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**The Aggravating Alloy: Mercury Amalgam's Role in the Relationship Between the
Educated and Non-Educated Dental Professional in the Nineteenth Century**

A Thesis

Presented to the Department of History

College of Liberal Arts and Sciences

and

The Honors Program

of

Butler University

In Partial Fulfillment

of the Requirements for Graduation Honors

Gracen Lee Dunn

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Abstract

In the early 1830's, a pair of European 'dentists' brought a novel material for filling teeth into the United States. It was far less expensive and far easier to use than competing materials. This new potential ease at which some could practice dentistry put pressure on a situation of conflict between the educated dental professional, and the uneducated dentist. Quacks were the bane of the existence of an educated, gentleman dentist. They were openly condemned in private circles and in the press but the dental 'charlatan' was not the only person in the line of fire. Those who used mercury amalgam were often lumped together, whether they be trained or otherwise, and treated with similar amounts of disdain from the professional societies. The amalgam critics found ways to put down those who used amalgam in organizational publications and used essays, speeches, research, and case studies to support their efforts in keeping any dentist worth his salt from using amalgam. This was a period of progress wherein the setting was just right for an all-out dental scandal that had a hand in the creation and collapse of the first dental society and is influencing the field of dentistry to this day.

Introduction

The nineteenth-century was a time of growth and development for the medical profession in the United States. The significance of this professional progress is its aspect of “collective social mobility.” When entire professions are created and ascend in society, it disrupts the social hierarchy; new avenues were created for social mobility, already rampant in the young United States. The tool used by the medical professionals in the nineteenth-century to hoist themselves into better social positions was authority. Authority was achieved through consensus and legitimacy and with it, both income and influence were safeguarded.¹ A trademark example of this movement is the rise of the dental professional. Dentists achieved “collective social mobility” by creating professional societies, professional periodicals, and a common educational curriculum. This established their authority, but when this authority was threatened by non-educated dentists not associated with their professional system, it sparked a conflict that lasted several decades. This conflict has since been named the ‘Amalgam Wars’ and it revealed the broader issue existing in the society of new medical professionals trying desperately to hold on to the authority they had so recently attained.

The era of professionalization and specialization was burgeoning during the 1830’s and 40’s when a new practice was introduced into the dental scene in New York City.² A new material, dental amalgam, threatened the young profession and caused

¹ Paul Starr, *The Social Transformation of American Medicine*, (Basic Books, 1982), 79-80.

² Alexandra Oleson, *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial Times to the Civil War*, (The Johns Hopkins University Press, 1976), 33.

much of the literature written by and for dentists at the time to be focused on uneducated dentists and the mixture of mercury and metal alloys they were using, starting with the Crawcour scandal in 1833. Edward and Moses Crawcour came to the United States from England to sell their alternative to gold dental fillings.³ How the trained dentists of New York responded to the Crawcour's methods would not only shape the field of dentistry for the rest of the century but influences dentistry to this day as mercury material is still distrusted in many areas of the nation.

There were several factors involved in making the Crawcour's services so desirable. They advertised their 'Royal Mineral Succedaneum' so well in New York, clients were leaving their familiar dental surgeries by the droves. Succedaneum refers to a medicinal substitute, and in this case it was substituting gold for a mixture of mercury and other metals. Other members of the Crawcour Clan added the 'Royal' to their Mineral Succedaneum after they gained notability and success peddling the mixture not only through the towns and villages in Europe but to the royal courts of France, Russia, Prussia, Austria, and Belgium as well. They strove to give their patients the royal treatment. Their offices in New York were referred to as 'dental parlors' and were outfitted with comfortable reclining sofas, draperies, and other fineries to insinuate luxury and to lure in the "former top clientele of the city's best dentists".⁴

The methods introduced and perfected by the Crawcours were to be used by 'hack' dentists for decades and can be held up as prime examples of the seductive quality of the promise of less pain and cheaper service in the medical field. Their advertising

³ Bethanne Kelly Patrick & John M. Thomson, *An Uncommon History of Common Things*. Vol. 2, (Washington, D.C.: National Geographic, 2009).

skills and promises of their procedures being finished “in about two minutes without the slightest pain, inconvenience, or pressure” brought in many clients. For the most part, these claims were true. What might take another dentist using gold several hours the magical Crawcours could do in minutes.⁵ It was also a lot less painful to see the Crawcours than another dentist. But, of course, it was too good to be true. The reason there was no pain involved in filling the teeth of the Crawcour’s patients was due to the fact that they did not take out the decayed tooth before filling it with their mineral paste. What caused so much pain in standard dental practice, the scraping out of the decayed tooth and the pressing of gold into the space left, was not done in the Crawcour parlor. The ‘Royal Mineral Succedaneum’ was soft and pliable enough, it could be thumbed into cavity and the patient was out of the door as soon as the paste hardened.⁶

The dentists of New York did not take this lying down. The educated dentists found themselves in a young profession, with patients being stolen all while their methods and practices were being questioned. They were threatened financially by both loss of patrons and because many invested in the trading of gold. The profession itself was questioned when many of the Crawcour’s patients found that while the treatment was less painful it was also far less effective than what was standard practice at the time. With their reputations and income in danger, a battle between the educated and uneducated dentists of New York began. It ended with the removal of the Crawcours from the city and eventually the country and is understood to be the first conflict in the

⁴ James Wynbrandt, *The Excruciating History of Dentistry: Toothsome Tales & Oral Oddities from Babylon to Braces*, (St. Martin’s Griffin, New York, 1998), 125.

⁵ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 189.

‘Amalgam War’ which would last a decade and would permanently change the landscape of the dental profession in America.⁷

This new potential ease at which some could practice dentistry put pressure on the relationship between the educated dental professional, and the uneducated dentist.

Quacks were the bane of the existence of an educated, gentleman dentist. They were openly condemned in private circles and in the press but, the dental ‘charlatan’ was not the only person in the line of fire. Those who used mercury amalgam were often lumped together, whether they were trained or otherwise, and treated with similar amounts of disdain from the professional societies.⁸ The amalgam critics found ways to put down those who used amalgam in organizational publications and used essays, speeches, research, and case studies to support their efforts in keeping any dentist from using amalgam. By studying the treatment of those who used amalgam by those who refused to use it, one can better understand the relationship between the medical professional and nonprofessional in the nineteenth century. The dental societal publications and politics, changing dental practices, rhetorical techniques employed, and experimentation used and avoided all add to this dynamic relationship between the ‘quack’ and the trained dentist. This study will explore all of these aspects of the dental profession at the time in hopes of better understanding this strained relationship.

Chapter One:

The Educated Dental Professionals

⁶ Lawrence H. Meskin, “‘Royal Mineral Succedaneum’ Revisited,” *The Journal of the American Dental Association* 125, no. 3 (March 1994): 234-236.

⁷ Leonard J. Goldwater, *Mercury: A History of Quicksilver*, (Baltimore, Maryland: York Press), 1972, 280.

⁸ “Communication From Dr. E. Parmly.” *The New York Dental Recorder* IV (1850): 190.

To best understand the historical background of the amalgam scandal in the 1840's-50's, it is important to become better acquainted with the changes taking place in American medicine at the time. The 1840's and 50's marked a surge in the professionalization of the scientific and eventually medical occupations. It was not enough to practice science or medicine; public acknowledgement through regulation, education, association, and publication was now a requirement. Following closely behind the development of the medical profession came the specialization of dentistry. Dentists used their gentlemanly manners and apparent concern for public welfare to help situate themselves on a rung of a pre-made social hierarchy.⁹ To achieve this, they distanced themselves and acted as the champions against the uneducated, unprofessional dental quack. This chapter will explore the development of the scientific and medical professional and how the relationship between the educated and non-educated dental professional played a large role in the development of the profession itself.

It is no coincidence that the development of the professional dental class occurred so shortly after and in accordance with the development of the scientific community. The Enlightenment was an age of social progression and an era in which all who participated were very much aware of the advancements they were making and the novelty of emerging science and technologies.¹⁰ Enlightenment thinkers embraced skepticism and intellectual discourse was no longer a monopoly of the courts and monasteries; it was

⁹ Nathan Reingold, "The Professionalization of Science" in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 33-34.

brought into the public sphere and into the domain of the bourgeoisie. Following over a century of progress, the nineteenth-century was a perfect time for the ‘neglect’ of medical professionals to come to an end. Medical professionals, doctors and dentists among them, legitimized themselves by regulating education, licensing, creating societies, and publishing periodicals.¹¹

As the Americans received Enlightenment cultural trends from Europe, they also mirrored their ideas on what being a learned professional would look like and what role they would play in society. A lot of inspiration came from the established scientific societies of Europe such as the French Academy of Sciences. The Academy was started in 1666 by Louis XIV to further scientific research.¹² These kinds of societies attracted men who felt a responsibility to the general public because they had a better understanding of science than the average person. As Roger Hahn observes in his study of the Paris Academy of Sciences:

“the intellectual felt both above and responsible for the rest of society. In spirit, [he] was neither an artisan nor a professional, neither a teacher nor a preacher, neither political leader nor a mere servant of society, even though he shared many of their occupational concerns and ambition. He prized judgment by peers, the diffusion of knowledge, and the improvement of mankind.”¹³

This sentiment was definitely expressed by the intellectual elite in the United States as well, and later, when medical professions were ready for growth, the idea of the bearer of

¹⁰ William B. Warner, The Enlightenment: A (French) Restoration, *The Eighteenth Century*, Vol. 54, No. 3 (Fall 2013), pp. 415-419.

