] Although the Grocer never published any advertisements from Thurber & Co., it now began advertising competing brands of oleo, thus acknowledging the legitimacy of the product.

But the tide was beginning to turn against oleo, for it was at this

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

time that Representative Beale's anti-adulteration bill was approved by the House Committee on Manufactures. Beale's report on food, issued on February 25, 1880, included oleo as one of its chief targets. Like the bulk of the accusations and "facts" presented by Beale, his material on oleo came directly from George T. Angell, who claimed that oleo carried "the fungi, living organisms, and eggs resembling those of the tape-worm."[27] Similarly, the dairy interests were stirring up activity in Albany, and the State Senate Committee on Agriculture made plans to begin hearings on the need for additional legislation.

In response to these threats U.S. Dairy and Commercial Manufacturing developed the strategy of assembling a panel of scientific experts to testify to the wholesomeness of their product. Conveniently, Representative Morgan R. Wise of Pennsylvania, chairman of the House Committee on Manufactures, wrote to Chandler requesting information about oleomargarine. Although no evidence exists to prove that Wise was prompted to make this request, it certainly seems strange that, at this crucial time, he would think of contacting Chandler--whose support of oleo was publicly known--rather than consulting the chemists of the Department of Agriculture. Chandler, for his part, was already at work assembling the support of other chemists, in anticipation of Representative Wise's request.

On February 27 Mott had sent Chandler a letter arranging for the two of them to meet at the Commercial factory, to perform experiments, and set things up for inspection. That same day the attorneys for U.S. Dairy sent Chandler a note promising that a check to cover his professional services was on its way. Within a couple of weeks whatever arrangements Mott and Chandler were making at the factory were apparently completed,[28] but U.S. Dairy needed some stop-gap material from Chandler immediately.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Mott, representing the oleo companies, wrote again to Chandler:

> I write to state that the U.S. Dairy Co. wants you to write between now and Wednesday--your opinion of oleo/margarine/ Butter, as regards its purity and wholesomeness, and also the value of the Mège discovery as supplying a want, especially among those who can not afford to buy the best products of the creamery.
>
> The object of the congregation of scientific men is to get an individual opinion from each one in their own language after they have made such examinations as they may deem proper. Your thoroughly understanding the subject can give us one now--as we need it in Albany whether you go there or not--we also need it in Washington.[29]

Mott had hoped that Chandler would have something ready for him by the next morning. When nothing was immediately forthcoming, he wrote again, urging speed, and advising that Commercial's James Wilson "would like you to bring in the words the 'Mège Discovery,' that it is essentially identical to Butter, contains less of volatile fats which decompose and make dairy butter rancid...."[30] The next day Wilson himself wrote Chandler that he had heard, from Associated Press dispatches, that in Washington Fernando Wood had introduced a resolution to appoint a committee to investigate oleo. "I hope," Wilson went on, "that you will not allow the interests of this great company to suffer before the public, by our resting under the ban and imputation, that our Butter is not pure."[31]

Chandler, now armed with Rep. Wise's request for information, had already begun his "official" investigation, in the name of the Board of Health. But events were militating against the company, and Wilson sent off a desperate letter to Chandler:

> I am astounded beyond expression at the indifference you manifest on matters vital to our interests. You have in your hands all the certificates of the party /of scientists/ called here at a vast expense of money and /the certificates/ have been called for from Washington, by letter. I delegated a special messenger to take them on last night, expecting to obtain them from you through Dr. Mott also your own written views, but you block me at every point. My party could not go on to Washington, but had to remain over. I beg to say that we do not think, we are deserving of such a lack of interest in our affairs from your hands.[32]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Chandler dated his response to Wise that very day, although two of the scientists brought to New York by the company had not yet formulated their certificates. This problem did not hinder Chandler in the least; he included these last two letters of recommendation in the list sent to Wise, even though they were dated--and presumably received--after Chandler wrote his covering statement. For that matter Chandler's letter and those of the nine visiting scientists[33] might have all been written by an identical hand. They all made the same points--the points urged by Wilson--and in virtually identical language. Thus, each of the men briefly explained that oleo, as produced by the Commericial Company under the Mège patent, was not only as good as, but better than, butter. All stressed--in Mott's original words--"its purity and wholesomeness," the "value of the Mège discovery" (Chandler saying that Mège's process marked "an era in the chemistry of fats"), and that oleo contained "less of volatile fats," and would therefore be less likely to turn rancid.

Wilson was so delighted with the results of his strategy that he put together the ten testimonials, along with engravings of comparative microscopic views, and the signatures of one hundred sixty-five "members of the New York Produce Exchange" who testified to recognizing oleo as being "a pure and wholesome article of food, and of value to commerce,"[34] along with some other comments and illustrations, and published the whole package as a fourteen-page booklet titled "Oleomargarine Butter: The New Article of Commerce."[35] In addition to distributing the booklet, Wilson published its contents as an advertisement in various journals, such as American Grocer and Sanitary Engineer. He also commissioned Mott to revise his 1876 pamphlet on oleo, incorporating the new testimonials. The new booklet noted that U.S. Dairy now had factories operating at full capacity in eleven cities.[36]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Meanwhile debate over oleo continued in Washington. Members of the Association for the Prevention of the Adulteration of Butter, spearheaded by Reall (who had now replaced Thurber as president of the International Dairy Fair Association), decided to send a delegation to the capitol to lobby in favor of legislation. What inspired this meeting was the announcement that Commercial Manufacturing was to host a banquet at Delmonico's for the members of the Congressional committees interested in the oleo question.[37] This time neither Thurber brother was invited to the meeting. Though Francis Thurber had managed to coordinate the activities of New York businessmen and farmers in the "anti-monopoly" war against the railroads, it is clear that by this time his own oleo monopoly had seriously jeopardized his relations with members of both groups. In the battle over oleo no quarter was being given.

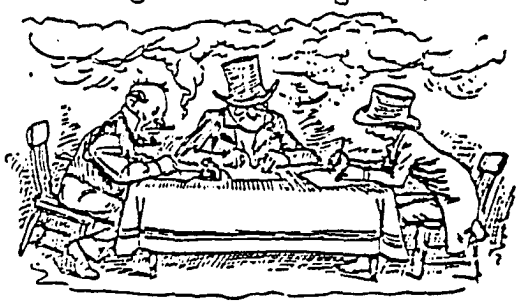
Members of the House Committee on Agriculture were already in the city, inspecting the Commercial factory. On the evening of April 9, the same day the butter-men met, the dinner was given at Delmonico's. In addition to the legislators, about two hundred "prominent citizens" were invited, and the main feature of the banquet was an informal contest among the guests to identify unmarked samples of both oleo and butter.[38] From the point of view of Puck, however, the most prominent feature of the dinner was the quantity of wine consumed, and the humor magazine ran a full-page cartoon ridiculing the subsequent decision of the congressmen that oleo was an acceptable article of trade.

But by this time even the Grocer argued that "there is no doubt that oleomargarine is a legitimate product."[39] After all, oleo had become a significant item of trade for the retail grocers, and one where more profit was possible than with butter. It is also probable that Thurber's old enemy felt free to support oleo because the Commercial Company no longer had a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The Great Congressional Oleomargarine Investigation.

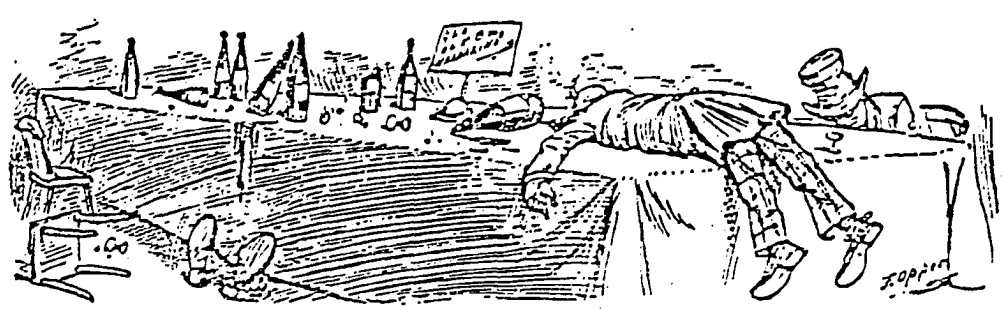
Several Members of Congress were much Scandalized at the Audacity of the Oleomargarine Manufacturers.



So They Wrote Speeches Against It—

And Delivered them in Congress, Each in his own Peculiar Style.

Then they were Appointed a Committee to Investigate the Merits of Oleomargarine. They were Received with Great Politeness by the Manufacturers, and Invited to Partake of a Light Repast.



Result of the Investigation—"Oleo-marsh-rinesh Mush Better'n Butter!"

Puck, VII, no. 163 (April 21, 1880), 109 (reduced).

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

virtual monopoly; in the past year or so half a dozen competitors, each with its own patented variation on the Mège process, threatened Thurber's preeminence in the business. When Representative John R. Thomas of Illinois introduced a new bill in the House on April 26, to tax oleo at 10¢ a pound, the Grocer attacked the proposal as merely a selfish maneuver on the part of the dairy interests.[40]

Meanwhile the debate over oleo also proceeded in Albany, where the butter men had directed their lobbying efforts, and where the Assembly had already passed a new oleo bill. It was at this juncture that Francis Thurber decided to support additional legislation. He took the high ground of working against the fraudulent sale of oleo as butter, and contributed $100 to Washington Winsor's Association, insisting that his company had never sold the product as anything but oleo, and that retailers should be compelled to do the same.[41] This decision put him in seeming disagreement with his comrades in the oleo business, because James Wilson would soon be testifying fervently in Albany, literally waving a copy of his "Oleomargarine" pamphlet in his hand, complaining of the injustice of further restriction upon the manufacture or sale of oleo.[42]

But Wilson's agitation was because of a suggestion not incorporated in the state bill which Thurber had endorsed: the suggestion that oleo should be distinctively colored by the manufacturer, and thus always be distinguishable from butter. This was a question with which Wilson was not prepared to deal. It had apparently first been publicly suggested by the editor of Puck, presumably tongue-in-cheek, but by May 1880 was being seized upon by the butter men as the answer to their problems. In an editorial jokingly titled "Oilymargarine" Puck now ridiculed Thurber's attempt to "cooperate" with the butter interests, unless he was willing to "induce the Oilymargarine

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

manufacturers to color their product pink, red or green, that it may be sold for what it is."[43]

Wilson now entertained several state senators at an "oleomargarine dinner," much as he had the members of Congress the previous month.[44] State Senator Robert H. Strahan (from lower Manhattan), working for Wilson's interests, tried unsuccessfully to substitute a bill that would require restrictive labeling on certain types of butter, as well as on oleo.[45] On May 19 the Senate passed the oleo bill.[46] The new law, however, must be considered an unqualified victory for the oleomargarine forces. It contained no requirement for distinctive coloration, and amended the law of 1877 in only two ways: it corrected the spelling of "oleo-margarin"; it specified the characteristics of the label marking the product.

Thus, under the new law, both the marking on the tub, and the slip of paper given out by the retailer, had to be in Roman letters, at least half an inch high; the marking on the tub had to be "burned on or painted thereon with permanent black paint, in a straight line." The only other change related to export sales, which meant that in the future more accurate statistics on exports would be available, but this was surely no comfort for those who had been fighting to destroy oleo altogether.[47]

The Thurber forces, at least, must have been content with the new law; for many months to come neither American Grocer nor Sanitary Engineer had much to say about oleo, apparently concluding that no news was good news. But the new law stimulated a complete reversal of policy on the part of the Grocer; from a genial permissiveness the paper moved directly to strong condemnation of all oleomargarine. By July the paper was calling oleo "miscellaneous grease," declared that it was almost never sold legitimately, claimed there was "no necessity for it," and condemned as worthless the laws

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

that failed to regulate it. The Grocer now took the position that the federal government had to impose an internal revenue tax on oleo, to "protect the legitimate dairy interest."[48]

By the end of the year, however, the Grocer was reporting about oleo with scarcely-concealed glee. The market had suddenly been flooded with western "lard" butter, manufactured from the residue of slaughtered hogs. Since this material, under New York law, had to be labeled "oleomargarine," it was damaging Thurber's sales, and driving consumers back to genuine butter.[49] The influx of this cheaper and inferior competition probably explains a very harsh reprimand addressed to Chandler from Wilson. The manufacturers of Mège oleo now had more to worry about than restrictive legislation that affected their own product. They either had to devise some way to acquire legislation that would dispose of imitators, or make their chemists defend even these less wholesome--perhaps even dangerous--products:

> the time has come when there are but two sides to this question, that is those who are for and those who are against us...our chemists must stand by us shoulder to shoulder in this honest fight on our side.... The war is upon us and I do not mean that we shall be cast down, for lack of native /initiative?/ in the men on whom we have reposed our confidence and trust.[50]

* * * * * * *

By 1881 oleomargarine had become the most important food-adulteration issue. In Washington, Congressman Casey Young's report on adulteration, written by George T. Angell, was submitted on February 4. Because Angell perceived Thurber, and Thurber's supporters and hirelings, as his most determined enemies, he retaliated by striking back where it hurt the most: Thurber's oleo monopoly. Angell portrayed oleo as the most dangerous and insidious adulteration in existence, and dismissed the arguments of Thurber's

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"paid chemists" to the contrary. Angell insisted that oleo contained tapeworm eggs, trichinae, and "living organisms which have resisted boiling ascetic acid."[51] The irony of these accusations is that in reality Angell was criticizing the processes employed by the competitors of Commercial Manufacturing, those companies using lard and other pork offal in their oleo, but it was the Mège monopoly--which specifically avoided these dangers--which he attacked.

In the New York State legislature fully half a dozen different oleo bills were introduced during the 1881 session, and although the legislature passed the National Board of Trade adulteration law in this year, the oleo bills received a dozen times as much space in the New York press. The Assembly Committee on Public Health, chaired by Milton M. Fenner, began an intensive investigation on February 16, indicting oleo as "an injury to the public health, producing an increased mortality."[52] Fenner's determination to condemn oleo helped shape the hearings into a forum for the dairymen and the butter dealers. Thus Washington Winsor and T. Mortimer Seaver, of the Association for the Prevention of the Adulteration of Butter, were allowed to select many of the witnesses, develop "important points of testimony," and control the direction of the investigation.[53] Winsor, Seaver, and Walter Carr, the Association's vice-president, were the major opposition witnesses, and Thurber's business enemies, such as food wholesaler Frederick W. Leggett, the sponsor of the Grocer, were encouraged to testify against oleo.[54]

Commercial Manufacturing fought back by publishing in the newspapers a lengthy demand for "Fair Play" on the oleo issue. Wilson argued that the dairy interests were trying to destroy Commercial so as to perpetuate on the market the rancid and inferior butter which oleo threatened to replace. In addition, the company claimed that the scientific testimonials to oleo

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

(which it here reprinted) were "not in the least due to any movement on the part of its manufacturers"--a blatant lie.[55] Two weeks later the company sent another letter to the newspapers, repeating its claims about the butter interests, and insisting that the condemnation of oleo would be "A Great Wrong": "The American public love fair play, and they will support the manufacturers of oleomargarine in the fight which has been forced upon them."[56]

Upon the invitation of Winsor, the Fenner committee now left Albany, and continued its sessions in the rooms of the Butter and Cheese Exchange, where numerous New York City witnesses were paraded before it. The Association men were, by this time, trying to convince the committee to "compel the oleo-margarine people to color their butter a distinct color which butter never has, like pink or a light blue."[57] Fenner, unlike the previous investigators, declined Wilson's invitation to a dinner at Delmonico's, insisting that "No influences that might be brought to bear upon the committee would affect their final decision."[58] Finally, after hearing testimony from dozens of witnesses opposed to oleo, the committee called upon its supporters.

But the task of the oleo manufacturers and wholesalers was complicated by the fact that they not only had to defend their own product, but draw a distinction between it and the "lard-butter" which had been entering the New York market from the mid-west in increasing quantities. James Wilson angrily complained that the New York law, which lumped all non-dairy "butters" together as "oleomargarine," condemed the product of Commercial Manufacturing to be associated in the public's eye with this inferior substitute. Wilson also claimed that his competitors were "in violation of what we call our patent rights...they are all under suit."[59]

When challenged with the possibility of a law prohibiting the coloring

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of oleo, Wilson defended the addition of annatto by his company. For most of the year, after all, even the butter-makers added annatto, to imitate the yellow tint of mid-summer butter. To the suggestion that oleo be colored green, Wilson answered that "you have no right to impose upon us any color for our product, than we have to impose one upon you for what you call butter."[60] Wilson's final rejoinder, in response to assorted accusations of unwholesomeness, was to plead the honor and reputability of Thurber & Company:

> Who, gentlemen, are our sales' agents? They stand here to-day princes of commerce, the distributors of pure food all over the face of the earth....Is it to be supposed that they can afford to risk their reputation as distributors of pure food to such a vast extent by assuming to distribute oleomargarine if by any known laws of truth, justice or science, a trace of fraud could be found? No, no!

In addition, Wilson named six major stock-holders in the company, all of whom were wealthy, respected New York businessmen and bankers, who would never, he claimed, associate themselves with a fraudulent enterprise.[61]

In February Fenner had made a surprise visit to the Commercial factory; on March 28 the whole committee made unannounced visits to three oleo plants --Commercial Manufacturing and two competitors which made only the liquid oil to be used in oleomargarine-butter production. Although the other two factories were filthy and malodorous, the committee could find nothing offensive about Wilson's plant, to Fenner's disgruntlement.[62]

Certainly one remarkable fact about the investigation was the absence of scientific witnesses. Although Wilson submitted as testimony the material from the "Oleomargarine" pamphlet, he brought none of the chemists to testify in person. At the time the committee moved its investigation from Albany to New York City the Journal of Commerce observed that the oleo makers would probably attempt to convert the hearings "into a grand advertisement of the oleomargarine industry. It is believed that a number of leading chemists

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and sanitarians, employed by the oleomargarine manufacturers, will be produced before the committee." The Journal advised "A Call For Vigilance," for it feared the experts would be provided with "chosen" samples for their tests. The paper advised the committee to ask each chemist 1) how they obtained their specimens, 2) if they were paid for their examination, by whom, and how much, and 3) if they, or their relatives, had invested any money in oleomargarine.[63] Perhaps it was for fear that such questions would indeed be asked that Wilson brought no experts with him.

On April 5 Commercial Manufacturing placed an ad in several papers--including the Journal of Commerce--proposing the establishment on both the national and state levels, of a general law that would apply to all foods--including rancid butter--and not a special law applying only to oleo.[64] Francis Thurber not only supported this position, but explained more specifically that this would be achieved by passage of the National Board of Trade bill which had been submitted to Congress two months earlier.[65]

Meanwhile Dr. Fenner had been outvoted by his own colleagues: the majority of the investigating committee voted against the oleomargarine bill. Faced with this rebellion, but determined to push the bill through, Fenner persuaded the Assembly to discharge the Committee on Public Health from further consideration of the bill, and refer it to the committee of the whole.[66] A week later the Board of Aldermen of New York "directed" the city Board of Health to "investigate the subject of oleomargarine." The aldermanic resolution explained that the Assembly committee had been conducting its investigation "by calling as witnesses principally dealers in butter, and have not examined as witnesses medical or chemical experts to determine the value of oleomargarine as food." Therefore the aldermen felt a compelling need to have a "scientific" report on "the purity, healthfulness, and value"

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of oleomargarine.[67]

Why would the aldermen suddenly display this interest, when the Assembly --not the city government--was conducting hearings, and considering a bill? The "direction" of the aldermen was clearly a piece of indirection--a little sleight-of-hand to give Chandler another opportunity to assert the wholesomeness of oleo. Now Wilson could have his "expert" witnesses, without their ever undergoing cross-examination, since the hearings had been terminated. Chandler's "response" to the aldermen was a repetition of the testimony of the nine "distinguished chemists," and the declaration that the question of the healthfulness of oleo "is one on which there is no difference of opinion among scientific investigators."[68]

Perhaps inspired by Chandler's report, two days later the seven-member majority of the Assembly public health committee issued its own brief report, concluding that oleo was a perfectly healthy and safe product. In describing the manufacture of oleo the majority report specifically referred only to the Mège process, and completely vindicated Commercial Manufacturing and Thurber & Co., even conceding that oleo was not an "adulteration" at all, but a product in its own right, and therefore should not be labeled "imitation butter" as Fenner's bill desired. The majority concluded that "The present inquiry and agitation seem to have been raised and perpetuated by producers and middlemen rather than by consumers of butter or oleomargarine, and it is for the benefit of the former class that additional legislation is sought."[69]

They supported the continued use of "butter" coloring for oleo, unless the butter-makers were also prohibited from using annatto. The majority opposed instituting any special tax or license fee upon oleo, and even went so far as to point out that western "lard butter" was considered to be an

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

imitation of oleomargarine made by the Mège process, and hinted that the state law should be changed to protect the Commercial Manufacturing Company from this imitative fraud.

Undeterred by either Chandler's statements, or this betrayal by his own committee, Fenner continued to pursue passage of his bill "with a devotion that equals that of the hen with a solitary chicken."[70] While the vote was delayed by the parliamentary maneuvers of Assemblyman Ebenezer Crapser, an acknowledged lard-cheese manufacturer, the State Senate concurred in the passage of another oleomargarine bill, which the Assembly had acted upon in March. This bill required all oleo to be distinctly labeled "Imitation Butter," and ordered hotels and boarding-houses serving it to post prominent signs to that effect. Two weeks later the Fenner bill, despite its rejection by Fenner's committee, itself succeeded in passing both houses. Like the earlier bill, Fenner's measure passed with overwhelming majorities. This bill also required the branding of "Imitation Butter" on all oleo packages and tubs, but in addition prohibited the use of annatto or any other coloring agent "with the effect of imparting thereto a color resembling that of yellow (or any shade of the same) butter or cheese."[71]

But on May 30, only three days after the Fenner bill cleared the Senate, Governor Alonzo Cornell handed down a veto of the first oleo bill, declaring that he believed it to be unconstitutional. Cornell argued that oleo was a product with a patented process, and a patented name. The law of 1877, requiring the labeling of the product as "oleomargarine," was proper, but the new bill, requiring it to be labeled "Imitation Butter," was a violation of the patent rights of the manufacturers.[72] It was probably this veto, and the anticipation of another for his own measure, that induced Fenner at this time to produce a nineteen-page Minority Report on oleo. The report was not

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

so much an attack on oleo, as a diatribe against Commercial Manufacturing, whose "dishonesty, trickery and deception" Fenner believed to have created the entire problem, and upon Chandler ("the paid chemist of the Oleomargarine Company") and Mott ("the student of Prof. Chandler, and brother-in-law to Mr. Wilson"). The nine visiting scientists were dismissed as "their friends and associates."[73]

The day before the Assembly printed the Minority Report, however, Cornell handed down his expected second veto, declaring Fenner's measure "more objectionable than the previous bill." He attacked the bill's willingness to permit coloring for butter, but not oleo, as discriminatory, and again raised the question of constitutionality, since the oleo patents included "the use of coloring matter." Cornell also questioned in what way the bill was for "the better protection of the public health," since if oleo was dangerous, merely prohibiting the use of harmless annatto would not make it less so. He condemned the bill as "an attempt under the guise of protecting the public health to benefit one class of producers at the expense and injury of another."[74]

In the Assembly, Fenner tried, unsuccessfully, to override Cornell's veto, claiming that "a rich, cunning, and fraudulent corporation had thus far been triumphant over the hard-working dairyman." Fenner was less harsh on the governor, believing that he "had erred, though honestly, in this matter."[75] However, though Cornell's veto messages raised logical objections, it is possible that he was encouraged to protect the oleomargarine interests by outside forces. Cornell was a cold, unlikable politico who had been vice-president of Western Union, a firm founded by his father. After entering New York politics, he became, by 1870, a "protégé" and "well-entrenched ally" of Senator Roscoe Conkling. It was Conkling who, in 1879, had gotten Cornell

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the governorship, and although relations between the two men began to deteriorate early in 1881,[76] it is possible that Conkling had influenced Cornell's veto.[77] For in the war between Commercial Manufacturing and the dairy interests, and against the "lard-butter" competitors, Conkling used his political influence and his prestige for the Mège monopoly.

* * * * * * *

Just when Conkling was recruited by Commercial Manufacturing is unknown, although later testimony shows that it was at least as early as 1882. It is unlikely that Conkling became intimately involved before the fall of 1881, when he began an intense and lucrative legal practice, specializing in corporate law, after his retirement from politics. Certainly Wilson was seeking political--if not legal--assistance, for even while he was fighting the Fenner bill Wilson had declared full-scale war against his imitators, and employed Conkling in these battles.[78]

Back in April, while editorializing in favor of anti-oleo legislation, the Grocer had prophetically noted:

> we have alluded only to oleomargarine. As to sueine, lardine and the other "ines" of that ilk we would say that all our remarks apply equally to them with this added: There are very grave doubts as to their healthfulness, and it should be submitted to the Board of Health whether their manufacture or sale should be allowed at all. The oleo-margarine men may want protection themselves against these imitations.[79]

By July, in the same issue of Sanitary Engineer that printed Cornell's veto of the Fenner bill, Meyer informed his readers that "The manufacturers of oleomargarine complain that dealers in rancid dairy butter and the Chicago lard butter, are selling these products as oleomargarine under the /New York/ law. The State Board of Health have power to stop this."[80]

Gustavus Swift had first begun shipping dressed beef back east from Chicago in the winter of 1875-1876, and soon began using the still-experimental

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

refrigerated railroad cars to create a year-round business.[81] One of the most important consequences of this centralization of cattle- and hog-slaughtering, of course, was the economic necessity of finding profitable uses for the animal by-products. Swift soon entered the "butterine" business, and for a number of years dominated the market; although Armour & Co. began manufacturing oleo in 1880--even before it entered the dressed-beef business --until late in the decade their sales of the product were small compared to Swift's.[82] Thurber could not match the price at which Swift and Armour could market their "lard-butter."

The Chicago butterine threatened, not just the supremacy of U.S. Dairy and its subsidiaries, but whatever reputability oleomargarine still retained, for the "trichinosis" and "tape-worm" accusations might indeed be appropriate for these competitive pork products. Since "lardine," "butterine," and "suine" were sold as oleo, they might drag U.S. Dairy down with them into the abyss of legislative prohibition. By early 1881 Commercial Manufacturing had already begun an intense two-fronted attack, initiating suits against its competitors, and trying to prohibit their sale, both through the Board of Health, and through legislation.[83] Wilson sent spies into the "lardine" plants to establish proof of patent infringement; Charles D. Deshler, the Secretary of U.S. Dairy, wrote to Chandler that "I enclose herewith the reports of our detective as to the process of making 'Suine' or Lardbutter." By October the lawyers for Commercial Manufacturing were meeting with Chandler to prepare their case against their competitors.[84]

At the trial itself, in November, Chandler was cross-examined regarding his employment by Commercial Manufacturing. His response drew a fine line on the ethics of a public official receiving private compensation:

> I have been employed by the complainants to make investigations in connection with their business...and I have received compensation for

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> the time occupied in this work. I have never given them an opinion, however, as far as I can recollect, in regard to the quality of their product; nor have I ever received any compensation for the opinions which I have been called upon to give officially by the legislature, the chairman of a congressional committee, and the board of aldermen of this city. I make it a rule never to give opinions as to the sanitary quality of any article for compensation.[85]

Over the next year or so U.S. Dairy sued a number of other companies and individuals for patent infringement, generally using Chandler as their technical consultant and expert. For example, on June 1, 1882, Chandler was asked to "prove" that the mixture of vegetable or nut oils with animal oils would result "in the fermentation and decomposition of the product, and that such product would be unwholesome and injurious when used as an article of food."[86] But Chandler could not establish such proof, and U.S. Dairy's case against this manufacturer, Garret Cosine, fell through.[87]

Wilson and Mott then had to decide upon a different tactic, since Cosine's oleo was "offered at such a price as renders it impossible to manufacture pure unadulterated oleomargarine, so as to make any money." Although they conceded that Cosine had "a right to manufacture a product under his Patent, and brand the same Vegetable Butter," they wanted it destroyed nonetheless. Since Cosine put his name on each package, Board inspectors could readily identify his "oleomargarine," and Mott suggested to Chandler that "If the Board of Health pass a resolution to the effect that all Oleomargarine found on the market adulterated with vegetable oil, and all vendors of such goods, shall be subject to the penalties of the Sanitary and Police laws," the Board could legally destroy Cosine.[88] Wilson also apparently managed to plant the idea in the press that Cosine used "almond oil, which is of a family having dangerous relations with prussic acid."[89]

Meanwhile, the State Board of Health was in the midst of preparing the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

twelve food and drug reports for its monumental Second Annual Report, as the basis for enforcing the NBT law. Preliminary indications--had the dairy men known of them--did not bode well for attempts to prohibit oleo. Prof. G.C. Caldwell, to whom butter, cheese, and oils were entrusted, reported to Chandler that several samples of purported "butter" were indeed oleo, but one of the Board inspectors responded that oleo merely had the effect of crowding rancid butters out of the market. And President Edward M. Moore asked Chandler to send him "the best specimens" available of oleo, "to exhibit to some gentlemen."[90] When Caldwell's report was issued it gave the product the Board's approval.

Though noting that oleo, sold as butter, was a fraud, Caldwell disparaged the criticism that "pure" oleo was unwholesome. Indeed, in his description of the manufacturing process he specifically described only the Mège method, and referred a number of times to the Commercial factory. He treated both lard-butter and vegetable-oil mixtures as potentially dangerous adulterations of oleo. This judgment is perhaps not terribly surprising, when it is realized that Caldwell was one of the nine expert scientists brought in by Chandler in 1880, to testify as to the wholesomeness and value of Mège oleomargarine.

Thus, it should also not be surprising that the Board never initiated a single prosecution for selling oleo as butter. Still, when the list of exemptions and exceptions was being drawn up by the Board in 1883, Chandler did not wish to risk a discussion of oleo at the meeting between the Board and the wholesalers and manufacturers of food products. When Roscoe Conkling, representing Commercial Manufacturing, approached Chandler in an attempt to get the Board to rule against "adulterators" of oleo Chandler refused:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

> Mr. Wilson does not desire, as I understand it, to have the Board of Health permit mixtures of cotton seed oil and oleomargarine to be sold, or mixtures of lard and oleomargarine to be sold--on the contrary he wishes to prevent their being sold.
>
> This is a special meeting to hear arguments in favor of exemptions, and I am afraid that arguments in that direction which Mr. Wilson has in mind would be ruled out of order.[91]

At this very time Chandler was still receiving payments from James Wilson. Chandler got a check of $350 to prove--according to his notes of what Wilson required of him--that oleo "Is a wholesome product. Is a legitimate industry. Sufferings of the dairymen...grossly exagerated."[92] In December Chandler met with Deshler, Prof. Morton, and U.S. Dairy's attorneys once again, to "line out the course of testimony" for additional court cases against imitators.[93]

* * * * * * *

Meanwhile, however, all was not clear on the legislative front. In February 1882 the House of Representatives Subcommittee on the Internal Revenue Laws, and in April, the parent Committee on Ways and Means, held hearings on oleo. Congressman Thomas of Illinois once again desired to place a 10¢ per pound tax on oleo, not for the purpose of raising revenue, but "as the best means...of restraining the manufacture of an article which is sold throughout the country under a fraudulent name."[94] Thomas did not feel that Congress could legally prohibit the manufacture of oleo, but that it could discourage and supervise its production through the unquestioned right of taxation.

At the Ways and Means hearings the agriculture expert Prof. Lauren B. Arnold, of Rochester, New York, vice-president of the New York State Dairy Association, testified on behalf of Mège oleo. Arnold claimed that, just because imitations of Mège oleo might be "defective," it was "unfair...to

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

condemn" all oleo on that account, considering that more than half the butter made in the country was defective. This might seem to be a peculiar tack for a dairy man to be taking, but Arnold had been Thurber's colleague in the Dairy Association, and Chandler, Mott, and Wilson had been using his "statistics" since at least 1880 to support the argument that their opponents merely wanted to make the market safe for "rancid butter."[95] Still, when the Committee's report was issued, in June, it recommended passage of the tax bill, "to equalize" competition, and assure that oleo would bear an identifying federal stamp.[96]

Although federal legislation did not pass in 1882, in the state of New York four separate anti-oleo bills were, this time, signed into law by Governor Cornell.[97] These laws overlapped and conflicted, but the total effect was to prohibit the coloring of oleo, require identifying labels, and make it illegal to represent any imitation product--specifically including butterine and suine, as well as oleo--as butter. There is no indication, however, that these laws were any more effective than the laws of 1877 or 1880. In fact, since two of the new laws were carefully worded so as not to violate patent rights, and since U.S. Dairy included coloring within its patent, some critics interpreted the laws as designed to protect the Mège patent, while encouraging the Board of Health to prosecute its imitators.[98]

A total revision of the New York State approach to regulating oleo did not occur until 1884, but before that took place--perhaps before it could take place--Francis Thurber voluntarily discontinued his relationship with U.S. Dairy and Commercial Manufacturing. This was sometime in late 1882, or early 1883, after passage of the four new state laws. Thurber no longer acted as the Mège distributor, and ceased lobbying against oleo regulation.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Shortly thereafter Sanitary Engineer phased out its regular "Food and Drugs" page, and began covering only occasional stories relating to adulteration.

In a July 1885 letter from F.B. Thurber, worth quoting at some length--and written after his brother Horace had retired from their grocery firm--Thurber tried to put his activities into a completely revised perspective:

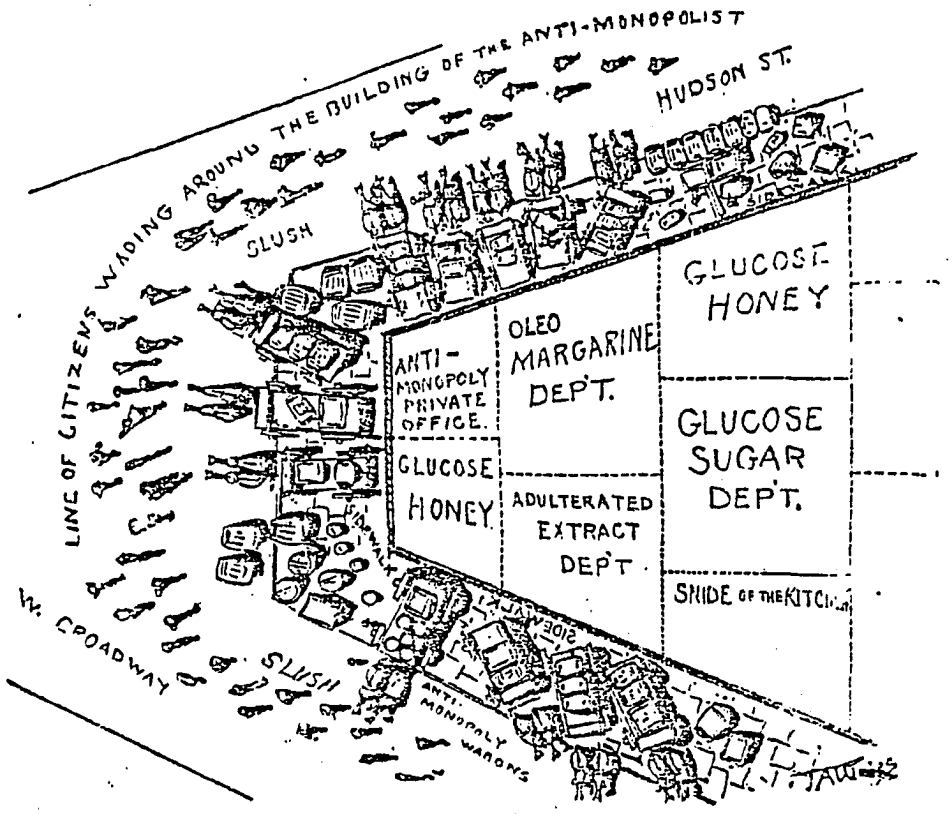
> I would say that I have always been opposed to the fraudulent sale of oleomargarine, and have contributed perhaps as much as any one person to compel its honest sale. There has been a great deal of misrepresentation of my position regarding this subject. It has been represented that I was largely interested in oleomargarine patents, and in the manufacture and fraudulent sale of the article, when the fact is I have never had any interest in either. My brother at one time did have an interest in a small oleomargarine factory, and owing to his influence our firm at one time acted as selling agents for the Commercial Company, which was then the largest factory: but we always sold it as oleomargarine, and never in any case as butter. This agency, however, ceased nearly three years ago, and shortly after my brother's retirement from the head of our firm we stopped selling oleomargarine ....I wish to say that my firm will never sell it again....our other business in magnitude is as a thousand to one to any interest we ever had in oleomargarine, and I do not think it is our duty to combat the public prejudice which has been justly evoked by unscrupulous dealers selling it as butter....[99]

This letter, obviously intended for publication, was addressed to James H. Seymour who, though a leading member of the Butter and Cheese Exchange, had only recently been converted to the anti-oleomargarine compaign. It can best be interpreted as revealing a quid pro quo, for in return for Thurber pleading his previous error Seymour absolved him of guilt, and helped him get back into the good graces of the dairy and produce dealers. Seymour testified that he had no doubt that in 1880, when Chandler and the other chemists published their analyses of oleo:

> as then made by the Commercial Manufacturing Co., when the Thurbers were agents for its sale, the product was a wholesome one, as stated by those chemists; neither have I any doubt that the Thurbers sold the article for what it was, and the position of Mr. F.B. Thurber in connection with oleomargarine has been largely misrepresented....[100]

The renewed attempt to regulate oleo was made despite the fact that virtually no leading sanitarian or chemist had declared the product unwhole-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.