¹¹ H. Berton McCauley, DDS. “The First Dental College: Emergence of Dentistry As An Autonomous Profession,” *Journal of the History of Dentistry* 51, No. 1 (2003): 42,43.

¹² “History of the French Académie de sciences.” Institut De France: Académie des Sciences. <http://www.academie-sciences.fr/en/Histoire-de-l-Academie-des-sciences/history-of-the-french-academie-des-sciences.html> (accessed February 1, 2017).

¹³ Roger Hahn, *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803*, (Berkeley, Los Angeles, London: University of California Press, 1971), 42.

knowledge being held accountable for the betterment of society influenced the blossoming health vocations.

During the nineteenth-century, when the fields of science expanded, a cultural trend that aided those who wished to become a part of the scientific community was taking place. A movement called self-culture was discussed at length by Unitarian theologian William Ellery Channing in an address given in Boston in 1838. He defined self-culture as “the care which every man owes to himself, to the unfolding and perfecting of his nature.”¹⁴ The individual strove to digest new or challenging literature, art, and scientific concepts. There was a vast diffusion of knowledge that many took advantage of, especially those wishing to be a part of the scientific dialogue.¹⁵ Laymen strove to further their knowledge through any means available to them. There was a communal yearning for self advancement present that Channing identified in his address: “We are able to discern not only what we already are, but what we may become, to see in ourselves germs and promises of a growth to which no bounds can be set, to dart beyond what we have actually gained to the idea of perfection as the end of our being. It is by this self-comprehending power that we are distinguished from the brutes.”¹⁶ For those who wished it, becoming what they “may become” not only involved a lot of individual study but also, to advance the furthest, communion with others who had the same aspirations.

¹⁴ William E. Channing, *Self-Culture: An Address Introductory to the Franklin Lectures*, (Boston: Dutton and Wentworth Printers, 1838), 11.

¹⁵ Sally Gregory Kohlstedt, *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-1860* (University of Illinois Press, 1976), 17.

¹⁶ William E. Channing, *Self-Culture: An Address Introductory to the Franklin Lectures*, (Boston: Dutton and Wentworth Printers, 1838), 13.

For individuals who wished to further their own educations and expand their knowledge as much as they could, a community was needed. The development of such a learned community relying on pooled research and funding occurred in an atmosphere of nationalistic enthusiasm and optimism in the United States. There was an urgency to organize and to push social reform in the direction of progress.¹⁷ Once the standard of society-based learning was set, the next natural step was specialization. Jobs were created around specialists to make advancement more efficient and to increase the volume of valid research.¹⁸ With this streamlined system, scientific knowledge increased to a point where professionalism was inevitable and social orders began to form. By the early nineteenth-century, the scientific professional was an occupation all its own and these exclusive circles of learning became “an elite establishing a monopoly of competence” which created dynamic relationships in the social order and the perfect backdrop for a dental scandal.¹⁹

But what qualified as a professional? There first was a time of professionalization of a specialization, I touched on previously, and from there, the title of professional could be achieved. Following the specialization, uniformity in training and in practice was attempted next. This meant formal education for prospective professionals; this took place among like-minded institutions where common procedure and knowledge could be passed on. A profession also gained legitimacy by forming a professional society which

¹⁷ Sally Gregory Kohlstedt, *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-1860* (University of Illinois Press, 1976), 1.

¹⁸ Ibid., 18.

¹⁹ James. H. Cassedy, “Medicine and the Learned Society” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from*

printed periodicals. The first of these ingredients that make up a bonafide medical profession to be looked at will be the act of professionalization.

The medical profession was undoubtedly already established by the nineteenth-century and from it split a specialty that, while extremely necessary, was not done with great enthusiasm by the common doctor. For centuries, dentistry was practiced by surgeons, ‘barber’ surgeons, and actual barbers who gained respectability in the royal courts of monarchs such as Louis XIV of France and Frederick William I of Prussia. Dentistry, for an extended time, was seen as a brutal business and most physicians did not wish to partake in its practice. H. Berton McCauley describes dentistry in his article “The First Dental College: Emergence of Dentistry as an Autonomous Profession” in the *Journal of Dental History*, as being “harrowing to patient and operator alike” and the work done under the umbrella of dentistry being “shunned by medical practitioners to become the province of practitioners of lesser dignity.” Physicians were not only loath to perform dental surgeries, they looked down on those who did perform them. This left the occupation of dentist overlooked and underdeveloped within the medical profession. However, by the early nineteenth-century dentistry’s image improved due to increased proficiency, and the profession was prepared for the validity that comes with education.²⁰

The standards of medical education in the United States fluctuated between vigorous and barely recognizable in the past two centuries. Being awarded a degree prior to practicing medicine of any kind was not always an essential step. In America between the years 1607 and 1776, there were over 3,000 practicing physicians and less than 400 of

Colonial times to the Civil War, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 33.

them received any form of medical degree; and most of those who *did* received them from Europe. Apprenticeships were the normal form of training of either a medical doctor or dentist.²¹ By the later half of the eighteenth-century, members of medical societies felt that this system should be improved. For example, in 1767, members of the New Jersey medical society decided, “that no student be hereafter taken an apprentice by any member, unless he has a competent knowledge of the Latin and some initiation in the Greek.” Beyond this, new measures were enforced on the duration of the apprenticeship with the final year of study being spent in a medical college.²²

Around the turn of the eighteenth to nineteenth-century, medical colleges were springing up seemingly everywhere with a large enough population to support one.²³ Standards in medical colleges started declining and fewer and fewer men were staying the full amount of time to achieve their doctoral degree. To stay competitive, the schools started to decrease the attendance time and it seemed as though the progress of medical education had slowed considerably.²⁴ The first dental college was established in the first half of the nineteenth-century and those who founded it did not want to make the same mistakes as their medical counterparts. The leaders of the blossoming profession did not want their progress to be slowed or stopped in the same way.

²⁰ H. Berton McCauley, DDS. “The First Dental College: Emergence of Dentistry As An Autonomous Profession,” *Journal of the History of Dentistry* 51, No. 1 (2003): 42.

²¹ Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 10.

²² Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976) 13.

²³ Ira M. Rutkow, MD, MPH, DrPH, “Medical Education in Early 19th Century America,” *Journal of the American Medical Association*, 1999;134(4):453. doi:10.1001/archsurg.134.4.453

²⁴ Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 39.

There were a few distinct figures in American dentistry who were largely responsible for the strides the profession took in the early nineteenth-century. One, thought by many to be the leader of his profession at the time, was Horace H. Hayden. It was Hayden who, in 1817, first promoted the idea of a formal dental society and who, in 1819, addressed medical students on dental pathology and physiology at the University of Maryland. His 33-year-old student, Chapin Harris, helped him realize this vision by assisting him in gaining the conceptual and financial support of his fellow dentists. Hayden had a vision wherein dentistry was a special branch of medicine. He saw it as still a part of the medical field, but with definite distinction between anatomy and practice, with education mirroring that of medical students. Harris, on the other hand, viewed dentistry as more of a ‘manual art’ that could only truly be mastered through observation and practice. The two joined their curricular philosophies and their combined approach is still what is used in most dental schools to this day.²⁵

The opening of the Baltimore College of Dental Surgery in 1840 was no small task. It was unprecedented and for some, it marked the beginning of dentistry as its own profession separate from that of physician. Political maneuvers and bill chartering was necessary to open the college. And a special measure taken was the installation of a Board of Visitors responsible for making sure the college conformed to its charter requirements. On this board, fifteen ‘distinguished’ individuals served, nine of which were physicians, four clergymen, and two dentists. This, in and of itself, attests to the newness of the profession and suggests who, in society, had the most influence in its inception and regulation. It was soon acknowledged that a student who acquired a D.D.S.