THE HOME OF THE ANTI-MONOPOLIST.

This cartoon, run in Judge, I, no. 23 (April 1, 1882), 11, reflects Thurber's notoriety: nowhere is he identified by name (there was no accompanying story). The Tribune in particular had attacked his "anti-monopoly" activities, citing his own monopoly of oleomargarine, and accusing him of using the farmers and other merchants to achieve railroad regulation for his own benefit.

Surely this type of publicity influenced his decision to withdraw his sponsorship of oleo, and sever his connections with Commercial Manufacturing, not long after this cartoon appeared.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

some, all agreeing with Stephen Sharples' assessment that oleo was, at worst, a harmless fraud.[101] Chandler's New Jersey counterpart, William K. Newton, even insisted that no unwholesome oleo was saleable, since "any taint or any trace of putridity or bad odor will stop the sale. Thus a possible evil has its own remedy." Newton recommended merely proper labeling, but urged action to stop the "adulteration" of oleo with vegetable oils.[102] In Newton's generally pessimistic 1883 speech on the inadequacy of the food laws he insisted that enforcement of oleo laws did "not belong to health boards" because oleo was no danger to health.[103] The Massachusetts Board of Health--still under Sharples' guidance--lauded Mège oleo, agreed that fat "in the least tainted" could not be used for making oleo, and argued that "low-grade butters...are far more injurious to health than a good sweet article of oleomargarine."[104]

These sentiments notwithstanding, in January 1884 the New York Senate authorized an investigation of oleo by its three-man Committee on Public Health. The hearings were conducted from early February through mid-March, both in Albany and New York City. It is clear that the Committee intended to rule against oleo: the man appointed as counsel for the hearings, and therefore permitted to conduct the questioning, was Amasa P. Thornton, counsel for the State Dairymen's Association, who had represented that organization in inducing the Senate to initiate the investigation in the first place.[105]

Thornton's argument was that the existing oleo laws were totally ineffective, that retailers continued to sell the product as butter, that increasing amounts of "butterine" and other lard products were entering the market, and that production of oleo in general was growing at a vast pace. Thornton claimed that Commercial Manufacturing, at the time of the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

previous legislative investigation, had been producing 60,000 pounds a day, but was now making 250,000 pounds daily.[106] What Thornton did not know, when the hearings started, was that Commercial had just followed F.B. Thurber's lead, and had gone out of business.[107]

Thus the hearings concentrated on attacking the Chicago lard-butter manufacturers, rather than the Mège companies. In an interesting turn-about, however, T. Mortimer Seaver, who had been the counsel for the Association for the Prevention of the Adulteration of Butter, and who had been allowed to conduct much of Assemblyman Fenner's hearings in 1881, now appeared as "the counsel for the butterine manufacturers."[108] Seaver cross-examined Edward W. Martin and Edward G. Love, of the State Board of Health, and attempted to have them testify that supervision of oleo and butterine was best left in the Board's hands. But it was surely clear to the Senators that even the small amount of oleo-testing that the Board had recently engaged in had been inspired only by the initiation of the hearings.[109]

Seaver also called up Walter Carr, who in 1881 had been vice-president of the Association. Carr testified that he now dealt in butterine (but not oleomargarine) in his produce business. Having become frustrated by the lack of support from the dairy farmers, the Association's leaders decided "that we would drop it and take to the butterine." Carr testified that "when I was opposing oleomargarine I used every argument which I could bring to bear against it; now, I am apathetic; I have been obliged to fall in and sell it."[110]

The committee's central complaint was that most of the "oleo" now entering New York was lard-butter from Chicago. They regarded this product as being not only dangerous, but as a sort of foreign competition that threatened the state's dairymen. The "remedy" the committee recommended was

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

"total prohibition." This was legally permissible, despite earlier arguments that federal patent grants prevented state regulation. They cited a Missouri case of the previous year, in which "Roscoe Conkling was employed as counsel by the /Mège/ oleomargarine manufacturers and his great talents were vainly exerted to save them." In that case the federal circuit court ruled that the states have the right to prohibit the sale of any product within their borders; patent-rights only guarantee "a monopoly to the patentee...but gives no right to manufacture or sell at all, when the same is in conflict with the laws of the State."[111]

The Committee's bill--soon signed into law[112]--made it illegal to sell or manufacture butter substitutes in the state of New York. The law established a separate enforcment agency, since "the selfish interests of powerful combinations of manufacturers and middlemen" had nullified the six existing anti-oleo laws (which were within the jurisdiction of the Board of Health). To rub salt in the butterine-makers' wounds, the committee also argued that the new officials "should be chosen from and represent the dairy interests of the State."[113]

The Tribune interpreted this recommendation as giving the "State Dairymen's Association" the power to enforce the act,[114] and the newspaper did not exaggerate by much, for the men ultimately selected--Josiah K. Brown as Dairy Commissioner, and Benjamin F. Van Valkenburgh as Assistant Commissioner--were prominent New York dairymen. Van Valkenburgh, who would in practice be the more active member of the new State Dairy Commission, was a produce dealer, and statistician for the National Butter, Cheese and Egg Association, though he admitted to having sold both oleomargarine and butterine in his business.[115]

The law creating the Dairy Commission gave it jurisdiction over all

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

milk and dairy products, thereby greatly reducing the powers of the State Board of Health. In addition, $30,000 was appropriated for the Commission's use, while Governor Grover Cleveland vetoed the annual appropriation for the Board of Health. On June 28, 1884, the Board "discharged...the corps of experts" it had employed to enforce the adulteration laws; in this area the Board was now essentially defunct.[116]

The butterine makers, however, simply awaited the opportunity to test the new law in the courts. In this battle they would fight without the aid of U.S. Dairy. James Wilson swore "I would rather keep the factory closed five years than that the makers of cottonseed oil and peanut oil butter should be permitted to go on and sell their products under the guise of pure oleomargarine."[117] The Produce Exchange Bulletin even speculated that Commercial Manufacturing had "secretly favored the anti-oleomargarine bill" as part of "an internecine war" against their butterine competitors.[118]

The test case was that of Morris Marx, accused of selling a non-dairy imitation "butter," in violation of the law. Though the State Supreme Court affirmed Marx's conviction, it did so simply to speed the case through to the Court of Appeals, for the judges clearly felt that the law was unconstitutional.[119] The defense attorneys, however, based their argument not only on freedom of trade, but also on the supposition that butterine was a wholesome product, essentially identical to butter. The chief expert defense witnesses were Profs. Chandler and Morton. But it should not really be surprising that these men, who had consistently argued that Mège oleo was the only wholesome butter substitute, and had been eager witnesses against butterine and vegetable-butter, should now completely reverse their former stand.

Chandler (and presumably Morton as well) had been well-paid for his

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

earlier testimony on behalf of U.S. Dairy, and Chandler was being paid well in the present case: as soon as Commercial Manufacturing closed its doors Chandler accepted employment from its lard-butter competitors. He had written Governor Cleveland in opposition to the new bill, since "most of the persons called were entirely incompetent to throw any real light upon the subject."[120] Chandler had also complained, to Theodore Roosevelt, that the law would simply have the effect of ensuring that poor people would be able to buy only "rancid & disagreeable" butter,[121] and told State Senator James Otis that the current laws were not enforced simply "because the Legislature did not give the State Board of Health the necessary appropriation to execute it."[122]

During the Marx trial F.R. Coudert, principal attorney for the butterine manufacturers, wrote Chandler that "I have your favor of yesterday and entirely agree with you as to the propriety of compensation for services rendered in the Oleomargarine matters. The sum named by you as necessary 'to heal your wounds and make you feel that you have not lived in vain,' seems to me very moderate."[123] A few days later Coudert sent Chandler a check for $100 for his legal services as "expert," which was the additional fee for which Chandler had negotiated.[124] Over the next years Chandler received thousands of dollars from an assortment of lard-butter producers, both in New York and Chicago.[125]

As expected, on June 16, 1885, the State Court of Appeals ruled the oleomargarine law unconstitutional. The court ruled that the law "prevents competition....The sale of a substitute for any article of manufacture is a legitimate business, and if effected without deception cannot be arbitrarily suppressed."[126] But, even while the Marx case was working its way through the courts, the state legislature passed another law, very similar

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

to the law of 1884. The new law made it a misdemeanor to manufacture or sell any non-dairy product "in imitation or semblance of natural butter."[127] Though there was no substantive difference in the wording of the two laws, the Journal of Commerce was confident that "The law nullified by the /Marx/ decision was far less stringent than that which is left in force."[128] As interpreted by Van Valkenburgh, any dealer selling oleomargarine-type products, under whatever name, was guilty of violating the law if the product looked like butter. Thus, through indirection, the dairymen had resurrected the "coloring" argument of 1880-1881; oleo had to be either white, or a distinctive "non-butter" color, to be legally sold.[129]

At this point the Retail Grocers' Union took a firm stand against butterine, conferring with Van Valkenburgh, and signing a pledge not to deal in "oleomargarine" unless it was colored "so that it would not look like butter."[130] James H. Seymour, now one of the movement's leaders, read the Union a list, obtained from Van Valkenburgh, of sixty different articles named in the various butterine patents, to point out the unwholesomeness of these products (and to demonstrate the superiority of the now-defunct Mège product). When accused of being formerly "one of the principal dealers in oleomargarine," Seymour "smiled but said nothing."[131] American Grocer made Seymour's point more explicitly, stating that Mège oleo had been "as wholesome and palatable as the bulk of the butter sold," and contrasting it with the products using the items on the notorious "list." Thurber's paper concluded that there was "no excuse for the use of poisonous or harmful articles in food preparation, or for the sale of an article for anything else than what it is."[132]

* * * * * * *

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

In 1886 the dairy interests focused their efforts on prohibiting oleo through confiscatory federal legislation. Because the opinion had previously been expressed that such legislation was beyond the powers of Congress, the House of Representatives, where such a bill had to originate, referred the question of constitutionality to its Committee on the Judiciary.[133] The results of that inquiry were not encouraging. The Judiciary Committee ruled that it was unquestionably unconstitutional for the federal government to simply prevent the production of any article of commerce.

This left only two alternatives: the regulation of the interstate transportation of goods; and the taxing power. But the Committee argued that Congress could not tax, "forbid or restrain the free transportation of any article from one State into another": regulation of commerce did not include the power to interfere with the right of commerce. This left only the fundamental taxing authority of Congress. But even here, the Committee argued that this power should, ethically, only be used to raise a revenue: "merely to strike down a product or an industry, is to abuse a constitutional trust."[134] But the pressure against oleo was now too strong to resist; both Houses of Congress ignored the Judiciary Committee Report.

The bill approved by the House Committee on Agriculture had been presented to Congress by the National Agricultural and Dairy Association, representing twenty-six states,[135] and was conceived by none other than Francis B. Thurber. At the Association's 1886 convention Thurber outlined the position that the bill's advocates would continue to press throughout the legislative debates. Firstly, Thurber argued that Mège oleo had been a wholesome product, but that more recent "processes and products...in which lard and vegetable oils take the place of margarine oil...are unwholesome if not dangerous." Secondly, these products are sold by the retailers

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

as butter: "It was this which made my present firm, some two years ago, decide not to sell any substitute for butter." Thirdly, the states cannot control this "fraud"; federal legislation was necessary. Lastly, a federal tax of ten cents a pound "would advance the price /of oleo/ to a point where the retailer would have no temptation to sell it as butter."[136]

Even before the Association's bill had passed the House, Senator Warner Miller of New York, a farmer and a friend of Thurber,[137] initiated Senate hearings on behalf of "the representatives of the dairy interests of the country."[138] The tone of the hearings was immediately set by the first speaker, Joseph H. Reall, president of the Association, who attacked the lard-butter makers who had brought the dairy industry "to the verge of destruction," and who could not bring "back to life the innocent people they have killed with the poisonous drugs they have used, nor /restore/ to health the thousands who now suffer from the diseases they have entailed."[139]

One of the principal anti-oleo speakers was Thurber's associate and defender, James H. Seymour, who argued that the New York law had been obeyed by Commercial Manufacturing, but that the law was now "a dead letter" because of "the butterine interest...in Chicago." Seymour spoke for the "commercial" interests, and represented "the Retail Grocers' Association of New York."[140] He refuted the testimony of "expert" defense witnesses Chandler and Morton because their documentation was based on evaluation of Mège oleo, not the lard-butter counterfeits: "I know of no other test by those parties from that day to the present time." Seymour testified that he, like Thurber, had "never yet stooped so low" as to deal in lard-butter; when the "Chicago butterine" had taken over the New York market he ceased dealing in oleomargarine.[141]

At the hearings Henry Morton made the old argument that oleo--no matter

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

what its ingredients--"cannot possibly be unwholesome" because rancid ingredients would be "offensive both to the smell and taste." Morton also opposed distinctive coloration for oleo, because "it would affect it greatly as an article of food in the manufacture and sale of it."[142] (Though coloring was not in the House bill, it was discussed extensively in the hearings as a possible alternative.) Chandler, who was of course being paid by the New York lard-butter makers to testify,[143] completely supported Morton. He submitted the documentation prepared for the New York State Senate in 1878, his report to the House of Representatives of 1880, the 1880 certificates of the nine visiting chemists, and his own 1881 report to the New York City aldermen--ignoring the fact that all these reports were based on an examination of Mège oleo.[144]

Chandler now thoroughly defended the use of lard or vegetable oils in oleo. He claimed that the New York law of 1880, forbidding oleo's fraudulent sale, was sufficient protection, explaining that "There is no one in the United States who has done more to prevent the sale of fraudulent and adulterated food than I have." The only reason, he intimated, that he had not eradicated all fraudulent food sales in New York was because of inadequate funding. Like Morton, Chandler felt "it would be very wrong to compel the manufacturer to color his product red" because consumers "want it yellow." Chandler also had the effrontery to disparage the attacks on lard-butter by Commissioners Brown and Van Valkenburgh because they were being paid to do so. When challenged if he and the other defenders of oleo were not also being paid, rather than testifying "as a labor of love," he argued that his "compensation" was different because he had "made investigations in the public interest" and was simply "asked to come before the committee," with expenses paid.[145]

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

The spokesman for the Chicago lard-butter manufacturers was George H. Webster, a member of the firm of Armour & Co., but who also represented, at the hearings, Swift & Co., George H. Hammond & Co., N.K. Fairbank & Co., and Samuel W. Allerton, between them the slaughterers of most of the hogs and cattle in the nation, and the manufacturers of about two-thirds of the lard-butter.[146] Webster presented virtually identical sworn statements from Philip Armour and Gustavus Swift, describing their methods of manufacture. Both men swore that they did not follow the patents granted to them, thus vitiating the effect of the now-infamous "list" Van Valkenburgh had prepared, and which had been presented at the hearings. The patents, Webster explained, had included virtually every conceivable ingredient for the manufacture of oleo, and had been acquired "simply as a matter of protection against the prosecution of the Commercial Manufacturing Company who held the Mége /sic/ patent in this country....It was a mere pro-forma matter, and was never put into practical effect."[147]

Webster also presented new "expert" certificates, signed by Cyrus Edson, Dr. Oscar C. De Wolf, New York City health commissioner, and Dr. John H. Rauch, secretary of the Illinois State Board of Health, though he neglected to state how much these men had been paid for their "visits" to the Armour factory. One piece of testimony Webster later had cause to regret was his admission, upon cross-examination, that Armour branded their tubs "without using the words 'butterine' or 'oleomargarine,'" upon the request of their customers. Thus Armour lard-butter might be shipped to the wholesaler labeled merely "Oakfield Creamery" or "Oakfield Dairy."[148] In his later speech to the Senate, Miller quoted this testimony at length to demonstrate the company's participation in wide-spread fraud, and explained further that the Chicago companies were also now packaging oleo

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in one-pound unmarked "rolls" and "prints," to simplify deception on the part of the retailer.[149]

Most of the Senate witnesses were, predictably, anti-oleo men: dairy farmers, produce dealers, representatives of the Grange, and farm association leaders. One point these witnesses tried repeatedly to establish--although it was not germane to the bill--was the unwholesomeness of lard-butter. But even Van Valkenburgh admitted that "By chemistry you cannot prove it to be unhealthful."[150] In 1886 no physiological tests on the effects of oleo had yet been conducted, and there still was no universal agreement as to its healthfulness; even a supportive study of the scientific evaluation of oleo, published at this time, concluded that consumers had only the word of the manufacturers "that diseased fat is not or can not be used."[151] At the hearings, it was asserted fairly convincingly that various parasites, trichinae, tapeworms, and disease germs may exist in the unsupervised manufacture of lard-butter.[152]