²⁵ H. Berton McCauley, DDS. “The First Dental College: Emergence of Dentistry As An

degree was the most qualified to practice. There was no shortage of applicants, and by the year 1860, the college was churning out forty dentists a year.²⁶

More and more dental schools cropped up in the nineteenth-century and by 1880 graduation from a dental college was necessary to practice in certain states.²⁷ Such regulation did not slow the progress of dentistry as a profession but rather went further to satiate the desire for acknowledgment by many in the field. Recognition from the state was awarded through licensure laws given by the state and local governments.²⁸ The first dental licensure had been awarded far earlier in the century to the aforementioned Horace H. Hayden. In 1810, the Medical and Chirurgical Faculty of Maryland granted Hayden the very first license to practice dentistry.²⁹ This act jumpstarted a movement to legally dissuade poor dental practice. The same thing was happening in medicine even at if at a quicker speed. By the 1830s, only three states in the U.S. did not have medical license legislation.³⁰ Such legislation was passed to keep those who were not properly trained from practicing either medicine or dentistry: this was a constant battle.

The first half of the nineteenth-century saw the creation of several medical and scientific societies, many with common goals, but the first dental society had one salient objective apart from the others. In 1848, the American Association for the Advancement

Autonomous Profession,” *Journal of the History of Dentistry* 51, No. 1 (2003): 42,43.

²⁶ *Ibid.*, 42,43.

²⁷ Thomas M. Schulein, DDS, MS, “A Chronology of Dental Education in the United States,” *Journal of the History of Dentistry* 52, No. 3 (2004): 98.

²⁸ James. H. Cassedy, “Medicine and the Learned Society” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 35.

²⁹ H. Berton McCauley, DDS. “The First Dental College: Emergence of Dentistry As An Autonomous Profession,” *Journal of the History of Dentistry* 51, No. 1 (2003): 42,43.

of Science (AAAS) was established. Still active to this day, it was created out of a need for a symbolic and actual alliance of scientists. The association facilitated a consensus on aspirations as a body and as individuals.³¹ This was much the same for other scientific and medical societies. They came together to fill needs of regulation, coherence, collaboration, and to establish public recognition for their work and professions. The first dental societies, though they shared those goals, also had a different task.

The first dental organization was the Society of Surgeon Dentists of the City and State of New York. It was founded in 1834 with Eleazar Parmly and Solyman Brown as president and corresponding secretary, respectively. The society was created with the “mission” of expelling the “unscrupulous” Crawcours from the city and to expose the “evil” effects of “Royal Mineral Succedaneum.” Their undertaking was successful as the Crawcours were driven out of the city in the mid 1830’s.³² This society and its successor, the nationwide American Society of Dental Surgeons, were not only interested in expelling the Crawcours; their members wished to rid the public of “dental charlatanism” of all kinds. They saw their society as a united front against the malevolent forces of insincere dental practice. Any dentist not properly trained, who was looking to make a profit off of subpar dental care was an enemy. They were an enemy that could far easier be exposed and defended against if the ‘real’ dentists banded together.

³⁰ Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 13.

³¹ Sally Gregory Kohlstedt, *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-1860* (University of Illinois Press, 1976), 190.

³² H. Berton McCauley, DDS. “The First Dental College: Emergence of Dentistry As An Autonomous Profession,” *Journal of the History of Dentistry* 51, No. 1 (2003): 42.

Their best tool in achieving this goal was through the publishing of periodicals. The Society of Surgeon Dentists' periodical was first published in 1839 and immediately met with great success. It started with 317 subscribers, a huge number considering the far smaller number of dentists in the country, which was around 200. These subscribers were from 26 states and six countries and many paid up to \$100 to receive expected issues.³³ The role of the periodical to the budding society was made clear by Hayden, the president of the society at the time, in his "Opening Address" in the second volume of the *Journal* published in 1841:

"I am deputed to deliver an address to whom? Or to what? To a self-created body, which thirteen months ago was not known or acknowledged as belonging to any society or community-without a legitimate head or name, without laws, without government, and, with some exception, without character, except that of the mercenary and unprincipled. But which, from a deep sense of the hitherto unpropitious state and condition of the highly deserving members of the profession... assumed a position or stand, which, if encouraged and sustained, will insure to us not only a respectful but a legitimate claim to the title of zealous cultivators of science, and the undeviating friends of humanity and of social order."³⁴

There is an apologetic and promising tone present in Hayden's and others' works on dentistry at the time. Acknowledging the profession was previously 'out of hand', Hayden, assures them dentists have united and will crack down on the "mercenary and unprincipled" with a vengeance. Another explanation of the services the *Journal* provided was given by a W. H. Lintott in 1842 in an open letter to the editor of the *London Lancet*, a "journal of British and foreign medical and chemical science, criticism,

³³ H. Berton McCauley, DDS. "The First Dental College: Emergence of Dentistry As An Autonomous Profession," *Journal of the History of Dentistry* 51, no. 1 (2003): 42.

³⁴ Horace H. Hayden, "Opening Address." *American Journal of Dental Science* II, no. 1 (1841): 2.

literature and news.”³⁵ In this letter, titled “Progress of Dental Science in America,” which was published in the *Journal of Dental Science*, Lintott describes the inception of the dental society: “the avowed objects of the publication being to afford facilities for the diffusion of knowledge in dental theory and practice, and for that unreserved intercommunication of facts between the members of the profession which ever opposes the firmest obstacle to the growth of quackery, inasmuch as one of the strongest distinctive attributes of the empiric is, to have, or to pretend to have, professional secrets.”³⁶ While this acknowledged that the society and the periodical were created for the sharing of dental and scientific knowledge, they also safeguarded any “secrets” of the profession from those unworthy: the quacks.

In this era of professionalization, new occupations but also new social classes were created. The learned scientist would create their own place on the hierarchal ladder or they would have to share space with another group. Their belonging in either space would be hard-fought and they would need to push others out to remain in. Across the Atlantic, however, the scientists inhabited their own high standing in the established social structure. They did not find it necessary to worry over the less-educated ‘amateur’ scientist because being an educated scientist raised one’s status across the board. But in the United States, the scientific professional had no guaranteed rung on the social ladder, they hence, fought for their prestige and any power they could hold on to.³⁷ They did so

³⁵ *The London Lancet: a Journal of British and Foreign Medical and Chemical Science, Criticism, Literature, and News*, I, no. 1 (Jan. 1845).

³⁶ W. H. Lintott, “Progress of Dental Science in America.” *American Journal of Dental Science* II, no. 1 (1841-2): 300.

³⁷ Nathan Reingold, “The Professionalization of Science” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial*

by delegitimizing the quacks and by promoting their professional reputation to each other and to the general public.

This dichotomy between the educated and uneducated medical professionals, through necessity, was in no short supply among the dental professionals. To achieve and remain at a higher position in society, the dentists portrayed themselves as gentlemen, intellectuals, and in every way *not* a quack. To pull this off, each dentist needed to have a profound pride in their profession and an abhorrence for “ignorance” and “false practice.” John C. McCabe, writing an essay in *The Journal of Dental Science* titled “Thoughts on the Abuse of Dental Practice” in 1839, clearly shared this concern: “and it must afford the intelligent dentist infinite satisfaction to know that his profession, though disgraced by some of the worst specimens of humanity, numbers some of the most intellectual and scientific in the country.”³⁸

The renowned dentist Solyman Brown also captured the representation of the gentleman professional who was to behave with the utmost decorum and always keep the public’s interest in mind in his “Dissertation on the Pursuit of Professional Eminence”:

“In the duties of his profession he must not only perform all parts of his work in the most approved and substantial manner, but he must impress the public with the value and importance of his individual services; invest his simplest operations with an air of mystery, and conceal his infirmities in the mists and combings of that prosperous billow upon which his bark is bearing him to the haven of renown.”

Constant mindfulness of the precariousness of their position in the social hierarchy was key to maintaining it. A dental professional always had to act the part of

times to the Civil War, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 33-34.