By the time the oleo bill came to debate in Congress there seemed little doubt of its passage. In addition to the expected agrarian support--over 100,000 private petitions, and many from Granges and similar organizations, had been received by Congress[153]--many commercial associations, both retail and wholesale, aligned themselves against the "fraud." But many "boards of trade and boards of produce exchange in different large cities" were petitioning against the bill.[154] On June 3 the House voted, by a healthy majority of 177 to 101, to place a reduced 5¢ tax on oleo. But the vote in the Senate to refer the bill to the Committee on Agriculture succeeded by only a twenty-two to twenty-one vote.[155] At this point Thurber persuaded the New York Board of Trade and Transportation to throw its support behind the bill.[156]

Now that Thurber and the American Grocer were actively supporting the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

fight against oleo, the Grocer employed its influence to fight the Thurber bill. Oleo, the Grocer insisted, "has come to stay." "It is incontestable that the oleo made to-day is much finer than any ever sold by the Thurbers at the time they controlled the Mège patent." The Grocer also accused Thurber of using the Board of Trade as "a tool"--that he and Seymour had called the meeting which endorsed the bill for an unusual time: "We know that there were not more than twelve or thirteen members present" out of a membership of 800.[157]

On June 9 the House passed the final version of the oleo bill, by a vote of 177-99; the Senate voted for passage on July 28, by a vote of 37-24. The bill was signed by President Cleveland on August 2, 1886, and though his message to the House admitted the possibly unjust use of taxation, he insisted that he did "not feel called upon to interpret the motives of Congress....if this occupation and its methods are forced into the light and all these manufactures must either stand upon their merits or fall, the good and bad must soon part company, and the fittest only will survive."[158]

The new law called for a tax of $600 on all oleo manufacturers, $480 for wholesalers, and $48 for retailers. The penalties for non-compliance were heavy: a fine of $5,000 for manufacturers, and $500 even for retailers. Improper labeling called for a fine of $1,000 and two years imprisonment. But the final tax agreed upon for the sale of oleo had been reduced to only 2¢ a pound, virtually guaranteeing that the law would not--as the dairymen wished--eliminate the business entirely.[159]

* * * * * * *

The oleomargarine law of 1886 was the first federal law regulating a

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

domestic food product. It also signaled the shift in the fight against adulteration from the state to the federal level. State laws--including the National Board of Trade law in New Jersey, New York, and Massachusetts--had proven ineffective against adulteration. Certainly one of the chief deficiencies of these state laws, as practiced, was their emphasis on prosecuting and harassing the small retailer; even after Chandler's departure, the New York Board had continued in a similar vein, Thurber's American Grocer congratulating it on its efforts and urging the retailers to reform, while Sanitary Engineer continued to explain that "as regards adulterations it is generally a necessity to deal with them through the retailers."[160]

The retailers were, of course, cognizant of the one-sidedness of enforcement; this had been the inspiration for the formation of the New York Retail Grocers' Union in 1882. On April 5, 1886, the Union formally incorporated, in the hope of presenting "a solidly aggressive front."[161] In cooperation with the new American Society for the Prevention of Adulteration of Food, Drugs, Medicine, Liquors, &c.--a Philadelphia-based organization[162]--the retailers called for a national food convention. American Grocer took this opportunity to urge all retail grocers' unions to appoint delegates, but also congratulated Thurber's New York Board of Trade and Transportation on appointing its own delegates, and prophetically re-endorsed the federal version of the NBT bill as "the wisest policy" for the convention.[163]

The call sent out for the January 1887 meeting had intended that the convention represent retail grocer organizations and health boards. But when the session began it was dominated by wholesalers and the editors of grocery-trade publications, most of which, like American Grocer, really represented the interests of wholesalers and manufacturers. Almost immediately Elisha Winter, an associate of Thurber, and Thurber's editor, Frank

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

N. Barrett, succeeded in taking charge of the session, and turned it over to Thurber.

Thurber announced that he had persuaded the National Board of Trade to appoint a special committee to "confer and co-operate" with the convention, to "endeavor to secure well considered legislation" on adulteration. The convention's conference committee consisted of five men: Winter and Barrett, Dr. E.H. Bartley of the Brooklyn Board of Health (a Thurber supporter), H.B. Amerling, one of the founders of the Society, and one retail representative, George H. Bond, president of the Boston Retail Grocers' Association.[164]

Thus, with Thurber himself chairing the NBT committee, his forces dominated the convention. Virtually the entire session was spent discussing the proposed bill of the "conference committee," a bill that was simply the NBT bill of 1880, modified in recognition that the National Board of Health, which was originally intended to execute the law, was no longer viable. Thurber donated $100 toward the renewed legislative effort. By the time the convention adjourned it had been converted into an organization dedicated to lobbying for Thurber's NBT bill.

When the convention reassembled the following year, representatives of food manufacturers were present, in addition to the retailers and wholesalers. The "great differences of opinion" expressed at this second convention made it the last meeting of the Society. Barrett now argued that "more could be done in the future by quiet, persistent work than by noisy 'brass band' conventions."[165] The last effort of the retailers to draft anti-adulteration legislation in this period had been neutralized.

With the final collapse of the retailers' efforts leadership of the anti-adulteration movement passed firmly into the hands of Dr. Harvey W. Wiley. Wiley had become Chief of the Chemical Division of the Department of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Agriculture in 1883, and set his staff to work in 1885, preparing a massive study of adulteration. In 1887 the first part of Bulletin 13 of the Division of Chemistry, Foods and Food Adulterants, was published, and eventually grew to eight separate parts. Bulletin 13 was the most complete and responsible of all the treatises on adulteration in the period before 1906.[166]

In the years between 1848, when the federal government had passed the drug import law, and 1886 the legislators in Washington had shown little initiative in the adulteration wars, rejecting even Thurber's modest proposal of 1881.[167] But the failure of the state efforts, and the growing complexity --the national scope--of the food and drug markets, showed that only the federal government could begin to cope with the problem. After 1886 Wiley dedicated his energies, his life, and the resources of the Chemical Division, to persuading the government to create effective legislation for this struggle. The eventual result would be the Pure Food and Drug Act of 1906.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR CHAPTER XI

[1]"Oleomargarine" was originally intended to mean "beef-fat oil" by its inventor. Though vegetable oils were sometimes added to oleo in this era, purely vegetable margarine is a twentieth-century product. Legally, until the Margarine Act of 1950 took effect, all butter substitutes were mandated as "oleomargarine." See Johannes H. van Stuyvenberg, ed., Margarine. An Economic, Social and Scientific History, 1869-1969 (Liverpool: Liverpool University Press, 1969); Sjert F. Riepina, The Story of Margarine (Washington: Public Affairs Press, 1970).

[2]Testimony Taken Before the Assembly Committee on Public Health in the Matter of the Investigation into the Subject of the Manufacture and Sale of Oleomargarine and Lard-Cheese, New York State Assembly Document No. 000 /?/ (1881), pp. 153 ff.

This report was obviously intended to become part of the regular Assembly records, but was never included as part of the State documents for 1881; it seems to have been given the number "000" unofficially. The only copy extant seems to be in the Chandler papers at Columbia University Manuscript Collection.

This report will be referred to as "the Fenner report."

[3]New York Journal of Commerce, 4/21/74.

[4]Lee Benson, Merchants, Farmers, and Railroads (New York, 1955), pp. 171-172.

[5]New York Times, 11/27/78. Thurber and Co. traditionally had the largest and most spectacular display of butter and cheese at the annual fairs. See Times, 12/2/78.

[6]Fenner report, p. 163.

[7]Otto Hehner and Arthur Angell, Butter, Its Analysis and Adulterations (2nd ed., London, 1877), p. 50, discusses using the microscope to detect gross adulteration, and a chemical examination to expose butter substitutes. But even Hehner and Angell admitted that some fats were so similar to butter-fat as to be indistinguishable. Thomas Taylor, "Oleomargarine Under the Microscope," Scientific American, XXXVIII (June 15, 1878), 374, claimed that oleo adulterations were detectable under the microscope. His claims were widely disputed. See Thomas Taylor, "Oleomargarine and Butter," American Quarterly Microscopical Journal, I, no. 4 (July, 1879), 294; Peter Collier, "Report of the Chemist," Report of the Commissioner of Agriculture for the Year 1879 (Washington, 1880), p. 77, where Collier implicitly refutes Taylor's claims, though Taylor was the microscopist for the Department of Agriculture. The prior year, before Taylor's claims were publicized, Collier had praised the use of the microscope; see Report of the Commissioner of Agriculture for the Year 1878 (Washington, 1879), pp. 135-136.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[8]U.S. Dairy to Chandler, 3/22/76; Dickerson & Beaman to Chandler, 7/28/76, 10/18/76; U.S. Dairy to Chandler, 11/11/76, 5/29/77; Commercial Manufacturing to Chandler, 1/24/78, Chandler papers. Robert L. Larson, Charles Frederick Chandler, His Life and Work (unpublished doctoral dissertation, Columbia University, 1950), pp. 218-219.

[9]Scientific American Supplement, Numbers 48 and 49 (1876); Henry A. Mott, Complete History and Process of Manufacture of Artificial Butter (New York, 1876), pp. 3, 27.

[10]Henry A. Mott, "Manufacture of Artificial Butter," Proceedings of the American Chemical Society, I, no. 3 (November 2, 1876), 154-159.

[11]"Artificial Butter," Scientific American, XXXV, no. 22 (November 25, 1876), 337. Another treatment of the same material appeared in Scientific American, XXXVI, no. 11 (March 17, 1877), 168, which cited Chandler's "experiments" to show that the Mege process, followed with precision, was the only successful method of manufacturing oleo: "it is chemically butter."

[12]American Dairyman, II, no. 17 (January 17, 1878).

[13]Laws of 1877, ch. 415.

[14]Times, 1/9/78.

[15]Letter from Board of Health, 2/8/78, Chandler papers.

[16]Sanitarian, VII (1879), 510.

[17]Stephen P. Sharples, "Adulteration of Food," in Albert H. Buck, ed., A Treatise on Hygiene and Public Health (New York, 1879), II, p. 356.

[18]George T. Angell, "Public Health Associations," Sanitarian, VII (1879), 128.

[19]Grocer, 2/15/79, 222-223. Reall was the secretary of the American Agricultural Society, editor and publisher of The Agricultural Review, and in 1882 authored Dairying and Dairy Improvements (New York, 1882).

[20]Times, 12/6/79.

[21]Times, 1/10/80.

[22]Fenner report, p. 211.

[23]Times, 1/14/80.

[24]Ibid.

[25]American Grocer, 2/5/80, 334-335.

[26]Grocer, 2/7/80, 187; 2/14/80, 221. Folsom had been present at the meeting of the National Association for the Prevention of the Adulteration

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of Butter on January 13, and had supported Horace Thurber by trying to change the resolution to one requesting merely the appointment of a state inspector. Folsom, however, soon turned against oleomargarine.

[27]The Manufacture of Articles of Human Food and Drink, 46th Cong. 2nd Sess. H. Rept. 346 (Washington, February 25, 1880), p. 3.

Though Beale and Wise were both Democrats, party affiliation appears to have been irrelevant to the adulteration issue.

[28]Mott to Chandler, 2/27/80; Charles D. Deshler, attorney for U.S. Dairy, to Chandler, 2/27/80, Chandler papers. The scientific experts began inspecting the Commercial factory in mid-March.

[29]Mott to Chandler, 3/14/80, Chandler papers.

[30]Mott to Chandler, 3/15/80, Chandler papers.

[31]Wilson to Chandler, 3/16/80, Chandler papers.

[32]Wilson to Chandler, ?/27/80, Chandler papers.

[33]The ten scientists were a distinguished group, with a heavy emphasis on chemists well-known to informed agriculturalists. They were, in addition to Mott and Chandler:

George F. Barker of the University of Pennsylvania, who was on the National Academy of Sciences' glucose committee, a well-known consultant and editor of scientific periodicals.

Henry Morton, who has been seen as one of the chief opponents of G.T. Angell, was the first president of the Stevens Institute of Technology, serving from 1870 until his death in 1902. Morton is best known for his work in mechanical engineering, but was also a research chemist.

Samuel W. Johnson will be remembered as the chief speaker at the ASSA meeting of 1880, where he attempted to refute Angell's contentions. In 1880 he was at the Sheffield Scientific School of Yale College, serving as professor of theoretical and agricultural chemistry, and as director of the Connecticut Agricultural Experiment Station. He had already authored his two classic volumes on agriculture, How Crops Grow (1868), and How Crops Feed (1870).

G.C. Caldwell was, in 1880, a member of the Chemical Laboratory at Cornell; he soon became one of the chemists working for the new New York State Board of Health.

Charles A. Goessman was professor of chemistry at the Massachusetts Agricultural College from 1868 until his death in 1907. In 1883 he was appointed one of the two milk analysts for the Massachusetts State Board of Health.

J.W.S. Arnold, professor of physiology and histology for the Medical Department of New York University, was considered to be one of the nation's foremost microscopists.

Wilbur O. Atwater, perhaps the most famous agricultural chemist in American history, set up the first state agricultural station, and made a number of important discoveries. He later designed the calorimeter, and discovered the caloric value of foods.

Charles P. Williams was a chemist, formerly director of the School of Mines, State University of Missouri.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[34]During the State Assembly hearings on oleo in 1881, several of the signatories testified that they had been persuaded against their will, or were revealed as not being members of the Produce Exchange.

[35]Commercial Manufacturing Company (New York, 1880).

[36]Henry A. Mott, The Production of Oleomargarine and Oleomargarine Butter: As Manufactured By the Commercial Manufacturing Co., Consolidated (New York, 1880), p. 16.

[37]Times, 4/10/80.

[38]American Grocer, 4/15/80, 985.

[39]Grocer, 4/16/80, 546.

[40]Times, 4/27/80; Grocer, 4/30/80, 618.

[41]Thurber to Winsor, 4/27/80, reprinted in Puck, 5/5/80, 153.

[42]Fenner report, p. 261.

[43]Puck, 5/5/80, 153.

[44]Times, 5/5/80.

[45]Times, 5/15/80, 5/19/80.

[46]Times, 5/20/80.

[47]Laws of 1880, ch. 439, signed into law 5/27/80.
The estimates of oleo exports reported by Joseph Nimmo, Chief of the Bureau of Statistics of the Treasury Department (Times, 10/1/80), were that between July 1, 1879, and June 30, 1880, thirty-one million pounds of butter, and twenty million pounds of oleo, were exported from New York City, with market values, respectively, of $5 million and $2.5 million.

[48]Grocer, 7/16/80, 70. See also Grocer, 7/2/80, 4; 9/24/80, 389-390.

[49]Grocer, 12/9/80, 741-742; 12/16/80, 774-775.

[50]Wilson to Chandler, 11/16/80, Chandler papers.

[51]Adulteration of Food, 46th Cong. 3rd Sess. H. Rept. 199 (Washington, February 4, 1881), p. 15.

[52]Fenner report, p. 1.

[53]Minority Report of the Committee on Public Health Investigating Oleomargarine Butter and Lard Cheese, New York State Assembly Document No. 128 (June 9, 1881), p. 3.

[54]It was at this time that the Grocer, while still carrying Leggett's Price List, dropped it from its "official" status, claiming that this made

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the paper more "independent" than its competitors.

[55]Times, 3/9/81. Although the Times would later insist that this three-column letter was placed as an advertisement, at the time it was simply printed as a letter to the editor.

[56]Times, 3/22/81.

[57]Fenner report, p. 59.

[58]Times, 3/26/81.

[59]Fenner report, pp. 157, 164.

[60]Fenner report, p. 167. Although both Thurber brothers were subpoenaed, and testified, the questions asked of them were almost perfunctory, mostly related to the size of the business, and whether they had ever heard that retailers sometimes removed the "oleomargarine" branding from the packages.

[61]Fenner report, pp. 241-242. The six stock-holders named by Wilson were William Remsen, D.J. Steward, D.S. Appleton, C.M. Field, James D. Smith, and a Mr. Stead.

[62]Times, 3/29/81. Fenner added additional sworn testimony (Fenner report, p. 272) in an attempt to imply that Commercial Manufacturing had been prepared for the visit, and normally would not be so circumspect.

[63]Weekly Journal of Commerce, 3/25/81.

[64]Journal of Commerce, 4/5/81.

[65]New York Evening Post, 4/15/81, letter to the editor.

[66]Journal of the Assembly of the State of New York, 104th Session (Albany, 1881), p. 800; April 19, 1881. There does not appear to be a pattern to the committee votes, either geographically, or by party. Although Fenner and the other three members supporting the bill (the minority) were all Republican, the seven-member majority consisted of three Democrats and four Republicans.

[67]C.F. Chandler, "Report to the honorable the board of aldermen," letter dated May 3, 1881. The aldermanic resolution "directing the inquiry" is reprinted in Chandler's "Report," and was dated April 28, 1881. The resolution does not record the vote of the aldermen, but the Board consisted of twelve Democrats and eight Republicans at this time.

[68]Ibid.

[69]Majority Report of the Committee on Oleomargarine and Lard Cheese, New York State Assembly Document No. 105 (May 5, 1881), p. 3.

[70]Times, 5/20/81.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[71]Grocer, 5/28/81, 555. The Fenner bill passed the Assembly by a vote of 82-23 on May 19, and the Senate by a vote of 17-3 on May 27, 1881. The Journal of the Senate of the State of New York, 104th Session (Albany, 1881), p. 648, which records the final vote on the measure, shows that Sen. Astor, who had sponsored the National Board of Trade adulteration bill, which the Senate had just passed on May 10, was one of the three negative votes.

[72]Assembly Journal (1881), p. 1561.

[73]Minority Report, p. 4.

[74]Assembly Journal (1881), pp. 1679-1680 (June 8, 1881).