³⁸ John C. McCabe, “Thoughts on the Abuse of Dental Practice.” *American Journal of Dental Science* I, no. 1 (1839): 135.

distinguished gentleman and his actions should reflect the necessity of his work and the honor of his profession. This task was not only that of a dentists but also as a protector of the public against the wily swindlers.³⁹

But being just a well educated, well-bred gentleman did not a dentist make. A few years later, in 1845, in his “Dissertation on the Elevation of the Dental Profession” Dr. Townsend described young man who applied to him to come aboard as his apprentice. The dentist saw that he is well educated, well mannered, and has a good disposition, so he takes him on. After a time, it is discovered that the young man just does not have the motor skills necessary to excel. The dentist lets him go and asks he study for a while at a jeweler or gunsmith to better “educate his hands.” While awaiting this younger man’s return, the dentist finds him setting up shop on a “fashionable street, with a door plate as large as a newspaper, ready to fill, file and extract.” Instead of becoming a dentist in the ‘proper’ way and earning his spot in dental society he joined the ranks of the quacks with “just knowledge enough to do mischief.” Obviously, there was one correct method to becoming a dentist and one should not stray from it. Anything else might get one financial rewards but it would also earn the scorn of an entire profession.⁴⁰

Among the many strides made in the fields of science and medicine in the first half of the nineteenth-century, professionalization was the most prominent. Professionalization was accomplished through education, regulation through licensure laws, and the formation of professional societies. The occupation of dental professional followed medical doctor and, after the diligent work of a few men early in the century,

³⁹ Solyman Brown, “Dissertation on the Pursuit of Professional Eminence.” *American Journal of Dental Science* II, no. 1 (1841-42): 124.

was acknowledged as a separate field. One of these men, Eleazar Parmly, became the honorary ‘poet laureate’ of dentistry and penned many poems about his chosen field of work. In February of 1847 he read one of these to the graduating class of the Baltimore College of Dental Surgery. The poem details his path from country boy to esteemed dentist:

The books then written, that I knew
On the profession, were but few;
And found this wholesome counsel there,
That great perfection could be gained,
And wealth and honor thus obtained—
If one strict course should be pursued
Of industry and rectitude.⁴¹

Focusing on the struggle of the first dentists, Parmly delineated the manner in which graduates’ social standing had changed by becoming proper dentists. The early dentists had to fight for their role and place in society and they did so by always portraying themselves as educated gentlemen keeping the public safe from dental charlatans. The existence of quacks played a large role in the development of every aspect of the dental profession.

Chapter Two:

The Uneducated Dental Professionals and Differences in Material

⁴⁰ E. Townsend, “Dissertation on the Elevation of the Dental Profession,” IV, no. 4 (1845): 25, 26.

⁴¹ Ibid., 300-323.

Until this point the assumption presented in this paper has been that social and professional gains were always made when an individual joined a learned society or received a degree. The narrative has followed that the public was always in sync with the development of the medical profession and were willing recipients of their organization and regulations. In actuality, the social atmosphere was turbid, and public opinion was not always on the side of the educated. In fact, at times, the ‘mob’ resented the professional and turned to the unorthodox for treatment. Cycles of these changing sentiments toward medical professionals are seen in the eighteenth and nineteenth centuries with the rise and fall in popularity of several unconventional medical sects. Whatever dignity and authority the medical professionals had fought for, could be taken away the moment the public gave the same rights to practice to the eclectics, homeopaths, and hydropaths.⁴² It is not difficult to see how this could be, and was, translated into the growing dental profession. They took every uneducated dentist’s practice as a personal affront to the craft and a personal attack on what they had struggled so hard for: patients and the respect of the communities they were members of. To better understand the climactic episode involving dentistry and mercury amalgam, it is important to put the relationship of the uneducated medical professional with the educated in a larger context.

If a level of standardization and collaboration for the benefit of a profession and ultimately for the patient has been reached in a society, why would the members of this

⁴² James. H. Cassedy, “Medicine and the Learned Society” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 265.

society choose to go to any alternative? One factor that must not be overlooked is the mentality of many Americans during this period. Those who chose to rise to the ranks of medical professional by alternative means and without the formal education of a doctor could do so by pulling on the nation's heartstrings. One prominent example is of the "American Reformed" system of medical practice. It originated with a Dr. Wooster Beach (1794-1868) who graduated from the University of New York's medical department and was a member of the New York County Medical Society. He did not agree with others in the field on the use of bloodletting and mineral remedies, but rather took to herbs, roots, and vegetables.⁴³ He held the eclectic view of the physician being a helper of nature and any treatment that might make the patient worse off than the original ailment should be condemned. He accumulated enough followers to open up his own clinic and school, which could not grant medical degrees; however, students were given certificates resembling degrees upon completion of their training. Beach was able to take advantage of a common antiestablishment feeling already present in the young nation. As one member of the Eclectic Medical Association remarked: "It is the republican element descended into the domain of science and philosophy; for eclecticism is Republicanism, par excellence, and stands out in striking antithesis to the servile, exclusive and pedantic dogmatism which so extensively characterizes the exanimate and fossilized systems of the past." This 'new' form of medicine was seen as a miniature

⁴³ John S. Haller. *Medical Protestants: The Eclectics in American Medicine, 1825-1939*. (Carbondale and Edwardsville: Southern Illinois University Press 1994), 70.

revolution born from the left-over determination of the ‘underdogs’ and was hailed as being exclusively American in origin, practice, and nature.⁴⁴

Reformed medicine goes hand-in-hand with Jacksonian Democracy, which was popular during the first half of the nineteenth-century. Under this movement, the American common man could do or be anything he set his mind to because he possessed the common sense to achieve it. This meant that anyone had an equal right to opportunity to succeed, which could translate to equal opportunity of achieving professional status. This struck an enterprising chord with many men, such as Samuel Thomson (1769-1843) who was a self-taught physician. He was arrested for manslaughter after a patient of his died, but he was not found guilty. In 1813 he received a patent for his particular system of medical practice, and his self-proclaimed goal was to make every man his own physician. Thomsonian medicine became very popular with those who migrated from the country to cities because his herbal remedies were more similar to what they were used to. At one point one sixth of Bostonians went to Thomsonian physicians.⁴⁵ Unorthodox medical practitioners, such as homeopaths and eclectics, were able to thrive in areas of the young republic because the social setting was such that people not only trusted but rooted for those who wished to ‘pull themselves up by their bootstraps’ and fill a demand.

In spite of society’s fondness for the unorthodox, professionalization of medicine gained traction as the public criticized quackery, but as time wore on, the blame shifted to the medical practitioners themselves. In the eighteenth-century, there were several cases

⁴⁴ John S. Haller. *Medical Protestants: The Eclectics in American Medicine, 1825-1939*. (Carbondale and Edwardsville: Southern Illinois University Press 1994), 87-90.

of private citizens publishing pleas for the passing of laws in hopes of preventing medical quackery: *The Independent Reflector* in 1753 and *The New-York Mercury* and the *Boston Gazette* both in 1766 all had similar articles denouncing medical quacks. In the *Boston Gazette*, the author blamed the increase in medical swindlers on educated physicians for not taking on more apprentices: “No physician would accept an apprentice unless he had from eighty to one hundred pounds.”⁴⁶ There grew a strange paradox: the public harbored frustration toward the licensed professional class of doctors. This frustration pushed them into the arms of the waiting unlicensed practitioners. One possible explanation for this change could be the public’s desire for new medical techniques. While the use of bloodletting and calomel had been common practice in medicine for hundreds of years, by the nineteenth-century the pendulum of public opinion was starting to swing the other way toward tamer therapeutics.⁴⁷

As the public grew more comfortable with going to unorthodox physicians without formal training but with new ideas for treatment, this trend was seen in other specialties such as dentistry. The formally trained dentists were losing business to these ‘pretenders’ and were not shy in condemning them in their writings and periodicals. The dentist John C. McCabe, mentioned earlier for his article “Thoughts on the Abuse of Dental Practice,” represents the notion many professionals carried on how, instead of gaining an education before practicing medicine or dentistry, all the uneducated had to do was drop whatever crude tool they had been using prior: “He who yesterday wielded the

⁴⁵ Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 65-67.

⁴⁶ *Ibid.*, 11-12.

⁴⁷ Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 71-72.

blacksmith's hammer with unaspiring content, today puts forth a sign, bearing on it in great flaring letters 'Surgeon Dentist'.⁴⁸ This denigration fell into one of the two most common categories the educated dentist would put the uneducated. When writing about quacks, dental professionals, such as McCabe, would categorize them into a couple of different groups focused on *how* they become a 'cheap' dentist with their motives being emphasized.

The first class of quacks were 'those who could not get a good enough education.' To be placed in this category, a prospective dentist could have good intentions but he did not have the means to receive a full dental education before peddling whatever skills he could scrape together to the general public. Dentists would find creative ways to emphasize their unfinished education. In the 1839 *Journal of Dental Science*, a letter supposedly written by practicing dentist who did not receive a formal dental education was published and discussed:

"Deer Sur

I take my pen in hand to Inform you of how I am duing. I have turned dentist and am making munney I have a mity nice office in this place, and keeps a Sulkey I am very fond of drawing teeth and meen to lurn how to make seehorse teeth. This is a better prefeshun than mayking Cocktales at hapence a glass. Yew must rite to meen at this place.

I reemayn your humble servant,⁴⁹

The idea of a man having success while knowing nothing of dental physiology, let alone grammar, was enough to incite anger in many dentists. This man happened into the profession and he did nothing to elevate it because of his crude manners, ignorant speech, and nonparticipation in official dental society. This young profession set up rules for

⁴⁸ John C. McCabe, "Thoughts on the Abuse of Dental Practice." *American Journal of Dental Science* I, no. 1 (1839): 133.

themselves so everyone might do their part to further the business. And seeing others circumvent these rules for their own gain was hard to stomach for most.

They placated themselves with the idea that anyone who knew better would not mistreat the profession in this way. Any true man of science and learning would do things the proper way. In an 1843 edition of the *Journal* in a 'Miscellaneous Notices' section, a dentist had this to say on the matter: "We do not recollect to have ever known a scientific, thoroughly qualified and skillful practitioner, to resort to such contemptible trickery. It is beneath the dignity of honorable, high-minded men, and we believe that no one, worthy of confidence, would do it."⁵⁰ By qualifying the quacks as a different breed of men, they would distance themselves from them even more. Even later on in the century in the 1875 *Pennsylvania Journal of Dental Science*, the "Fatal Enemy to the Teeth" was the dental quack who happened into the profession by "reaching the sheep-fold" and in "their general bearing and practice, maintained about the same standard of excellence".⁵¹ Some men were lucky enough to call themselves dentists but they were not so by any in 'good standing' dental society and they did so, the educated dentist thought, at the detriment of the profession itself.

Even worse than the quack who does not know any better is the quack who does know better and continues to do poor dentistry. To know better is not to say that he has received the same amount of training but rather that he has made the calculated decision to not take the time or spend the money on a dental education. Such a 'dentist' was

⁴⁹ John C. McCabe, "Thoughts on the Abuse of Dental Practice." *American Journal of Dental Science* I, no. 1 (1839): 134.

⁵⁰ "Cheap Dentists." *American Journal of Dental Science* IV, (1843-4): 215-216.

charged with using shortcuts wherever they could to turn the most profit. Methods of the quickest patient overturn involves “crowding the work of a week into a day” and “treating the living organs of the mouth as though they were sticks and stones, regardless of nerves, and flesh, and blood”. They use advertisements and showy offices to gain patients, they work to establish a good reputation, but at the end of the day do a worse job because it is more profitable to do so and they are operating outside of the jurisdiction of the dental societies.⁵²

There were also cases of celebrity quacks. The Crawcours were the most infamous of the dental charlatans in the United States but they had successors who picked up where they left off when they were ‘chased’ out of the country. One of the most notable was a Monsieur Mallan who sailed to the United States to peddle his services and his supply of “metallic composition”, “Chinese cement”, and “lithodeon”.⁵³ Like the Crawcours, he was eventually evicted from the city through the more concentrated efforts of the public. New York City’s ‘immune system’ was already familiar with the celebrity quack and were better equipped to handle this new-comer. Through blacklisting and even the use of the court he was “reshipped for England”.⁵⁴ These dental showboaters gained popularity in the cities they practiced in with smart advertising. They promised their customers less pain and quicker service. The educated dentists were aware of the

⁵¹ “A Fatal Enemy to Teeth.” *Transaction of the Pennsylvania State Dental Society: Together with the Constitution, By-Laws and Code of Ethics.* (Lancaster, PA.: Pennsylvania Journal of Dental Science, Print. 1875), 185.

⁵² William W. Dwinelle. “Quackery in High Places.” *The American Journal of Dental Science*, Vol. V, (1844-45): 273-276.

⁵³ *American Journal of Dental Science* VI (1845-6): 216.

⁵⁴ “The Last Importation of Transatlantic Quackery, Reshipped for England, with the Usual Allowance of ‘Draw-Back,’” *The American Journal of Dental Science* IV no. 1. (1843): 71.

cause of their loss of patients. In an 1844 edition of the *American Journal of Dental Science*, a dentist “rejects” such advertisements and says this about their publishers: “No vehicle renders them such assistance in the work of rapine as the religious magazines, which, among the thoughtless masses, powerfully and naturally tend to dignify the hateful system, and to sanctify the ruthless imposture.” He was calling out the magazines themselves for taking the money from the quacks which they have just “stolen” from the public.⁵⁵ These flashy quacks put out a persona of sophistication and better dentistry with their promises of comfort and quickness, which only gave the educated dentists more ammunition in their fight against them.

What was the common factor in almost all of the quacks? What was the salient article that enabled those with *no* money to start dentistry, those *with* money to make even more at the expense of those buying, and for some to gain fame and then infamy? In almost every case, the difference was the use of mercury amalgams.

In every *Journal of Dental Science* from the first in 1839 through the 1840’s and 50’s there is mention of mercury amalgams. There was a direct relationship between the use of this ‘new’ material and the upswing in the number of dental quacks. To undermine these newcomers, many of the educated dental professionals sought to attack them at the heart of their practice: mercury amalgam. The differences in material and practice were distinctive enough, where amalgam was concerned, that it was easy for those writing into the *Journal* to blame those who used it for ‘wrongdoing’. They concentrated on the material of mercury amalgam. Many claimed it could not be

⁵⁵ “Rejection of Quack Advertisements,” *The American Journal of Dental Science* V no. 1, (1844): 234.

benevolent on principle of its chemical makeup and the rest was blamed on the poor application. The professionals could further villainize the uneducated dentists, the dentists most likely to use amalgam, by portraying mercury amalgams as evil tools by which they did their evil deeds.

The ‘benevolent’, customary material at the time had been keeping dental charlatanism in check, but it eventually helped them in the door. In good standing dental society, the standard in the first half of the nineteenth-century was the use of gold for dental fillings. The caries would be removed from the tooth carefully and then plates of gold would be pushed into the cavity left behind. This was a taxing procedure for both patient and dentist alike and would take several hours.⁵⁶ The gold used was not cheap. This had previously deterred the insincere and unprepared dentist ‘wannabe’ from starting a practice. All of this changed when mercury amalgam was introduced in the United States.

Much of what the Crawcours advertised was true. Amalgam fillings could be administered with a fraction of the pain, time, and cost. With gold fillings, a great amount of force was needed to lay the foil into the tooth. This process was dreaded, and rightly so, because the tooth was already sensitive from the decay, the pain of filling was amplified. Mercury amalgams did not have to adhere to these painful guidelines because the composition of the material was so different. Amalgams were created by joining mercury with a mixture of other metals. The quality of the alloy differs, some being made of copper, silver, and tin and others being created with old silver coins. In either case, by mixing the metals with mercury, the material could be placed into a cavity with a

new level of ease compared to the pressing of the gold foil. The amalgam was so viscous it seemed to fill the tooth when placed. This meant that in the time it took to do one gold filling, potentially tens of amalgam fillings could be given. The cost of the newer material was also far less than gold. A pound of amalgam “cement” would likely cost under fifty cents while a pound of gold, at the time, would cost over thirty dollars. Because of the decrease in pain, time spent, and cost, many people followed the siren song of mercury amalgams. It is estimated that in 1844, fifty percent of dental fillings in upstate New York were done with amalgam.⁵⁷ The dental practitioners did not take this lying down.

If the price, time, and cost differences can all be used in the case for mercury amalgams, the dental professionals could still make a case against them. At the heart of their argument lies the fact that amalgams are cheaper to obtain than gold. This attracts those hoping to break into the dental ‘game’ and also those hoping to turn a profit. Dentists realized this and used this rationale to discount any benefits that could be claimed from using amalgam. Amalgam was also far easier to place than gold foil and required very little skill. The paste could be thumbed into the tooth and there was no real complexity to the process. Because of this, those who were not trained in the dental arts could still fill teeth and with a potentially higher turn of profit than those who were trained to use gold. The material was very attractive to the dental charlatan as well as the man trying to make it as an ‘honest’ dentist, but professionals against it focused on those with malicious intent. Those who wished to make good on their promise of ‘no pain’

⁵⁶ Malvin E. Ring. *Dentistry: An Illustrated History*. (New York: Harry N. Abrams, Inc., 1992).

would not completely remove the decay from a tooth before it was filled. This nearly guarantees further decay of the tooth. The issue became not with some quacks abusing the ease of and cheapness of the amalgam material but with the material itself. There was an assumption that if one was using mercury amalgam, they were not preparing the teeth properly and they were using it not to better the profession but to better turn a profit.

Educated dentists' writings now had two villains: the quack *and* mercury amalgams. Even when not writing about quacks specifically, as with the book written by an A. Snowden Piggot in 1854 titled *Chemistry and Metallurgy as Applied to the Study and Practice of Dental Surgery*, the dentists still found ways to degrade the use of mercury. In this book, Snowden Piggot's mention of amalgam as a material of dental practice was unenthusiastic at best: "The fact that an amalgam of mercury with other metals has been used, and is still recommended in some quarters as a filling for teeth, renders it necessary that a brief description of this metal should be subjoined." He goes further by giving the common combinations of metals used in dental amalgams with a warning of the "deleterious effects" caused by such mixtures. The negative effects of mercury on the system are described for several pages and conclude with an answer to the "amalgam question":

"The amalgam question, as it has been called, is thus answered with the utmost promptitude by chemistry. To the chemist, it has but one side; it needs but to be stated to be immediately decided upon. The use of a mercurial amalgam is, under all circumstances, wrong; for the simple reason that we have no guarantee that the most frightful results of mercurial poisoning will not take place. The introduction of lead into it, as in the villainous compound, of which a formula has been given, is a step farther into the wrong."⁵⁸

⁵⁷Westcott, A. "Report of the Onondaga County Medical Society, on 'Mineral Paste'." *American Journal of Dental Science* IV no. 3 (1844): 175-200.