[75]Times, 6/9/81.

[76]David M. Jordan, Roscoe Conkling of New York (Ithaca, New York: Cornell University Press, 1971), pp. 148, 315-320, 386.

[77]There is no documentation for this speculation. Jordan, p. 365, notes that Cornell "was liberal with the use of his veto power....few were prepared for his square, stubborn resistance to measures he thought wrong." It must also be considered that by the end of July 1881 Conkling and Cornell were enemies.

[78]Two of Conkling's efforts on behalf of U.S. Dairy are discussed below, but the full range of his activities remains a mystery. On March 2, 1885, Chandler was served a subpoena to testify on behalf of the Company in a suit brought against it by Conkling (Chandler papers). The Times (3/21/84) reported the initiation of the suit, wherein Conkling was suing Commercial Manufacturing for $10,000 "as the value of legal services rendered by him in 1882 and 1883." The judge in the preliminary hearings ruled that Conkling would have to furnish "a bill of particulars," and describe what "services" he had performed. Conkling's attorney responded that "Mr. Conkling has never kept a detailed and itemized account of services rendered by him to a client."

Neither Jordan, nor Donald B. Chidsey, The Gentleman from New York: A Life of Roscoe Conkling (New Haven, 1935), discuss his work for the Company.

[79]Grocer, 4/9/81, 406.

[80]Sanitary Engineer, 7/1/81, 355.

[81]Louis Unfer, Swift and Company: The Development of the Packing Industry, 1875 to 1912 (unpublished doctoral dissertation, University of Illinois, 1951), pp. 30-31, 33-36.

[82]Mary Yeager Kujovich, The Dynamics of Oligopoly in the Meat Packing Industry: An Historical Analysis, 1875-1912 (unpublished doctoral dissertation, The Johns Hopkins University, 1973), p. 158.

[83]This approach was not new for the Company; shortly after Commercial Manufacturing began operations it brought suit against Alfred Paraf, the man who, in 1873, had opened the first oleo plant in the city.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[84]Deshler to Chandler, 4/23/81; letters from B.F. Thurston to Chandler, October, 1881, Chandler papers. See New York Tribune, 10/6/81.

[85]Transcript, Chandler papers.

[86]Mott to Chandler, Chandler papers.

[87]Patent #173,591, granted to Garret Cosine of New York City, 2/15/76, for "improvement in processes for making artificial butter."

[88]Mott to Chandler, 8/1/82, Chandler papers.

[89]New York Herald, 8/9/82.

[90]Caldwell to Chandler, 9/9/81; T. Delap Smith to Chandler, 1/10/82; Moore to Chandler, 4/10/82, Chandler papers.

[91]Chandler to Conkling, 2/23/83, Chandler papers. Chandler had apparently met with Conkling only once earlier in regard to oleo. Conkling responded (2/23/83, Chandler papers) that he would not be coming "before the Board," but hoped to see Chandler about oleo adulterations some other time.

[92]Chandler's notes, 1883, Chandler papers.

[93]Deshler to Chandler, 12/3/83, Chandler papers.

[94]Oleomargarine. Hearings before the Subcommittee on Changes in the Internal Revenue Laws, 47th Cong. 1st Sess. /no doc. no./ (February 10, 1882), p. 2.

[95]Ibid. See Mott, The Production of Oleomargarine, p. 13, where Mott cites Prof. Arnold as his principal "dairy" authority, claiming that only 5% of American butter is "a perfect article."

[96]Manufacture and Sale of Oleomargarine, 47th Cong. 1st Sess. H. Rept. 1529 (June 29, 1882), p. 3.

[97]Laws of 1882, chs. 214, 215, 238, 246. Cornell may have simply decided that there was enough support in the legislature to override his veto, though it is possible he may have been acting out of anger at Conkling, U.S. Dairy's special attorney, since Conkling had deprived Cornell of the senatorial seat he desired. See Jordan, Roscoe Conkling, p. 408.

[98]Tribune, 5/29/82; Herald, 5/31/82, 8/9/82. For the text of the two pertinent laws, see Sanitary Engineer, 6/22/82, 68-69.

[99]American Grocer, 7/2/85, 8.

[100]Ibid. Seymour was the ex-president of the N.Y. Mercantile Exchange.

[101]The only exception, among recognized national experts, was Thomas Taylor. See note 7, above.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[102]Fifth Annual Report of the Board of Health of the State of New Jersey (Mount Holly, New Jersey, 1881), pp. 107-109.

[103]William K. Newton, "The Sanitary Control of the Food Supply," Public Health Papers and Reports, IX (1883; pub. 1884), 160.

[104]Fourth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts; Supplement /July, 1882/ (Boston, 1883), pp. 27-30.

[105]Report of Committee on Public Health in the Investigation of the Adulteration of Dairy Products, New York State Senate Document No. 44 (March 21, 1884). The Committee members were Henry R. Low, Edward G. Thomas, and Henry C. Nelson.

[106]Ibid., pp. 1-4.

[107]Ibid., p. 68. Testimony of M.M. Smith, manager of U.S. Dairy's Albany factory, who explained that he had just received a telegram to that effect. This verified the hearsay statements made a few days earlier by one of the lard-butter manufacturers (p. 23).

[108]Ibid., p. 211.

[109]Ibid., pp. 209-233.

[110]Ibid., pp. 234, 249.

[111]Ibid., p. 11. The case was in re Brosnahon, Jr., Circuit Court of Missouri, June, 1883.

[112]Laws of 1884, ch. 202. Journal of the Senate of the State of New York, 107th Session (Albany, 1884), p. 559, reports vote on final passage as 25-4; vote on version, as amended by the Assembly (p. 583) was 25-0. Journal of the Assembly of the State of New York, 107th Session (Albany, 1884), pp. 889-890, reports vote on final passage as 101-1.

[113]Senate Document No. 44, p. 14.

[114]Tribune, 3/22/84.

[115]Senate Document No. 44, p. 107.

[116]Sanitary Engineer, 7/17/84, 143.

[117]Tribune, 6/4/84. The paper erroneously gave his name as "James Watson," but it was clearly Wilson it was quoting.

[118]Grocer, 5/9/84, 836.

[119]Times, 12/25/84, 3/5/85.

[120]Larson, Chandler, p. 182; Chandler to Cleveland, 4/15/84, Chandler papers.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[121]Larson, p. 183; Chandler to Roosevelt, 4/28/84, Chandler papers.

[122]Larson, p. 183; Chandler to Otis, 4/5/84, Chandler papers.

[123]Coudert to Chandler, 1/20/85, Chandler papers.

[124]Coudert to Chandler, 1/31/85, Chandler papers.

[125]See Chandler papers, "Butter," Box 1.

[126]Larson, pp. 185-186; Times, 6/17/85. Complete text of decision in American Grocer, 6/25/85, 10.

[127]Laws of 1885, ch. 183, passed April 30, 1885.

[128]Journal of Commerce, 6/24/85.

[129]Times, 12/4/85; Tribune, 12/17/85.
The test case on this law, The People vs. Lipman Arensberg, failed to reach a conclusion on the law's constitutionality. In the original trial the judge refused to permit Chandler and Morton to testify. He felt the issue was not the "hypothetical questions in regard to the difference, if any, between butter and oleomargarine," but simply the fact of its sale, in violation of the law. (Times, 1/27/86)
In Coudert's argument to the Court of Appeals he stressed the chemical similarity of the two products, but mostly claimed that the law was a restriction on the free trade of a harmless product, and, "under a changed name the Marx case once more." (Produce Exchange Bulletin. Supplement, 7/3/86)
Though the Court of Appeals decided in favor of the appellant (in a split decision), it ruled that, by ignoring the question of "the fact of imitation as essential to the crime," the original conviction did not warrant a decision on the law's constitutionality. (Times, 10/30/86)

[130]Tribune, 12/17/85.

[131]Times, 12/4/85.

[132]American Grocer, 12/10/85, 9.

[133]Adulterated Food Products. Resolution, 49th Cong. 1st Sess. H. Mis. Doc. 71 (Washington, January 11, 1886).

[134]Adulteration of Food. Report, 49th Cong. 1st Sess. H. Rept. 1880 (Washington, April 22, 1886).

[135]Speech of Joseph H. Reall, Testimony Taken Before the Committee on Agriculture and Forestry, United States Senate, in Regard to the Manufacture and Sale of Imitation Dairy Products, 49th Cong. 1st Sess. S. Mis. Doc. 131 (Washington, 1886), p. 1. (This document will be referred to as Senate Agriculture hearings.) Hon. Warner Miller, Butter vs. Oleomargarine, speech to the U.S. Senate, 7/17/86, pp. 4-5. Federal Prohibition of Substitutes For Butter. Proceedings in the House of Representatives, 49th Cong. 1st Sess. (Washington, May 24, 1886), p. 9.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[136]American Grocer, 3/3/86, 8.

[137]This assumption is based on two facts: Miller, throughout the hearings, and in all his Senate speeches, always argued that the product of Commercial Manufacturing had been a wholesome article; Miller had sponsored, in 1882, a piece of special legislation (S.B. 1727, 6/9/82) for a substantial postage refund for Thurber's American Grocer Association.

[138]Senate Agriculture hearings, p. 1.

[139]Ibid., p. 2.

[140]Ibid., pp. 19-20.

[141]Ibid., pp. 146-147.

[142]Ibid., pp. 47, 61.

[143]F.R. Coudert to Chandler, 5/3/86, 5/6/86; oleo manufacturer P.H. Van Riper to Chandler, 6/18/86, Chandler papers.

[144]Senate Agriculture hearings, pp. 70-75.

[145]Ibid., pp. 68, 76, 80. A third expert witness was Prof. James F. Babcock, the Boston milk inspector, who argued that labeling laws should be the only restriction on oleo. Massachusetts witnesses, and Miller, tore Babcock's testimony apart, pointing to the scarcity of arrests under the Massachusetts labeling law; see Miller, Butter vs. Oleomargarine, pp. 29-30.

[146]Senate Agriculture hearings, pp. 226-227. Frederick Hammond, New England regional manager for the Hammond Co., also testified in person; see pp. 117-123.

[147]Ibid., p. 107.

[148]Ibid., pp. 106, 112, responding to questions by Sen. Miller.

[149]Miller, Butter vs. Oleomargarine, p. 7.

[150]Senate Agriculture hearings, p. 22.

[151]H.P. Armsby, "Imitation Butter," Science, VII, no. 173 (May 28, 1886), 472.

[152]Senate Agriculture hearings, pp. 213-220.

[153]Federal Prohibition, p. 147. New York State led, with almost 22,000 individual petitions.

[154]Ibid., p. 80.

[155]American Grocer, 6/9/86, 8.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[156]American Grocer, 6/16/86, 8.

[157]Grocer, 4/16/86, 5; 5/28/86, 7; 7/9/86, 6.

[158]Oleomargarine. Message from the President of the United States, Approving House bill 8328, 49th Cong. 1st Sess. H. Ex. Doc. 368 (Washington, August 3, 1886), pp. 2-3.

[159]24 U.S. Stat. L. 209. Text of law reprinted in American Grocer, 8/11/86, 9; Journal of Commerce, 8/11/86; Jesse P. Battershall, Food Adulteration and Its Detection (New York, 1887), pp. 308-313.

[160]Sanitary Engineer, 1/1/85, 104.

[161]New York Retail Grocers' Union, pamphlet, 1887.

[162]This Society was begun by H. Wharton Amerling and H.B. Amerling, in 1885. They published two newspapers, The Universal Benefactor, and The Anti-Adulteration Journal. The Amerlings were of the "Angell" school of advocacy, arguing that "everything that we 'taste, touch or handle' is impregnated more or less with poisonous matter, which taken into the body leads gradually, though surely, to disease and death." /Universal Benefactor, I, no. 1 (March, 1885), 1./

[163]American Grocer, 12/15/86, 7.

[164]Proceedings of the National Pure Food Convention Held at Washington, Wednesday, January 19th, 1887, pp. 1, 4-5.

[165]Oscar E. Anderson, Jr., The Health of a Nation (Chicago, 1958), p. 76.

[166]Ibid., pp. 71-75.

[167]The passage of the Tea Adulteration Act of 1883 may have been a sign of new interest on the part of the federal government. The law forbade the importation of adulterated teas, and was drawn up and endorsed by virtually all the New York importers and wholesalers. It was therefore similar, both in nature and inspiration, to the first such federal act, the drug law of 1848.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

CONCLUSION

In 1820 Fredrick Accum had identified the threat to justice, order, and morality as being the very complexity of commerce, which "tended to conceal and facilitate the fraudulent practices" of the unscrupulous.[1] When Prof. Lattimore rediscovered Accum's "curious old and somewhat rare book" in 1882 he commented that it "reads as if it had just been written."[2] But if the technological innovations imposed upon the marketplace since Accum's day had intensified the need for regulation, the New York adulteration law was a testing-ground for the limits to which American society was willing to sacrifice its belief in laissez-faire.

By 1883--when the sanitarians of the New York State Board of Health were persuaded by Prof. Chandler to grant the manufacturers and wholesalers a broad list of exemptions and exceptions to the adulteration law--the brief experiment in regulation was essentially over. Chandler had successfully overcome the reluctance of "unbusiness-like" sanitarians like Elisha Harris, whom Chandler called "a meddlesome old granny" who tried "to thwart me at every step."[3] The reformers had surrendered to the expertise of the chemists, and abdicated their commitment to reforming the marketplace.

In that year William Newton explained that the health boards had been given the task of administering the adulteration laws for two reasons: the simple fact that no other governmental agency existed to which the responsibility could be delegated; and "because a few articles of food are so adulterated as to be injurious to health or life." But, like his colleagues Sharples, Leeds, Johnson, and Chandler, Newton argued that it was time that

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

health boards turn to other tasks "which properly belong to them," since fraudulent adulterations were not really within the province of the sanitarians, and since it had been established that, with rare exceptions, the adulterations in the marketplace touched "only the pocket."[4]

At the 1885 meeting of the American Social Science Association the main speaker on "The Adulteration of Food" was no longer George T. Angell, but Dr. Charles Harrington of Boston, Analyst of Milk for the Massachusetts State Board of Health, who declared that there "had been an immense improvement in the quality of articles of common consumption." Dr. Newton, speaking next, agreed with Harrington, pointing out that "articles of food are seldom adulterated with poisonous substances. They are adulterated simply to secure large sales, and these would be at once checked by cases of actual poisoning."[5] In other words, the marketplace could safely regulate itself; even truly deleterious practices would be eliminated without the imposition of external regulation. As American Grocer argued, "No state law, whether special or general, could accomplish as much" as competition. "Laws will be evaded, but the law of exposure through the rivalry of competing manufacturers and dealers never becomes inoperative."[6]

Francis Thurber, who had shaped and engineered the New York law, argued in 1883 that "the centralization of power either in the hands of Government or of corporations" was inevitable.[7] Given the choice, Thurber opted for governmental supervision--at least over the reckless power of the monopolies. It was to this end that Thurber had manipulated the state legislature to investigate and control the railroads, and had put himself in the position of conducting the investigation on behalf of the state. In 1885 he argued that "the time for a laissez faire policy is past. Our civilization is constantly growing more complex and the forces which now control it must

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

themselves be controlled and directed."[8]

But, like the chemists he employed, Thurber believed that regulation was a temporary expedient, useful for exposing the excesses of the giant corporations, and for restraining the behavior of the unscrupulous--those who refused to play by the established rules of the marketplace. Merchants like himself, however, could be trusted to be considerate of the public welfare, without the coercion of regulation. After a modicum of supervision, accompanied by publicity to expose the guilty, the nation could safely return to the natural and immutable laws of competition, and be rewarded with fair play in its marketplace. Ultimately, Thurber believed in laissez-faire.

He had supported regulation, not only to silence reformers like Angell, but also because the activities of the truly unscrupulous threatened the business of the "honest" entrepreneurs. But, having conceded limitations upon laissez-faire, Thurber immediately sought to place limitations upon regulation. Those who would--as Chandler phrased it--not stop at adulterating sugar with only one part of glucose in five, must be supervised. But the legitimate, "acceptable" practices of commerce must be permitted. Thurber sold ten varieties of ground "coffees," only one of which was pure coffee. He defended his mustards as being pure, because he distinguished himself from the scoundrels who colored <u>their</u> diluted blends with harmful "arsenical" preparations, instead of turmeric. He employed questionable techniques to protect his oleomargarine empire, but voluntarily withdrew from the business when he felt it had become sullied and disreputable because of the influx of lard-butter from Swift and Armour. Who was to decide which practices were legitimate, and which were not?

Chemists like Chandler had proven their indispensability to the success-

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

ful operation of the boards of health. When those boards found themselves empowered to enforce the new adulteration laws, it was to these experts that the reformers and sanitarians turned for guidance. All the men Chandler appointed to conduct the studies of foods and drugs for the monumental 1882 Annual Report were fellow chemists, or pharmacists. But if these experts seldom hesitated to render very positive judgments on the healthfulness of the products they studied, they were nonetheless groping; their science was primitive and tentative. Ira Remsen publicly denied all of Angell's claims, only to write privately to Dr. Billings that he really knew very little about adulteration, or adulterative practices.

Chandler claimed that alum was dangerous; Dr. Love's report for Chandler's Sanitary Committee denied its danger. By 1884 Love himself condemned it. Yet no chemist had ever conducted a single objective, controlled experiment on the use of alum. Chandler claimed that the lactometer was useless; when he realized that his enforcement of the milk laws necessitated its use, he argued that he now trusted the instrument implicitly. Moreover, for every chemist who defended a product or a process, another could be found who condemned it. Yet almost all of these judgments were on theoretical grounds, rather than being based on scientific experimentation. The chemists could usually identify substances; they could not truly evaluate them.

Though it would be an error to assume that amateurs like Angell held a monopoly on morality, for the professionals morality also had its practical side. Billings was actively concerned about the dangers of adulteration, but also hastened to warn the students graduating from Bellevue that their professional reputations rested on the quality of the medicines they prescribed. Meyer was sincerely concerned about the moral implications of tenement life, but his tenement contest required that all new buildings

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

be equipped with plumbing, and his sponsorship of the plumbers' licensing law restricted the competition for installing the equipment in the thousands of dumbbell tenements constructed over the next generation.