⁵⁸A. Snowden Piggot. *Chemistry and Metallurgy as Applied to the Study and Practice of Dental Surgery*. (Philadelphia: Lindsay and Blakiston, 1854), 438-449.

Mercury poisoning was only one of the many concerns held by and written about in regards to dental amalgams but mercury was not always seen as harmful.

Mercury was used liberally in medicine in the eighteenth and nineteenth centuries. It was used to cure many ailments, such as dropsy, epilepsy, gastrodynia (stomach ache), ulcers, chronic abdominal tumors, and syphilis. Some doctors, such as Thomas Dover (1660-1743), prescribed it for nearly everything. He used amalgam so readily he became known as the Quicksilver Doctor. He was also famed as a privateer; he was on the ship that saved the castaway Alexander Selkirk. This adventure was later used by writer Daniel Defoe for his story of Robinson Crusoe. Beyond his swashbuckling, he was known for the controversy that often surrounded him regarding the use of mercury. It was not the mere fact that he prescribed mercury (many doctors did), it was rather the fact that he prescribed it for almost every illness. Dover had an aggressive personality and a steadfast loyalty to mercury that helped to foster almost 50 years of discourse between himself and fellow doctors.⁵⁹ Not only was mercury used for medicinal purposes in the late eighteenth-century and the nineteenth-century, but it had already been a part of the public discourse. Mercury had already become an issue and debate between those who swore by its efficacy and those who condemned it was already under way by the time it had become a problem in the field of dentistry.

Mercury fell into disfavor with many doctors in Europe and the United States in the nineteenth-century but mercury amalgams only gained traction in the dental field.

⁵⁹ Leonard J. Goldwater. *Mercury: A History of Quicksilver*. (Baltimore, Maryland: York Press, 1972), 239-284.

One of the most widely prescribed of the mercury-based drugs was calomel.⁶⁰ Calomel was prescribed to treat many ailments but by the nineteenth-century, complaints of side effects of gastrointestinal discomfort were quite common. At this point, not only the efficacy of calomel but all mercury-based drugs were being questioned. The mercury-based cements used by some to fill teeth were also distrusted, but they have survived and are still in use to this day. It took several decades before amalgams could make an appearance in a dental office without the dentist administering them feeling ashamed or as a traitor to his profession. In an 1887 edition of *The Western Dental Journal* a dentist is free to remark on the struggles amalgams have had to endure and the benefits of using them:

“Since then behold the fierce battles that have been fought over it! One would think in reading our journals that it had taken as much war to free it from bondage as it has the negro; but we have it with us, and it will remain as long as our patrons are not all Vanderbilts, or as long as there is a class who wish to preserve their teeth and are barely able to pay the small sum of one or two dollars for a filling...we should select such alloys as are proven by time to give the best results.”⁶¹

By this time, it was safe to acknowledge that the profession had reacted injudiciously to amalgams. They found that though their evils had been proclaimed by the leaders of their profession, the material was “as free and innocent as the child unborn.”⁶² In many ways the damage had already been done. The educated dentists published harsh words against

⁶⁰ Calomel is a drug of mercurous chloride (Hg_2Cl_2). It occurs naturally as the mineral horn-quicksilver. In medicine it has also been referred to as Draco mitigatus, Manna metallorum, Aquila alba and Mercurius dulcis. The name calomel is derived from the Greek *καλός*, beautiful, and *μέλας*, black, which alludes to the blackening by ammonia. It could also be from *καλός* and *μέλι* for honey which alludes to its sweet taste.

“Calomel.” *1911 Encyclopædia Britannica, Volume V*. Web. 02 Feb. 2017.

⁶¹ “Amalgam.” *The Western Dental Journal*. I (1887): 247-251.

⁶² Ibid.

amalgams and anyone who used them. Their actions on the subject directly influenced the fall of the first dental society in the United States.

Chapter Three: Research and Experimentation

In March of 1844, a Dr. Westcott wrote a report, *Mineral Paste*, that addressed the validity of mercury amalgam, a mixture of mercury and metal alloy, as an alternative to other metals for the filling of teeth. This report was deemed necessary as the debate over mercury amalgams was growing more and more heated in the dental community after two Europeans, the infamous Crawcours, introduced it to the American public. Dr. Westcott's opinions on the matter are similar to a large number of dentists at the time:

“Every practice either in medicine or surgery, if it be pernicious in its ultimate results, is the more dangerous to the community, as it is the more alluring, and of the many which are offered to the public, perhaps few so destitute of merit, present more apparent advantages, than that of filling teeth with “mineral paste,” especially to those who are ignorant of its composition, and tendencies. Indeed, who would not be induced to have their teeth filled when they are made to believe, that the operation may be performed “without pain” with little expense, and all this too with “*royal mineral succedaneum*,” which, though a paste, when introduced, soon “becomes as hard as the tooth itself!”⁶³

The rhetoric Dr. Westcott chose to use was a kind often taken up by those not in favor of mercury amalgams or any of its aliases: “mineral paste”, “royal mineral succedaneum”, among others. As Dr. Westcott stated, the proof of the material being subpar was found in the price and effort being substantially less than the alternatives (gold or silver).⁶⁴ This chapter will investigate the research, and lack of research, present in the writings of dentists during the 1830s and 1840s. The experiments they chose to either include or exclude added to the conflict and the aim of the educated dentist to distance themselves

⁶³ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 176.

⁶⁴ *Ibid.*, pg 189.

from the uneducated, enterprising non-dentist and any who associated with their chosen method of practice (i.e., mercury amalgam).

The roles of researcher and medical professional did not often overlap in the nineteenth century. Almost all medical research was performed not by practicing physicians, but by scientific researchers alone.⁶⁵ This trend can be seen from the early days following the American Revolution. One of the first learned societies developed in the country, the American Academy of Arts and Sciences, published very few papers on medical subjects even though one of the objectives of the organization was “to promote and encourage medical discoveries”⁶⁶. In the Society’s publication, *Transactions*, medically related papers made few and irregular appearances through to the 1850s.⁶⁷ The research that *was* being performed by medical providers fit into the category of utilitarian rather than ‘lab’ research. This was a cultural phenomenon in early America according to Sally Gregory Kohlstedt: “In popular thought, science was liked to the self-evident. A steady stream of inventions in the new nation brought more applause for utilitarian applications of science than for less easily understood European advances in laboratory research.” The United States was seen as a “great laboratory” of the world, and the experiments being performed in that laboratory were not merely conjecture but were being tried in a large scale and in the ‘real world.’ This was translated to medicine and

⁶⁵ Nathan Reingold, “The Professionalization of Science” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 49.

⁶⁶ “Charter of Incorporation of the American Academy of Arts and Sciences.” *American Academy of Arts & Sciences*. Web. 06 Dec. 2016.

⁶⁷ James. H. Cassedy, “Medicine and the Learned Society” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from*

the knowledge shared by practitioners was pragmatic and would most likely be concerned with practice and utility.⁶⁸

Medical professionals' priorities lay more on the maintenance of their status in society rather than on experimentation. They thought of themselves as belonging to a discrete tradition rather than a fraternity of scientific exploration. In a growing country, being a part of this tradition was one way to ensure one's social standing. The best proof of validity of one's social standing as a professional was holding a membership in a professional society. By 1815, medical societies were established in most states to better ensure the passage of medical licensing laws, improve medical education, and for the benefits of social networking.⁶⁹

The American Society of Dental Surgeons was established in 1834 and was the first national dental organization in the United States. The society was formed due to the "sorry state" dentistry found itself in during the first part of the century. The public was at the mercy of a profession that had no regulations on schooling or legal requirements for treatment. Fifteen dentists met in New York City to form a united front against quacks and charlatans in the realm of dentistry.⁷⁰

To keep in contact with their fellow educated dentists and to further their agenda of reducing the patient pool and reputation of the untrained dentists, the American

Colonial times to the Civil War, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 265.

⁶⁸ Sally Gregory Kohlstedt, *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-1860* (University of Illinois Press, 1976), 2.

⁶⁹ Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 13.

⁷⁰ Malvin E. Ring, "Solyman Brown, A Giant of Dentistry and its Poet Laureate," *Journal of the California Dental Association* 30, no. 3 (2002): 216-221.

Society of Dental Surgeons published a periodical. Printing a periodical is one of the foundational achievements of any learned society. It establishes legitimacy and creates a space for sharing and putting forth any organizational goals. The Society first published the *American Journal of Dental Science* on June 1, 1839, just six years after the Crawcours started their infamous dental parlors in New York City.⁷¹ The contents of the average issue of the *Journal* were fairly standard for a medical society at the time. As described on the inside cover of their first issue, it contained “Reviews of dental publications; the latest improvements in surgical and mechanical dentistry, and biographical sketches of distinguished dentists.”⁷² Along with these news items, it also included transcripts of speeches given at dental schools, the subscription list, letters, and essays written by dentists from around the country. All submissions were chosen by a publishing committee, consisting of the prominent dentists Eleazar Parmly, Elisha Baker, and Solyman Brown. These men clearly had expectations for the *Journal*, which were evident from their inducements of new members of the Society to subscribe: “There are many high-minded men of great knowledge and experience in our Art, who will gladly communicate the results of their observation, for the benefit of the younger members of the profession. Such a work will have a tendency to expel from Dental Practice, the quackery which disgraces it, just in proportion as it dissipates ignorance on the subject from community at large.”⁷³ Amalgam fillings induced a great deal of “observation” and were used as the tool of “quackery.”

⁷¹ “The First Dental Periodical the American Journal of Dental Science,” *Journal of the American Dental Association* 26, (1939): 969.

⁷² *American Journal of Dental Science* 1, no. 1 (1839): vii.

⁷³ “Address of the Publishing Committee, to Their Professional Brethren Throughout the United States of America,” *American Journal of Dental Science* 1, no. 1 (1839): xi.

The experiments recorded in the *Journal* seem to be performed and written with a motive. For example, in one edition of the *Journal* published in 1839 on the topic of galvanic cells being created in the mouth, amalgam was found to be the ultimate villain.⁷⁴ The theory being discussed is the idea that when more than one metal is placed in a mouth for a filling, a galvanic cell could be produced. The passage is laid out as a response to a ‘communication’ by a Dr. Mackall exploring this very concept and the ‘communication’ itself. In Dr. Mackall’s report, there is a description of some discomfort felt by patients when a metal instrument touched a different metal filling in their teeth. Along with some examples of the possible presence of a galvanic cell and his own experience with the sensation, his conclusion states that “these facts show how unscientific and injurious it must be to fill cavities with such ‘amalgams’ and ‘pastes’”.⁷⁵ Before this statement it was never made clear the topic was on any “paste” in particular, but it becomes clear that his writing and the ‘communication’ itself is referring to “mineral paste”.

The response to Dr. Mackall’s report seems to lack even more impartiality; the author would not say with any certainty that the amalgams created a galvanic cell, but what was stated several times was how their oxidizing tendencies should create “insuperable objection” to their use.⁷⁶ The aim in including this report and its response was to criticize amalgam. There were no evident efforts to better understand the science

⁷⁴ Galvanic cells, or electrolytic cells, are electrochemical cells that gain energy from spontaneous oxidation-reduction reactions. They usually consist of two metals connected by a salt bridge. “Electrolytic Cell,” *Encyclopædia Britannica, inc.*, July 9, 2004, accessed April 29, 2017, <https://www.britannica.com/technology/electrolytic-cell>.

⁷⁵ L. Mackall, “Communication, On the Impropriety of Plugging Teeth with Two Kinds of Metals in the Same Mouth,” *American Journal of Dental Science* (1839): 87.

⁷⁶ *Ibid.*, 85-86.

behind galvanic cells, there was instead an inclusion of observations and the blaming of amalgam tacked on to the end of the report and headlining the response.⁷⁷

An experiment with a similar conclusion was discussed in an 1844 edition of the *Journal*. The experiment was performed by a Dr. Westcott with red sanders wood to test the theory that teeth ‘plugged’ with amalgam would soften over time. In the experiment, Dr. Westcott placed a small amount of amalgam at the bottom of a test tube and poured a tincture of red sanders on top of it. After some time, he found the “colored fluid penetrated entirely around it, absolutely hiding the cement from view,” thus supporting his hypothesis that amalgam absorbs “earthy matter” when in prolonged contact with it.⁷⁸ The experiment performed by Dr. Westcott, was lacking some key components of most modern experiment such as a control.⁷⁹ But what truly sets it apart from neutrality is the fact that the experiment was done to add evidence to the written findings of a committee to test the validity of amalgam as a means of filling teeth. It is addressing the second finding specifically: “It [amalgam] is uniformly and necessarily inefficient in arresting caries.”⁸⁰

Of the experiments done, most fit into the utilitarian category described earlier. The publication of case studies in journals were dentists’ main source of relaying information for decades. Not only did communicating dental incidents through case studies fit into what was happening in the medical community at large, they were also a

⁷⁷ L. Mackall, “Communication, On the Impropriety of Plugging Teeth with Two Kinds of Metals in the Same Mouth,” *American Journal of Dental Science* (1839): 85.

⁷⁸ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 179.

⁷⁹ Anirudh Kandada, “Components of an Experimental Study Design.” *LibreTexts Statistics Library*. UC Davis: University of California, 20 Nov. 2013. Web. 06 Dec. 2016.

means of distinguishing between the educated dentists and the ‘quacks’. Often times, these studies would be written as a narrative that would follow a similar format. A patient would enter the office of the dentist, the dentist would examine the patient and would give an account of what they found. A lot of information could be gained from looking at the teeth of their patients, and even more was gained from chatting about dental hygiene, cleaning habits, and past dental experiences. In the following example from 1845, the operating dentist described the state of some fillings done by a “distinguished” dentist in Europe as “merely stuffed, and that, too, in the most careless manner.”⁸¹ When given the chance, most writing these case studies found a way to portray amalgam fillings and those who administered them in a negative light.

Following the customary format, this dentist went on to describe the visit of a different patient, this one a young officer in the army. A description of the fillings, both gold and amalgam, were included along with the symptoms of mercury poisoning: “- constantly salivated since the operation, the periosteum of several of these teeth was destroyed, a constant discharge came from the gums, and about their necks, some of which were already loose, and exceedingly fetid breath was not the least of his misfortunes.”⁸² A sampling of these kinds of symptoms almost always accompany a dentist’s retelling of an appointment with a patient who had received amalgam fillings. Through this form of research dentists were able to, not only, pass along their practices to others, but also compare their work to that of others’. Professional literature based on

⁸⁰ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 178.

⁸¹ William W. Dwinelle, “Quackery in High Places,” *American Journal of Dental Science* V, no. 4. (1845), 276-277.

⁸² *Ibid.*, pg 277.

case studies made for a good environment to grow pride in one's profession and one's own skills. If the writer was also able to look down on quacks at the same time, all the better.

What was not included in the experimentations available says a lot about dentistry at the time as well. Though mercury amalgams were mentioned frequently, most writers did not go into great detail when disavowing them. Take for example the earlier example of the writings by Dr. Westcott; when wrapping up his experiments he did not feel the need to provide his calculations for the specific gravity of a tooth he tested in a similar way with red sanders but instead would state: “-I need not repeat my own experiments, as we have ample testimony from good authority.” Recording the specific gravity, he concludes with, “To make the absurdity apparent of using the compound, with the hope of arresting decay in teeth, no comment is needed.”⁸³ It was common to skim over the particulars of the study in favor of reminding the audience of the “evils” of amalgam.

It is important to note that not all dentists had the same aversion to mercury amalgam. A few of these amalgam enthusiasts wrote in to the Society's *Journal*, and even fewer were published. When one was published, a response almost always directly followed it, or was published in the next issue. In 1844 a dentist reported he put in over 300 amalgam fillings with no difficulty and, to his knowledge, “in no case has the specific effects of mercury been produced.” So grievous was this to the Society that a meeting and reply to the report was arranged. In their response, the Society members gave several reasons why this report was false or inconclusive. The chief argument rested in the ignorance of both the dentist and his patients. The author of the response

allowed that he had met with patients who had amalgam fillings and did not complain of them, but all of those patients also had an “extraordinary flow of saliva” and were just unaware of the cause. All evidence to his argument are of observation, as with the example of patients having inflamed or “ulcerated” gums and never knowing it. By this logic, it only makes sense that those 300 patients the dentist gave amalgam fillings to were either unaware of the effects or were unaware of the cause.⁸⁴

These types of responses, completed with answers to any reports made in favor of amalgam and observations to contradict them, never included any fresh research on the composition of the amalgam fillings. The composition of the amalgam was mentioned in the following excerpt from the response but was only mentioned in regards to what they had previously said on the subject of this mixture being dangerous, “The fact that this paste, by whomsoever made, unless it contain one of the ingredients in a free state, must be of the same composition, though an important one, has perhaps been sufficiently commented upon by the Committee.”⁸⁵ This ‘resting on the laurels’ of past arguments was a trend in the responses made by the Society. New research on a possibly ‘safe’ composition of the amalgam was never done by the society, and was only achieved when G. V. Black published his *Balanced Amalgam Formula* in 1895.⁸⁶

There were great gains for the medical professional in the nineteenth century. Their status solidified by instating laws on regulation and education. But as their position

⁸³ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 179.