The chemists, certainly, were practical men; unlike Angell, Chandler was no Jeremiah of the breakfast-table. Ultimately, they saw nothing wrong with mere fraud, and Chandler's difficulties were not with the manufacturers and wholesalers, but rather with the sanitarians. As he explained to Board President Edward Moore, Chandler was "almost the only member of the Board who comes in contact with the manufacturers." The sanitarians were less cognizant of the problems and desires of the businessmen, and their reluctance to grant broad exemptions and definitions--which Meyer and Chandler had carefully left in the hands of the enforcers, rather than incorporate into the law itself--threatened to alienate "the very persons who secured the passage of the law."[9]

Ultimately, Angell was correct when he argued that the work of eliminating adulteration could not be entrusted to the "boards of health." He had thought that any sincere efforts would be immediately neutralized by the business interests, "which would either secure their removal or paralyze their efforts."[10] What he did not foresee was that such neutralization would prove unnecessary; not only did the chemists and businessmen agree upon the narrow parameters of the law, but the services of the professionals were readily purchasable. As Chandler implied in his biting reprimand to Prof. Battershall, so long as the payment was for professional services, not merely for the use of one's name, the businessmen were entitled to exploit the reputation and professional standing of the analyst.

Perhaps the central error made, by both the public and the professionals, was the belief that the experts were capable of self-regulation. Professional

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

pride and a code of ethics were insufficient guarantees of justice and equity. If this early experiment in regulation proved anything, it proved that society needed laws to force the disassociation of the regulator and the regulated, laws that forbade, at a minimum, dual employment--the problem Dr. Squibb had foreseen in his draft of a state health board. Certainly, in both its design and its operation, this first agency in New York created to regulate the marketplace served to protect the normative practices of the respectable businessmen by whom the chemists were concurrently employed.

By the end of 1883 the chemists had concluded that the regulation of mere fraud was not the responsiblity of the health officials. By 1884 the New York legislature no longer believed that the law was worth its expense; the monies that might have gone to the Sanitary Committee went instead to the politically-important Dairy Commission. In that year Governor Grover Cleveland vetoed additional adulteration legislation, and asked "Ought a man be punished who innocently and in good faith has, or even sells, adulterated drugs?"[11]

In 1886 Cyrus Edson, appointed to the Board for political reasons, despite his lack of qualifications, published an article in which he claimed to have found "toads and small snakes" in watered milk.[12] American Grocer took Edson to task for leaving "the reader with the impression that food and drink are 'loaded with poisons.'" The paper argued that only perhaps one per cent of the foods consumed were "debased," "and of that only a mere fraction can be considered detrimental to health." Thurber's paper reasoned that the consumer was perfectly safe, "if he buys of an honest dealer and exercises average common sense and intelligence in the selection of what he eats and drinks."[13]

Edson answered in agreement, and admitted that "Adulteration is, no

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

doubt...the least dangerous factor to be considered by the sanitarian in his supervision of the food supply." Edson charitably added that "nevertheless it is not to be overlooked or sneered at."[14] Similarly, Albert Leeds had argued that it was time for the courts, not the sanitarians, to enforce the food laws. Yet a contemporary analysis of court activity noted that there was little uniformity in adulteration prosecution; what one court enforced, another ignored.[15]

No one, apparently, would decide which commercial practices were legitimate. But was this first attempt to regulate the marketplace merely a flawed experiment? By 1881 American commerce had achieved modern proportions; New York was dealing with a national problem, but one that came to fruition in that most populous and cosmopolitan state somewhat earlier than the rest of the nation. Between the time the National Board of Trade law was passed and 1906 nothing really changed, except that the tendencies and technological complexities of modern commerce already present in New York had spread to encompass the rest of the country.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

NOTES FOR THE CONCLUSION

[1]Fredrick Accum, A Treatise on Adulterations of Food, and Culinary Poisons (Philadelphia, 1820), p. 20.

[2]Second Annual Report of the State Board of Health of New York (Albany, 1882), p. 594.

[3]Chandler to Edward Moore, 8/28/83, Chandler papers. When Harris died, a few months later, Chandler did not find it "possible...to get away from the city...to attend the funeral," though he protested that he had "always been a great admirer of Dr. Harris' indefatigable industry and devotion to the cause of sanitary reform, and I regret extremely that the last years of our intercourse should have been marred by a difference of detail as to the management of certain work in which we were both interested." (Chandler to F. Carmen, 2/4/84, Chandler papers.)

[4]William K. Newton, "The Sanitary Control of the Food Supply," Public Health Papers and Reports, IX (1883; pub. 1884), 169.

[5]Sanitary Engineer, 9/17/85, 314.

[6]American Grocer, 5/14/85, 9.

[7]"Democracy and Anti-Monopoly"--An Address by F.B. Thurber before the Thomas Jefferson Club of Brooklyn, April 16, 1883, p. 15.

[8]Our Country. A Paper by F.B. Thurber, Read before the XIX Century Club, New York, November 17, 1885, p. 28.

[9]Chandler to Moore, 2/5/83, Chandler papers.

[10]George T. Angell, "Public Health Associations," Sanitarian, VII (1879), 131.

[11]Sanitary Engineer, 1/1/85, 104.

[12]Cyrus Edson, "Poisons in Food and Drink," The Forum, I (August, 1886), 576.

[13]American Grocer, 8/11/86, 7; 12/15/86, 9.

[14]American Grocer, 12/29/86, 9.

[15]Albert R. Leeds, "The Adulteration of Foods," Public Health Papers and Reports, IX (1883; pub. 1884), 169; Albert B. Guilbert, "Adulteration of Food," The American Law Review, XXII, no. 1 (January-February, 1888), 95ff. Guilbert noted however that "Statutes prohibiting the sale of milk diluted with water have been uniformly sustained." (p. 104.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

APPENDIX A

Extant portion of what appears to be Dr. J.S. Billings' original draft version of federal anti-adulteration legislation (located in Wingate papers).

The Adulteration of Food

Definition of Food: Any article used for food of man or animals; any article used in the preparation of food, or by admixture with food, before, during or after cooking; any liquid used as a beverage and any article used in the preparation of a beverage.

Definition of the Offense of Adulteration: The manufacture or sale, and the giving or offering for sale, of adulterated articles, and the giving of adulterated articles to persons purchasing of the giver.

Articles are Adulterated as Follows: 1. By addition or substitution of other articles, or of inferior grades or varieties of the same article, so that the name and description assumed do not properly represent the entire material to which such name and description are applied.

2. By dilution, with substances or to an extent concealed from the purchaser or consumer.

3. By removal of the more valuable constituents or portions of articles, such removal not being plainly indicated in the name, label, or description attached or applied to the article.

4. By the application, to any article or grade of article, of a name commonly received or understood as belonging to another article or grade, and tending to deceive the purchaser or consumer.

The Standard of an Article, by which its adulteration shall be judged, shall be a fair and legitimate standard, ensuring such substance and grade and quality as the consumer may properly expect to obtain under the name by which the article is furnished.

The Term Adulteration Does Not Apply to admixtures distinctly and plainly labelled or presented as such, and with a name or description clearly showing the constituents of the mixture, and within reasonable limits the proportions of the constituents.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

APPENDIX B: Final version of National Board of Trade federal bill.

BOARD OF TRADE BILL

To Prevent the Adulteration of Food or Drugs.

Be it enacted, etc., That no person or corporation shall knowingly transport, or cause to be transported from the State, district, or territory in which he resides or does business into any other State or territory, or from any foreign country, or other State or territory, into the State or territory in which he resides or does business, for sale or barter, or to be offered for sale or barter, any article of food or drugs adulterated within the meaning of this act, and any person violating the above provision shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not more than fifty dollars for each offence.

SEC. 2. That no person shall, within the District of Columbia, or in any of the territories, or in any fort, arsenal, dock-yard, or reservation, or other place under the jurisdiction of the United States, manufacture, offer for sale, or sell any article of food or drugs which is adulterated within the meaning of this act; and any person violating this provision shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine not exceeding fifty dollars.

SEC. 3. If, on examination of any article of food or drugs imported from any foreign country, it is found to be adulterated within the meaning of this act, a return to that effect shall be made upon the invoice, and articles so noted shall not be permitted to pass the custom-house, or be delivered to the consignees unless on re-examination, as provided for in this act, it shall be found that the said articles are not adulterated.

SEC. 4. The owner or consignee shall have the privilege of calling, at his own expense, for a re-examination; and on depositing with the collector of customs such sum as he may deem sufficient to defray such expense, it shall be the duty of the collector of customs to procure a certificate, under oath, from a public analyst, of a careful analysis of the articles in question; and in case the report by certificate of the analyst shall declare the report of the officer who examined the goods to be erroneous, and the said articles to be unadulterated, the said articles shall be returned to the owner or consignee, and passed without reservation on payment of the duties, if any. But in case the officer's return shall be sustained by the analyst, the said articles shall remain in charge of the collector of customs, to be disposed of in accordance with regulations to be prepared by the National Board of Health, and approved by the Secretary of the Treasury: *Provided*, That the owner or consignee, on payment of charges of storage, and other expenses necessarily incurred by the United States, and on giving bond, with sureties satisfactory to the collector, agreeing to remove said articles from the United States, shall have the privilege of re-exporting them at any time within the period of six months after the date of the report of the inspector or public analyst.

SEC. 5. In order to carry into effect the provisions of this act, the Secretary of the Treasury is hereby authorized to appoint from names submitted to him for that purpose by the National Board of Health one or more suitably qualified persons as special inspectors and as public analysts for adulterated food and drugs at such ports of entry as the Secretary of the Treasury may deem expedient, and it shall be the duty of the National Board of Health to prepare instructions governing the work of such inspectors and analysts which, when approved by the Secretary of the Treasury, shall govern their action, and that of collectors of customs, in preventing importation from foreign countries of food or drugs adulterated within the meaning of this act.

SEC. 6. The National Board of Health shall make, or cause to be made, examination of specimens of food and drugs collected under its direction in various parts of the country, and shall publish in its weekly bulletin the results of such analyses. If it shall appear from such examination that any of the provisions of this act have been violated, the Secretary of the Board shall at once report the facts to the proper United States district attorney, with a copy of the results of the analysis duly authenticated by the analyst under oath.

SEC. 7. It shall be the duty of every district attorney to whom the Secretary of the National Board of Health, or any collector of customs shall report any violation of this act, to cause proper proceedings to be commenced and prosecuted without delay for the fines and penalties in such case provided, unless, upon inquiry and examination, he shall decide that such proceedings cannot probably be sustained, in which case he shall report the facts to the National Board of Health; and for the expenses incurred and services rendered in all such cases, the district attorney shall receive and be paid from the Treasury such sum as the Secretary of the Treasury shall deem just and reasonable, upon the certificate of the judge before whom such cases are tried or disposed.

SEC. 8. An article shall be deemed to be adulterated within the meaning of this Act—

a.—In the case of drugs.

1. If, when sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity laid down therein.

2. If, when sold under or by a name not recognized in the United States Pharmacopœia, but which is found in some other pharmacopœia or other standard work on Materia Medica, it differs materially from the standard of strength, quality, or purity laid down in such work.

3. If its strength or purity fall below the professed standard under which it is sold.

b.—In the case of food or drink.

1. If any substance or substances has or have been mixed with it so as to reduce or lower or injuriously affect its quality or strength.

2. If any inferior or cheaper substance or substances have been substituted wholly or in part for the article.

3. If any valuable constituent of the article has been wholly or in part abstracted.

4. If it be an imitation of or be sold under the name of another article.

5. If it consist wholly or in part of a diseased, or decomposed, or putrid, or rotten animal or vegetable substance, whether manufactured or not, or in the case of milk, if it is the produce of a diseased animal.

6. If it be colored or coated, or polished or powdered, whereby damage is concealed, or it is made to appear better than it really is, or of greater value.

7. If it contain any added poisonous ingredient, or any ingredient which may render such article injurious to the health of a person consuming it: *Provided*, That the National Board of Health may, with the approval of the Secretary of the Treasury, from time to time declare certain articles or preparations to be exempt from the provisions of this act: *And provided further*, That the provisions of this act shall not apply to mixtures or compounds *recognized* as ordinary articles of food, provided that the same are not injurious to health, and that the articles are distinctly labelled as a mixture, stating the components of the mixture.

SEC. 9. It shall be the duty of the National Board of Health to prepare and publish from time to time lists of the articles, mixtures, or compounds declared to be exempt from the provisions of this act, in accordance with the preceding section. The National Board of Health shall also from time to time fix the limits of variability permissible in any article or compound.

SEC. 10. The term "food" as used in this act shall include every article used for food or drink by man.

The term "drug" as used in this act shall include all medicines for internal or external use.

SEC. 11. All the regulations and declarations of the National Board of Health, made under this act from time to time and promulgated, shall be printed in the Statutes-at-Large.

SEC. 12. This act shall take effect ninety days after it shall have become a law.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

FOOD AND DRUG ADULTERATION LAW OF NEW YORK AND NEW JERSEY.

SECTION 1. No person shall, within this State, manufacture, have, offer for sale, or sell any article of food or drug which is adulterated within the meaning of this act, and any person violating this provision shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine not exceeding fifty dollars for the first offence, and not exceeding one hundred dollars for each subsequent offence (for a second and subsequent offences, *N. J.*).

SEC. 2. The term "food," as used in this act, shall include every article used for food or drink by man. The term "drug," as used in this act, shall include all medicines for internal or external use.

SEC. 3. An article shall be deemed to be adulterated within the meaning of this act:

a. In the case of drugs.

1. If, when sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity laid down therein.

2. If, when sold under or by a name not recognized in the United States Pharmacopœia, but which is found in some other pharmacopœia or other standard work on Materia Medica, it differs materially from the standard of strength, quality, or purity laid down in such work.

3. If its strength or purity fall below the professed standard under which it is sold.

b. In the case of food or drink.

1. If any substance or substances has or have been mixed with it so as to reduce or lower or injuriously affect its quality or strength.

2. If any inferior or cheaper substance or substances have been substituted wholly or in part for the article.

3. If any valuable constituent of the article has been wholly or in part abstracted.

4. If it be an imitation of, or be sold under the name of another article.

5. If it consists wholly or in part of a diseased or decomposed, or putrid or rotten, animal or vegetable substance, whether manufactured or not, or in the case of milk, if it is the produce of a diseased animal.

6. If it be colored, or coated, or polished, or powdered, whereby damage is concealed, *or it is made to appear better than it really is, or of greater value.*

7. If it contain any added poisonous ingredient, or any ingredient which may render such article injurious to the health of a person consuming it; *Provided*, That the State board of health may, with the approval of the governor, from time to time declare certain articles or preparations to be exempt from the provisions of this act; *And provided, further*, That the provisions of this act shall not apply to mixtures or compounds recognized as ordinary articles of food, provided that the same are not injurious to health, and that the articles are distinctly labelled as a mixture, stating the components of the mixture.

SEC. 4. It shall be the duty of the State board of health to prepare and publish from time to time, lists of the articles, mixtures, or compounds declared to be exempt from the provisions of this act in accordance with the preceding section. The State board of health shall also from time to time fix the limits of variability permissible in any article of food, or drug, or compound, the standard of which is not established by any national pharmacopœia.

SEC 5 The State board of health shall take cognizance of the interests of the public health as it relates to the sale of food and drugs and the adulteration of the same, and make all necessary investigations and inquiries relating thereto. It shall also have the supervision of the appointment of public analyst and chemist, and upon its recommendation, whenever it shall deem any such officers incompetent, the appointment of any and every such officer shall be revoked and be held to be void and of no effect. Within thirty days after the passage of this act, the State board of health shall meet and adopt such measures as may seem necessary to facilitate the enforcement of this act, and prepare rules and regulations with regard to the proper methods of collecting and examining articles of food or drugs, and for the appointment of the necessary inspectors and analysts; and the State board of health shall be authorized to expend, in addition to all sums already appropriated for said board, an amount not exceeding ten thousand dollars (five hundred dollars, *N. J.*), for the purpose of carrying out the provisions of this act [and the sum of ten thousand dollars is hereby appropriated out of any money in the treasury not otherwise appropriated, for the purposes in this section provided].

SEC. 6. Every person selling or offering or exposing any article of food or drugs for sale, or delivering any article to purchasers, shall be bound to serve or supply any public analyst or other agent of the State or local board of health (any inspector, *N. J.*) appointed under this act, who shall apply to him for that purpose, and on his tendering the value of the same, with a sample sufficient for the purpose of analysis of any article which is included in this act, and which is in the possession of the person selling, under a penalty not exceeding fifty dollars for a first offence, and one hundred dollars for a second and subsequent offences.

SEC. 7. Any violation of the provisions of this act shall be treated and punished as a misdemeanor; and whoever shall impede, obstruct, hinder, or otherwise prevent any analyst, inspector, or prosecuting officer in the performance of his duty, shall be guilty of a misdemeanor, and shall be liable to indictment and punishment therefor.

SEC. 8. Any act or parts of acts inconsistent with the provisions of this act are hereby repealed.

[SEC. 9. All the regulations and declarations of the State board of health made under this act, from time to time, and promulgated, shall be printed in the statutes at large.]

SEC. 10. This act shall take effect at the expiration of ninety days after it shall become a law. (Section 9. This act shall be deemed a public act, and shall take effect at the expiration of thirty days after it shall become a law, *N. J.*)

SOURCES CONSULTED

MANUSCRIPT SOURCES

Edward Atkinson papers. Massachusetts Historical Society. Boston, Massachusetts.

John Shaw Billings papers. New York Public Library Manuscript Collection. New York, New York.

Charles Frederick Chandler papers. Columbia University Rare Book and Manuscript Library. New York, New York.

Edward Robinson Squibb papers. Squibb Archives. Princeton, New Jersey.

Charles Frederick Wingate papers. New York Public Library Manuscript Collection. New York, New York.

DISSERTATIONS

Becker, William H. The Wholesalers of Hardware and Drugs, 1870-1900. Doctoral dissertation, The Johns Hopkins University, 1969.

Bruton, Peter W. The National Board of Health. Doctoral dissertation, University of Maryland, 1974.

Cortes, Kathleen F. Democracy in the American Public Health Association: A Historical Analysis. Doctoral dissertation, Columbia University, 1976.

Dykstra, D.L. Patent and Proprietary Medicines: Regulation Control Prior to 1906. Doctoral dissertation, Michigan State University, 1971.

Jamieson, Duncan R. Towards a Cleaner New York. John H. Griscom and New York's Public Health. Doctoral dissertation, Michigan State University, 1971.

Kujovich, Mary Yeager. The Dynamics of Oligopoly in the Meat Packing Industry: An Historical Analysis, 1875-1912. Doctoral dissertation, The Johns Hopkins University, 1973.

Larson, Robert L. Charles Frederick Chandler, His Life and Work. Doctoral dissertation, Columbia University, 1950.

Unfer, Louis. Swift and Company: The Development of the Packing Industry, 1875 to 1912. Doctoral dissertation, University of Illinois, 1951.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

OTHER UNPUBLISHED SOURCES

Blochman, Lawrence G. Manuscript notes from the Journals of Dr. Edward R. Squibb. Squibb Archives. Princeton, New Jersey.

Medical Society of the County of New York. Minutes, 1877-1879. (Manuscript.)

New York Academy of Medicine. Minutes, 1878-1880. (Manuscript.)

New York Academy of Medicine. Proceedings of the Council, 1878-1880. (Manuscript.)

PUBLISHED SOURCES

Accum, Fredrick. A Treatise on Adulterations of Food, and Culinary Poisons. Philadelphia, 1820.

Address of the Committee to Promote the Passage of a Metropolitan Health Bill. New York, 1865.

"Adulterations in Food and Drugs." Hunt's Merchants' Magazine, XLI, no. 5 (November, 1859), 254-255.

"The Adulterations of Food." North American Review, CXCIV (January, 1862), 1-40.

"Adulteration of Groceries in England." Hunt's Merchants' Magazine, XLI, no. 5 (November, 1859), 252-254.

Alexander, DeAlva S. A Political History of the State of New York, III. 1909; rpt. Port Washington, New York (Ira J. Friedman), 1969.

Alpers, William C. "History of the American Pharmaceutical Association, Second Decade 1860-1870." Journal of the American Pharmaceutical Association, III (December, 1914), 1625-1640; IV (January, 1915), 3-17.

Alsberg, Carl L. "Progress in Federal Food Control." A Half Century of Public Health, ed. Mazyck P. Ravenel. New York, 1921; rpt. New York (Arno Press), 1970.

American Chemical Society. Journal of the American Chemical Society, 1879-1884.

American Chemical Society. Proceedings of the American Chemical Society, 1876-1878.

American Dairyman, January, 1878.

American Grocer, 1869, 1879-1886.

American Pharmaceutical Association. Proceedings of the American Pharmaceutical Association, 1858, 1871-1886.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

American Public Health Association. Public Health Reports and Papers, 1879-1886.

Anderson, Oscar E., Jr. The Health of a Nation. Chicago, 1958.

Angell, George T. Autobiographical Sketches and Personal Recollections. Boston, 1892.

_____. Protection of Animals. Boston, 1874.

_____. "Public Health Associations." Sanitarian, VII (1879), 126-131.

The Anti-Adulteration Journal, 1886.

Armsby, H.P. "Imitation Butter." Science, VII, no. 173 (May 28, 1886), 471-475.

Assael, Henry, ed. The Politics of Distributive Trade Associations: A Study in Conflict Resolution. Hempstead, New York (Hofstra University Yearbook of Business), 1967.

Bailey, M.J. Report on the Practical Operation of the Law Relating to the Importation of Adulterated and Spurious Drugs. New York, 1849.

Bailey, Thomas A. "Congressional Opposition to Pure Food Legislation, 1879-1906." American Journal of Sociology, XXXVI (July, 1930), 52-64.

Battershall, Jesse B. Food Adulteration and Its Detection. New York, 1887.

Beck, Lewis C. Adulterations of Various Substances Used in Medicine and the Arts, with the means of detecting them. New York, 1846.

Benson, Lee. Merchants, Farmers, and Railroads. New York, 1955.

Bernstein, Nancy R. The First One Hundred Years, Essays on the History of the American Public Health Association. N.p., 1972.

Billings, John S. "A Century of American Medicine, 1776-1876." Selected Papers of John Shaw Billings, ed. Frank B. Rogers. Medical Library Association, 1965.

_____. "Address to the Graduating Class of Bellevue Hospital Medical College." Selected Papers of John Shaw Billings, ed. Frank B. Rogers. Medical Library Association, 1965.

_____. "Introduction." A Treatise on Hygiene and Public Health, ed. Albert H. Buck. New York, 1879.

Bledstein, Burton J. The Culture of Professionalism. New York (W.W. Norton), 1976.

Blochman, Lawrence G. Doctor Squibb. New York, 1958.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Bogart, F.E., et. al. A History of the National Wholesale Druggists' Association from Its Organization to Nineteen-twenty-four. New York, 1924.

Boston Herald, 1879.

Boston Medical and Surgical Journal, 1881-1884.

Bowditch, Henry I. "The Future Health Council of the Nation." Transactions of the American Medical Association, XXVI (1875), 301-339.

Brewer, William H. "Glucose in Its Sanitary Aspects." Public Health Papers and Reports, X (1884; pub. 1885), 100-105.

Brodman, Estelle. The Development of Medical Bibliography. Baltimore, 1954.

Brooklyn Board of Health. Report of the Board of Health of the City of Brooklyn, 1875-1876. Brooklyn, 1877.

_____. Annual Report of the Department of Health of the City of Brooklyn, 1884 /-1885/. Brooklyn, 1885.

_____. Annual Report of the Department of Health of the City of Brooklyn for the Year 1886. Brooklyn, 1887.

Browne, Charles A. and Mary E. Weeks. A History of the American Chemical Society. Washington, 1952.

Browne, Junius H. The Great Metropolis, A Mirror of New-York. Hartford, 1869.

Buck, Albert H., ed. A Treatise on Hygiene and Public Health. 2 vols., New York, 1879.

Buck, Solon J. The Granger Movement, 1870-1880. Cambridge, Massachusetts, 1913.

Buel, C.C. "Henry Bergh and His Work." Scribner's Monthly, XVII, no. 6 (April, 1879), 872-884.

Burns, Jabez. The Right and Wrong of Adulteration: The Benefit and Injury of Adulterating: the Use and Abuse of Adulterations. New York, 1877.

Burrow, James G. AMA, Voice of American Medicine. Baltimore (Johns Hopkins Press), 1963.

Callow, Alexander B., Jr. The Tweed Ring. New York (Oxford University Press), 1965.

Chandler, Charles F. "Condensed Milk." American Chemist, II, no. 1 (July, 1871), 25-26.

_____. "Report on Dangerous Cosmetics." Fourth Annual Report of the Metropolitan Board of Health. New York, 1870.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Chandler, Charles F. "Report on Dangerous Kerosene." Fourth Annual Report of the Metropolitan Board of Health. New York, 1870, pp. 437-457.

_____. "Report on Petroleum Oil." First Annual Report of the Board of Health of the Health Department of the City of New York. New York, 1871, pp. 512-619.

_____. "Report on the Quality of the Milk Supply of the Metropolitan District." Fourth Annual Report of the Metropolitan Board of Health. New York, 1870.

_____. "Report to the honorable the board of aldermen." New York, 1881.

Chidsey, Donald B. The Gentleman from New York: A Life of Roscoe Conkling. New Haven, 1935.

Citizens' Association of New York. Disease and Death in New-York City and its Vicinity. New York, 1864.

Coleman, Sydney H. Humane Society Leaders in America. Albany, 1924.

Collins, James H. The Story of Canned Foods. New York, 1924.

Cowen, David L. "America's First Pharmacy Laws." Journal of the American Pharmaceutical Association, III, no. 5 (May, 1942), 162-169; no. 6 (June, 1942), 214-221.

Cummings, Richard O. The American and His Food. Chicago, 1940.

Dictionary of American Biography.

Diehl, C. Lewis. "Report on Deleterious Adulterations, and Substitutions of Drugs." National Board of Health Bulletin, Supplement No. 6. Washington, 1880.

Doremus, Charles A. "Contributions to the Literature of Milk Analysis." New York, 1879. Reprinted from Proceedings of the American Chemical Society, I, no. 4 (March 1, 1877), 227-252.

Duffy, John. A History of Public Health in New York City, 1625-1866. New York (Russell Sage Foundation), 1968.

_____. A History of Public Health in New York City, 1866-1966. New York (Russell Sage Foundation), 1974.

Eaton, Dorman B. Sanitary Legislation in England and New York. New York, 1872.

Edson, Cyrus. "Poisons in Food and Drink." The Forum, I (August, 1886), 572-582.

Edwards, Richard. New York's Great Industries. New York, 1884.

Edwards and Critten. New York's Great Industries. New York, 1885.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Elliott, Arthur H. "Report on the Methods and Apparatus for Testing Inflammable Oils." New York State Board of Health Report #45. Albany, 1882.

Emerson, Haven. "Charles Frederick Chandler, 1836-1925." Science, LXXXVI, no. 2238 (November 19, 1937), 453-461.

An Ephemeris of the Materia Medica, Pharmacy, Therapeutics, and Collateral Information, 1882-1885.

Fairchild, Herman Le Roy. A History of the New York Academy of Sciences. New York, 1887.

Filby, Frederick A. A History of Food Adulteration and Analysis. London, 1934.

Flanders, George L. "Accurate Determination of the Amount of Fat in Milk." (pamphlet) 1909.

"Food and Its Adulterations." Hunt's Merchants' Magazine, LIV, no. 5 (May, 1866), 340-342.

Forsyth, David P. The Business Press in America, 1750-1865. Philadelphia (Chilton), 1964.

Friedman, Lawrence M. A History of American Law. New York (Simon and Schuster), 1973.

Friedman, Lawrence M. and Jack Ladinsky. "Law and Social Change in the Progressive Era." New Perspectives on the American Past, ed. Stanley N. Katz and Stanley I. Kutler. Boston (Little, Brown), 1969.

Galaxy, XIV, no. 5 (May, 1872), 707. /"Water Pipes and Public Health."/

Garrison, Fielding H. John Shaw Billings, A Memoir. New York, 1915.

German-American Grocer, 1882-1883.

Grant, H. Roger. Insurance Reform. Ames, Iowa (Iowa State University Press), 1979.

Great Britain. Report from the Select Committee /of the House of Commons/ on Adulterations of Food, &c., together with the Proceedings of the Committee, Minutes of Evidence.... London, 1856.

Griscom, John H. "Anniversary Discourse, Before the New York Academy of Medicine." New York, 1854; rpt. in Origins of Public Health in America. New York (Arno Press), 1972.

The Grocer, January, 1879-December, 1886. (Title changed to Merchants' Review as of November 12, 1881.)

Guilbert, Albert B. "Adulteration of Food." The American Law Review, XXII, no. 1 (January-February, 1888), 95-106.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Hart, F. Leslie. "A History of the Adulteration of Food Before 1906." Food-Drug-Cosmetic Law Journal, VII (January, 1952), 5-22.

Hartley, Robert M. An Historical, Scientific, and Practical Essay on Milk. New York, 1842. (Republished as The Cow and the Dairy. New York, 1850.)

Haskell, Thomas L. The Emergence of Professional Social Science. Urbana, Illinois (University of Illinois Press), 1977.

Hassall, Arthur H. Adulterations Detected. 2nd ed., London, 1861.

_____. Food and Its Adulterations. London, 1855.

Hedrick, Ulysses P. A History of Agriculture in the State of New York. 1933; rpt. New York (Hill and Wang), 1966.

Hehner, Otto and Arthur Angell. Butter, Its Analysis and Adulterations. 2nd ed., London, 1877.

A History of the First Half-Century of the National Academy of Sciences. Baltimore, 1913.

Hoskins, Thomas H. What We Eat: An Account of the Most Common Adulterations of Food and Drink. Boston, 1861.

Huber, Edward. Oleomargarine or Bogus Butter. Richmond, 1880.

Johnson, Samuel W. "Adulterations of Food." Good Company, V, no. 12 (August /sic/, 1880), 546-560; Journal of Social Science, XIII, part II (1881), 99-135.

Jordan, David M. Roscoe Conkling of New York. Ithaca, New York (Cornell University Press), 1971.

Judge, 1882.

Justice, 1883-1884.

Kebler, L.F. "The Good Work of the Western Wholesale Drug Association (1876-1882) For Honest Drugs." Journal of the American Pharmaceutical Association, XV, no. 4 (April, 1926), 293-297.

Kedzie, Robert C. "The Adulteration and Deterioration of Food." National Board of Health Bulletin, Supplement No. 6. Washington, 1880.

Kings County Pharmaceutical Society. Proceedings, 1877. (Published in Proceedings of the Medical Society of the County of Kings.)

The Knickerbocker, LIII, no. 4 (May, 1859), 515-523.

Kolko, Gabriel. The Triumph of Conservatism. Chicago (Quadrangle), 1963.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Kramer, Howard D. "Early Municipal and State Boards of Health." Bulletin of the History of Medicine, XXIV, no. 6 (November-December, 1950), 503-529.

Leavitt, Judith W. The Healthiest City. Milwaukee and the Politics of Health Reform. Princeton (Princeton University Press), 1982.

Leeds, Albert R. "The Adulteration of Food." Third Annual Report of the New Jersey State Board of Health. Camden, New Jersey, 1879.

_____. "The Adulteration of Foods." Public Health Papers and Reports, IX (1883; pub. 1884), 166-170.

Leigh, Robert D. Federal Health Administration in the United States. New York, 1927.

/Frank/ Leslie's Illustrated Weekly Newspaper, 1858.

Lydenberg, Harry M. John Shaw Billings. Chicago, 1924.

Majority and Minority Reports of the Select Committee of the Board of Health, Appointed to Investigate the Character and Condition of the Sources From Which Cows' Milk is Derived, For Sale in the City of New York. New York, 1858.

Mandelbaum, Seymour J. Boss Tweed's New York. New York (John Wiley), 1965.

Martin, Edward W. and Walter Moeller. Report on Milk and Its Adulterations. Albany, 1885.

Massachusetts. Journal of the House of Representatives of the Commonwealth of Massachusetts, Session of 1882. Boston, 1882.

_____. Journal of the Senate of the Commonwealth of Massachusetts, Session of 1882. Boston, 1882.

Massachusetts State Board of Health, A Brief History of Its Organization and Its Work, 1869-1912. Boston, 1912.

Massachusetts. Third Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts, January, 1882. Boston, 1882.

_____. Fourth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts; Supplement. Boston, 1883.

_____. Fifth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement. Boston, 1884.

_____. Sixth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Boston, 1885.

_____. Seventh Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Supplement. Boston, 1886.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Massachusetts Ploughman and New England Journal of Agriculture, 1879-1881.

Medical News and Library, 1877.

Medical Society of the County of Kings. Proceedings, 1877.

Medical Society of the State of New York. Transactions, 1878-1881.

Meyer, Henry C. The Story of the Sanitary Engineer. New York, 1928.

Minutes of the Proceedings of the Quarantine Convention. Philadelphia, 1857.

Morris, John. Milk: Its Adulterations, Analysis, Etc. (pamphlet), 1882. (Reprinted from Maryland Medical Journal, June 15, 1882.)

Mott, Frank Luther. A History of American Magazines, 1865-1885. Cambridge, Massachusetts, 1957.

Mott, Henry A. "Artificial Butter." Scientific American, XXXV, no. 22 (November 25, 1876), 337.

_____. Complete History and Process of Manufacture of Artificial Butter. New York, 1876. (Reprint of Scientific American Supplement Numbers 48 and 49, 1876.)

_____. "The Deleterious Use of Alum in Bread and Baking Powders--Alum Being Substituted For Cream of Tartar." Scientific American, XXXIV, no. 20 (November 16, 1878), 308.

_____. The Effect of Alum Upon the Human System, When Used in Baking Powders. Elaborate Experiments Upon Living Dogs. Researches Made Under the Auspices of the ROYAL BAKING POWDER COMPANY. New York, 1880.

_____. "Manufacture of Artificial Butter." Proceedings of the American Chemical Society, I, no. 3 (November 2, 1876), 154-159.

_____. "Oleomargarine Butter: The New Article of Commerce." New York, 1880.

_____. The Production of Oleomargarine and Oleomargarine Butter: As Manufactured By the Commercial Manufacturing Co., Consolidated. New York, 1880.

Mullaly, John. The Milk Trade in New York and Vicinity. New York, 1853.

The Nation, 1878-1881.

National Academy of Sciences. Report on Glucose. Washington, 1884.

National Board of Health. Annual Reports, 1879-1882.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

National Board of Health Bulletin, June 28, 1879-July, 1882.

National Board of Trade. Proceedings, 1879-1880.

National Bureau of Economic Research. Trends in the American Economy in the Nineteenth Century. Princeton, 1960.

The National Cyclopaedia of American Biography.

New Jersey. Third Annual Report of the New Jersey State Board of Health. Camden, New Jersey, 1879.

_____. Fourth Annual Report of the Board of Health of the State of New Jersey. Camden, New Jersey, 1881.

_____. Fifth Annual Report of the Board of Health of the State of New Jersey. Mount Holly, New Jersey, 1881.

_____. Sixth Annual Report of the Board of Health of the State of New Jersey. Woodbury, New Jersey, 1882.

_____. Seventh Annual Report of the Board of Health of the State of New Jersey. Woodbury, New Jersey, 1883.

_____. Eighth Annual Report of the Board of Health of the State of New Jersey. Trenton, 1884.

_____. Ninth Annual Report of the Board of Health of the State of New Jersey. Trenton, 1885.

New Remedies, 1879-1883.

Newton, William K. "The Sanitary Control of the Food Supply." Public Health Papers and Reports, IX (1883; pub. 1884), 149-165.

New York Board of Trade and Transportation. Minutes, 1873-1881.

_____. Proceedings, 1882-1884.

New York City. First Annual Report of the Board of Health of the Health Department of the City of New York. New York, 1871.

_____. Second Annual Report of the Board of Health of the Health Department of the City of New York. New York, 1872.

_____. Third Annual Report of the Board of Health of the Health Department of the City of New York, 1872-1873. New York, 1873.

_____. Fourth Annual Report of the Board of Health of the Health Department of the City of New York. New York, 1874.

_____. Fifth and Sixth Annual Reports of the Board of Health of the City of New York. New York, 1876.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

New York City. Seventh Annual Report of the Board of Health of the City of New York. New York, 1877.

New York Evening Post, April, 1881.

New York Herald, selected dates, 1876-1886.

New York Journal of Commerce. Weekly and Daily issues examined, 1874, 1878-1886.

New York Milk Exchange Limited. By-Laws.

"New York Retail Grocers' Union." (booklet.)

New York State. First Annual Report of the State Board of Health of New York. Albany, 1881.

_____. Second Annual Report of the State Board of Health of New York. Albany, 1882.

_____. Third Annual Report of the State Board of Health of New York. (Printed as Assembly Document Number 110.) Albany, 1883.

_____. Fourth Annual Report of the State Board of Health of New York. (Printed as Assembly Document Number 89.) Albany, 1884.

_____. Fifth Annual Report of the State Board of Health of New York. (Printed as Senate Document Number 47.) Albany, 1885.

New York State Board of Health. Chemistry of Food and Drugs. Albany, 1881. (Publication No. 40.)

_____. "Duties and Procedures of Local Boards of Health and Their Officers." (Publication No. 27, n.d.)

_____. Manual of the State Board of Health of New York. Albany, 1880.

New York State. /First/ Annual Report of the Metropolitan Board of Health. 1866. New York, 1867.

_____. Second Annual Report of the Metropolitan Board of Health of the State of New York. New York, 1868.

_____. Third Annual Report of the Metropolitan Board of Health of the State of New York. New York, 1868.

_____. Fourth Annual Report of the Metropolitan Board of Health of the State of New York. New York, 1869.

New York State Legislature. Journal of the Assembly of the State of New York, 1871-1886.

_____. Majority Report of the Committee on Oleomargarine and Lard Cheese. Assembly Document Number 105. (May 5, 1881.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

New York State Legislature. Minority Report of the Committee on Public Health Investigating Oleomargarine Butter and Lard Cheese. Assembly Document Number 128. (June 9, 1881.)

_____. Testimony Taken Before the Assembly Committee on Public Health in the Matter of the Investigation into the Subject of the Manufacture and Sale of Oleomargarine and Lard-Cheese. Assembly Document Number 000 /?/. (1881.)

_____. Journal of the Senate of the State of New York, 1871-1886.

_____. Report of Committee on Public Health in the Investigation of the Adulteration of Dairy Products. Senate Document Number 44. (March 21, 1884.) (Testimony of the Investigation appended.)

_____. Resolutions Adopted At A Meeting Of The Physicians Of The City Of New York, In Relation To The Sanitary Condition Of Said City. Senate Document Number 63. (April 18, 1881.)

New York State Pharmaceutical Association. Proceedings, 1879-1886.

New York Times, 1865-1886.

New York Tribune, selected dates, 1878-1886.

New York World, December, 1868-April, 1869.

Nitardy, F.W. "Notes on Early Drug Legislation." Journal of the American Pharmaceutical Association, XXIII, no. 11 (November, 1934), 1122-1127.

North, Charles E. "Milk and Its Relation to Public Health." A Half Century of Public Health, ed. Mazyck P. Ravenel. New York, 1921; rpt. New York (Arno Press), 1970.

"The Oleo-Margarin Industry." Scientific American, XXXVI, no. 11 (March 17, 1877), 168.

Our Dumb Animals, 1879-1880.

Parkes, E.A. A Manual of Practical Hygiene. 5th ed., Philadelphia, 1878.

Peabody, Susan W. Historical Study of Legislation Regarding Public Health in the States of New York and Massachusetts. Chicago, 1909.

Pearson, Raymond A. Facts About Milk. Washington, 1906.

The People vs Daniel Schrumpf. Misdemeanor, Adulteration of Milk. Record, Testimony and Proceedings. New York, 1881.

The Pharmacopœia of the United States of America. Boston, 1820.

Plumber and Sanitary Engineer, December, 1877-December, 1886. (Title changed to Sanitary Engineer.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Poole, William F. Poole's Index to Periodical Literature. 1882; rpt. Gloucester, Massachusetts (Peter Smith), 1963.

President Chandler and the New York City Health Department, 1866-1883. (Reprinted from Sanitary Engineer, May 17, 1883.)

Proceedings and Debates of the Third National Quarantine and Sanitary Convention. New York, 1859.

Proceedings of the National Pure Food Convention Held at Washington, Wednesday, January 19th, 1887.

Produce Exchange Bulletin, selected dates, 1880-1886.

Puck, 1880-1881.

Ravenel, Mazyck P. "The American Public Health Association, Past, Present, Future." A Half Century of Public Health, ed. Mazyck P. Ravenel. New York, 1921; rpt. New York (Arno Press), 1970.

_____, ed. A Half Century of Public Health. New York, 1921; rpt. New York (Arno Press), 1970.

Report of the Council of Hygiene and Public Health of the Citizens' Association. 2nd ed., New York, 1866; rpt. New York (Arno Press), 1970.

Report of the Industrial Commission on Agriculture. Vol. XI, Washington, 1901.

Report of the Sanitary Committee of the Board of Health on the Concentration and Regulation of the Business of Slaughtering Animals in the City of New York. New York, 1874.

"Repression of Adulteration in America." The Sanitary Record, III New Series (September 15, 1881), 98-99.

Rideing, William H. "How New York is Fed." Scribner's Monthly, XIV, no. 6 (October, 1877), 729-743.

Riepina, Sjert F. The Story of Margarine. Washington (Public Affairs Press), 1970.

Riley, Henry A. "Recent Legislation with Regard to Adulteration of Food and Drugs." Philadelphia Medical Times, XV (May 2, 1885), 566-570.

Rogers, Everett M. Social Change in Rural Society. New York, 1960.

Rogers, Frank B., ed. Selected Papers of John Shaw Billings. Medical Library Association, 1965.

Rosen, George. A History of Public Health. New York, 1958.

Ross, Edward A. Sin and Society, An Analysis of Latter-Day Iniquity. Boston, 1907.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Rossiter, Margaret. W. "The Charles F. Chandler Collection." Technology and Culture, XVIII, no. 2 (April, 1977), 222-230.

Rovere, Richard H. Senator Joe McCarthy. Cleveland, 1960.

The Sanitarian, 1878-1881.

Sanitary Record, 1881-1882.

Schieffelin and Company. 150 Years Service to American Health. New York, 1944.

Schlesinger, Arthur M. The Rise of the City, 1878-1898. New York, 1933; rpt. Chicago (Quadrangle), 1971.

Science: A Weekly Record of Scientific Progress, June 18, 1881.

Scientific American, 1876-1880.

Scribner's Monthly, 1873-1881.

Shaftel, Norman. "A History of the Purification of Milk in New York or How Now Brown Cow." New York State Journal of Medicine, LVIII, no. 6 (March 15, 1958), 911-928.

Sharples, Stephen P. "Adulteration of Food." A Treatise on Hygiene and Public Health, ed. Albert H. Buck. Vol. 2, New York, 1879. Reprinted in Supplement to Fourth Annual Report of the State Board of Health, Lunacy, and Charity of Massachusetts. Boston, 1883.

_____. "Specimens of Milk From the Vicinity of Boston." Proceedings of the American Academy of Arts and Sciences, New Series III, Whole Series XI (May, 1875-May, 1876), 149-156; New Series IV, Whole Series XII (May, 1876-May, 1877), 98-112.

Shaw, R.H. and C.H. Eckles. The Estimation of Total Solids in Milk by Use of Formulas. (U.S. Department of Agriculture Bulletin 134.) Washington, 1911.

Shryock, Richard H. The Development of Modern Medicine. New York, 1947.

_____. Medicine and Society in America, 1660-1860. New York, 1960.

Smart, Charles. "Report of an Investigation to Determine the Prevalence of Adulteration in Food Supplies." National Board of Health Bulletin, Supplement No. 11 (January 1, 1881).

Smillie, Wilson G. Public Health. New York, 1955.

Smith, Stephen. The City That Was. New York, 1911; rpt. Metuchen, New Jersey (Scarecrow Reprint Corporation), 1973.

Sonnedecker, Glenn. Kremers and Urdang's History of Pharmacy. Philadelphia (J.B. Lippincott), 1976.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Sonnedecker, Glenn and George Urdang. "Legalization of Drug Standards Under State Laws in the United States of America." Food-Drug-Cosmetic Law Journal, VIII, no. 12 (December, 1953), 741-760.

Spalding, James A. The Life of Dr. Lyman Spalding. Boston, 1916.

Squibb, Edward R. The American Medical Association and The Pharmacopoeia. Privately printed, 1877.

_____. "The Drug Inspectors and the Profession." Editorial for the American Medical Times, II, no. 28 (1861), 66-68.

_____. List of Preparations of Edward R. Squibb, M.D. ("Squibb Trade List," privately printed, 1861.)

_____. Proposed Legislation on the Adulteration of Food and Medicines. New York, 1879.

_____. "The Relations of Physicians to their Medical Supplies." Transactions of the New York State Medical Association, III (1887), 84-92.

_____. "Remarks Upon the Practical Working of the U.S. Drug Law." Transactions of the American Medical Association, XV (1865), 142-150.

_____. "Report on the Drug Market." Proceedings of the American Pharmaceutical Association, XII (1863), 175- 195.

_____. "Rough Draft of a Proposed Law to Prevent the Adulteration of Food and Medicine and to Create a State Board of Health." Transactions of the Medical Society of the State of New York (1879), 209-221.

_____. Semi-Annual Price List of Standard Pharmaceutical Preparations. Privately printed, 1881.

Steele, Zulma. Angel in Top Hat. New York, 1942.

Stephen Smith, M.D., LL.D. Addresses In Recognition of His Public Services. 1911. (n.p., n.d.)

Stieb, Ernst W. Drug Adulteration: Detection and Control in Nineteenth-Century Britain. Madison, Wisconsin (University of Wisconsin Press), 1966.

Stone, William L. History of New York City. New York, 1872.

Taylor, George R. The Transportation Revolution, 1815-1860. New York, 1951; rpt. New York (Harper and Row), 1968.

Taylor, Thomas. "Oleomargarine and Butter." American Quarterly Microscopical Journal, I, no. 4 (July, 1879), 294-295.

_____. "Oleomargarine Under the Microscope." Scientific American, XXXVIII (June 15, 1878), 374.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Thurber, Francis B. Coffee: from Plantation to Cup. New York, 1881.

_____. "Democracy and Anti-Monopoly" -- An Address by F.B. Thurber before the Thomas Jefferson Club of Brooklyn, April 16, 1883. (pamphlet.)

_____. Our Country. A Paper by F.B. Thurber, Read before the XIX Century Club, New York, November 17, 1885. (pamphlet.)

Tobey, James A. The Legal Aspects of Milk Control. Chicago, 1936.

United States Congress. Imported Adulterated Drugs, Medicines, &c. 30th Cong., 1st Sess., H. Rept. 664. Washington, June 2, 1848.

_____. Operation of the Law to Prevent the Importation of Adulterated Drugs, &c. 30th Cong., 2d Sess., H. Ex. Doc. 43. Washington, January 24, 1849.

_____. "Representative E.B. Washburne...." (Petition of the American Pharmaceutical Association.) 36th Cong., 1st Sess., H. Rept. 633. Washington, June 15, 1860.

_____. Petition of George T. Angell...Transportation of Live Stock. 45th Cong., 1st Sess., S. Mis. Doc. 15. Washington, December 1, 1877.

_____. The Adulteration of Articles of Food and Drink. 45th Cong., 3rd Sess., H.R. 5916. Washington, January 20, 1879.

_____. Adulteration of Articles of Food and Drink. 46th Cong., 1st Sess., H.R. 2014. Washington, May 23, 1879.

_____. (Substitute for H.R. 2014.) 46th Cong., 2d Sess., H.R. 4738. Washington, February 25, 1880.

_____. The Manufacture of Articles of Human Food and Drink. 46th Cong., 2d Sess., H. Rept. 346. Washington, February 25, 1880.

_____. "A Bill Authorizing the President to appoint a commission to examine and report upon the adulteration of food." 46th Cong., 3rd Sess., H.R. 7005. Washington, January 24, 1881.

_____. "A Bill to Prevent the Adulteration of Food and Drugs." 46th Cong., 3rd Sess., H.R. 7040. January 31, 1881. (Hawley bill.)

_____. Adulteration of Food. 46th Cong., 3rd Sess., H. Rept. 199. Washington, February 4, 1881.

_____. "A Bill to Prevent the Adulteration of Food and Drugs." 47th Cong., 1st Sess., H.R. 1080. Washington, December 16, 1881. (Flower bill.)

_____. Hearings of the Senate Committee on Commerce on Food and Drugs. 47th Cong., 1st Sess., S. Rept. 649. Washington, December 20, 1881.

_____. "A Bill to Tax and Regulate the Manufacture and Sale of Glucose." 47th Cong., 1st Sess., H.R. 3170. Washington, January 16, 1882.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

United States Congress. Oleomargarine. Hearings before the Subcommittee on Changes in the Internal Revenue Laws. 47th Cong., 1st Sess., no doc. no. Washington, February 10, 1882.

_____. Adulterated Food and Drugs. 47th Cong., 1st Sess., H. Rept. 634. Washington, March 4, 1882. (Substitutes H.R. 4789 for H.R. 1080.)

_____. ("American Grocer Association." Senator Warner Miller, asking for postage refund.) 47th Cong., 1st Sess., S.B. 1727. June 9, 1882.

_____. Manufacture and Sale of Oleomargarine. 47th Cong., 1st Sess., H. Rept. 1529. Washington, June 29, 1882.

_____. Oleomargarine and Imitations of Butter. 48th Cong., 1st Sess., H. Rept. 251. Washington, February 7, 1884.

_____. Adulterated and Spurious Teas. 48th Cong., 1st Sess., H. Rept. 665. Washington, March 4, 1884.

_____. Exportation of Imitations of Butter and Cheese. 48th Cong., 1st Sess., H. Rept. 1669. Washington, May 29, 1884.

_____. Adulterated Food Products. Resolution. 49th Cong., 1st Sess., H. Mis. Doc. 71. Washington, January 11, 1886.

_____. Inspection of Live Stock. 49th Cong., 1st Sess., H. Rept. 1644. Washington, April 15, 1886.

_____. Adulteration of Food. Report. 49th Cong., 1st Sess., H. Rept. 1880. Washington, April 22, 1886.

_____. Federal Prohibition of Substitutes For Butter. Proceedings in the House of Representatives. 49th Cong., 1st Sess., no doc. no. Washington, May 24, 1886. (Debate on H.R. 8328.)

_____. Testimony Taken Before the Committee on Agriculture and Forestry, United States Senate, in Regard to the Manufacture and Sale of Imitation Dairy Products. 49th Cong., 1st Sess., S. Mis. Doc. 131. Washington, June 18, 1886. (Hearings on S.B. 1837, identical to H.R. 8328.)

_____. Butter vs. Oleomargarine. Speech of Hon. Warner Miller (N.Y.) to the U.S. Senate, 7/17/86. 49th Cong., 1st Sess., no doc. no.

_____. Oleomargarine. Message from the President of the United States, Approving House bill 8328. 49th Cong., 1st Sess., H. Ex. Doc. 368. Washington, August 3, 1886.

United States Statutes. 9 Stat. L., 237. June 16, 1848. (Imported drugs.)

_____. 22 Stat. L., 451. March 3, 1883. (Imported tea.)

_____. 24 Stat. L., 209. August 2, 1886. (Tax on oleomargarine.)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

United States Department of Agriculture. Report of the Commissioner of Agriculture, 1878-1886.

The United States Dispensatory.

The Universal Benefactor, 1885.

"Upon the Adulteration of Food, Drink and Drugs, From the Chemist's Standpoint." Journal of the American Chemical Society, III (1881), 60-62. (Abstract of discussion by Albert R. Leeds.)

Van Ingen, Philip. The New York Academy of Medicine: Its First 100 Years. New York, 1949.

Van Stuyvenberg, Johannes H., ed. Margarine. An Economic, Social and Scientific History, 1869-1969. Liverpool (Liverpool University Press), 1969.

Waller, Elwyn. "Dangers in Food and Drink." Century, IX New Series (1886), 303-307.

Wanklyn, J. Alfred. Milk-Analysis, A Practical Treatise on the Examination of Milk. New York, 1874.

Weber, Gustavus A. The Food, Drug, and Insecticide Administration. Baltimore, 1928.

"What We Eat." Harper's Weekly, XXIII, no. 1152 (January 25, 1879), 74.

Wiebe, Robert H. The Search For Order, 1877-1920. New York (Hill and Wang), 1967.

Wiley, Harvey W. "Amylose." Proceedings of the American Association for the Advancement of Science (August, 1881), 61.

_____. An Autobiography. Indianapolis, 1930.

_____. "Glucose and Grape-Sugar." Popular Science Monthly, XIX (June, 1881), 251-257.

_____. The History of a Crime Against the Food Law. Washington, 1929.

_____. "Mixed Sugars." Proceedings of the American Association for the Advancement of Science (August, 1881), 61-64.

_____. "The Rotatory Power of Commercial Glucose." Science: A Weekly Record of Scientific Progress, (no vol. no.) (February 5, 1881), 53.

Wilson, James Q. Political Organizations. New York (Basic Books), 1973.

Young, James H. The Toadstool Millionaires. Princeton, 1961.

Zeigler, Harmon. Interest Groups in American Society. Englewood Cliffs, New Jersey (Prentice-Hall), 1964.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.