⁸⁴ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 194-195.

⁸⁵ *Ibid.*, 196.

⁸⁶ Thomas M. Schulein. “Significant Events in the History of Operative Dentistry,” *Journal of the History of Dentistry* 53, No. 2 (2005): 69.

became more firm in society, they seemed to work harder keep it. The uneducated professional became ever more the enemy and was named quack and charlatan. The amalgam issue in dentistry shows this strained relationship. As dental societies were formed and periodicals for those societies were published, the professional dentist's agenda was pushed further. The referencing of amalgams in almost all experimentation, the case studies recorded, the monopoly one opinion had over the other in publication, and the lack of further investigation on the material all go to show the part amalgam fillings played in the strained relationship between the educated and uneducated dentists of the period.

Chapter Four:

Dental Society Politics and Rhetoric

The American Society of Dental Surgeons was established during the rise of the practitioner society in the United States, especially in New York City. The practitioner society gained popularity in the 1820s and 30s; it was a society with objectives of improving the dissemination of information.⁸⁷ The preferred strategies employed by scientific societies or experienced professionals were discussion, publishing methods and results, and by submitting products to prize competitions. The goals of the societies were usually not so much to add to the body of knowledge held by a group but, rather, to diffuse what knowledge it already had to all who wished to take part. Members of these societies were “consumers of principle” who focused their efforts on the veneration of science rather than on its progression through creative experimentation.⁸⁸

The first dental society definitely fit into the category of a practitioner society. It should come as no surprise that nearly one half of its members in its first year, 1839, were from the hotbed of practitioner societies: the state of New York.⁸⁹ This society was well received and popular among the ‘serious’ dental professionals who received an education, were active among their peers, and had a lot to gain by being a part of a professional society. In an address given to the American Society of Dental Surgeons, which was full of hope and pride for the profession, dentist John Allen wrote, “The dark

⁸⁷ Brook Hindle. “The Underside of the Learned Society in New York, 1754-1854.” *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 102.

⁸⁸ *Ibid.*, 105.

clouds of ignorance and obscurity, that have so long hung heavily over our craft, are now vanishing away, and the dawn of brighter days are smiling upon us...”⁹⁰ The profession could finally reach its full potential now that it had the legitimacy that came with an established society. And like any good practitioner society, the leaders of the dental society gave their members responsibilities:

“Mere silent membership should content no one. All the mental and physical energies of every member of the association should be summoned to produce something worthy of the public depository of the society’s knowledge...As we become more and more accomplished in our profession, we will the more discover the connection of the dental apparatus with the structures, functions, diseases and sympathies of other organs of the body”⁹¹

For the greater good of the profession, every member of the Society was advised to contribute to its advancement. This was done not just to improve dentistry but to benefit all who call themselves dentists by ultimately elevating them further above the non-society and uneducated dentists. In its first edition of its *Journal*, the Society published its “Prospectus” and gave lists of what the Society stood for and what it hoped to accomplish. Several items on the list dealt with the Society’s stance on quacks. Number 8 on the list informed readers that “The Arts of Quackery will be boldly exposed; and the public will be instructed how to avoid the impositions of ignorant pretenders.” Further on, “proposition number 4” mentions the Society expelling quackery from dentistry “just in proportion as it dissipates ignorance on the subject from

⁸⁹ “Subscription List,” *American Journal of Dental Science* 1, no. 1 (1839): 244.

⁹⁰ John Allen, “Address on the Pursuit of Professional Excellence,” *American Journal of Dental Science* VI, no. 1 (1845): 30.

⁹¹ Chapin A. Harris, “Address, Delivered Before the American Society of Dental Surgeons, at the Opening of its Fourth Annual Meeting;-Baltimore,” *The American Journal of Dental Science* IV, no. 1 (1843): 7.

community at large.”⁹² Banishing quackery was an issue of high priority for the leaders and many of the members of the Society and one of the greatest tools at their disposal to do so was through their writing.

The members of the dental profession made use of their publications by making themselves appear more genteel and heroic to the public and to themselves, but they also used their writings to criticize the material amalgam and those who used it. To this end, they utilized several techniques. First, they made it clear that using amalgam meant rendering one a ‘corrupt’ dentist. Eleazar Parmly wrote that he had “never known a perfect master of the art of sopping teeth either to employ or recommend the substances which I here condemn.”⁹³ In just one sentence, a great leader of the profession states, in no uncertain terms, that in order to be a “master of the art” one could not use amalgam. This method of not just attacking the material but also the person using it was meant to scare off any uneducated dentist and to shame any dentist in good standing who would ‘degrade’ themselves so by using it. Strong language such as, “Hypocrisy, imposture, bold, daring, unblushing pretensions, without any just claims-mid-day robbery on the temple of science, by stealing her mantle and wearing it without license,” was often used to show the gravity of the situation. The profession was young and it was grateful to the public and to the field of science which let them hoist themselves up into the world of the educated professional. Several dentists saw mercury amalgams as an affront to scientific learning and to the public that they had agreed to protect.⁹⁴

⁹² “The Prospectus,” *American Journal of Dental Science* 1, no. 1 (1839): 5-6.

⁹³ J. F. Flagg, “Metallic Pastes for Filling Teeth,” *The American Journal of Dental Science* IV no. 1 (1844): 210.

⁹⁴ “Quackery,” *The American Journal of Dental Science* IV no. 1 (1844): 289.

The dentists who wished to convince their professional brothers and themselves to not use amalgam also depicted the issue as one of ‘good versus evil.’ Scientists today tend to think of their work as the quest for knowledge, whereas the dentists writing into the *Journal* saw their work as a mission for truth and a fight against falsehood. A dentist in his 1844 article on quackery wrote, “Intellect, morals and religion...the only solid foundation, from and on which all that is useful to mankind must be drawn and reared- and by which, also, every thing that pretends to be useful and good, must be infallibly tested and exposed.”⁹⁵ Not only was the basis of their existence as a professional body in society predicated on the idea of protecting the public from those who would do harm in their field, but their responsibility as intellectuals rested also on their ability to tell the difference between harmful and benign. To earn the title of professional dentist, a man should be able to distinguish between sound, good medicine and falsehood.

To accomplish this in a more practical way, the issue of mercury amalgam had to be addressed. In 1844, the American Society of Dental Surgeons established a committee, a small group within the Society, that would make a determination on dental paste for the whole Society. The decisions this committee made and the actions it took changed the course of the profession. The process of the committee was well documented and shared with subscribers to the *Journal* in the following manner:

“of the twenty-five members resident in the cities of New York and Brooklyn, all were called upon...Of the remaining twenty-one, only ten disapproved Entirely of the use of amalgams for dental purposes!! Of the eleven remaining, five used the amalgams in certain cases, but were willing to pledge themselves to abandon it altogether. Six used amalgams in certain cases, and *refused* to discontinue its

⁹⁵ “Quackery,” *The American Journal of Dental Science* IV no. 1 (1844): 289-293.

use...one-fourth...of...members resident in the cities of New York and Brooklyn...were engaged in...malpractice.”⁹⁶

The members of the committee were all men who were known as “despisers of quackery” and all hoped to qualify as men with a “love for truth and science.”⁹⁷ Though the men were gathered together to test the validity of mercury, many of them appeared predisposed against its use, already having decided on its ‘evil’ qualities.

When the decision was made that the use of amalgams was malpractice, the committee went a step further to ensure that all in the profession shared this stance. At the yearly meeting of the Society in 1845, the committee decided that the Recording Secretary would forward a certificate to every member of the Society “demanding his views upon the use of Amalgams for filling teeth.” The certificate was really a pledge that was to be signed by every member saying to forego the use of amalgam, as this now constituted malpractice.⁹⁸ Before the committee for the national society was created, the Virginia Society of Surgeon Dentists had set a precedent for expelling members “guilty of such contumacy.” This eased the conscience of the national Society. They saw an ultimatum: they could either wait for the ‘non-honorable’ members to leave or they could force them out. The resolution pointed to the latter.⁹⁹

⁹⁶ “Resolutions of the American Society of Dental Surgeons in Relation to the use of Amalgams for Filling Teeth,” *The American Journal of Dental Science* VI no. 1 (1845): 175.

⁹⁷ Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 194.

⁹⁸ “Resolutions of the American Society of Dental Surgeons in Relation to the use of Amalgams for Filling Teeth,” *The American Journal of Dental Science* VI no. 1 (1845): 169.

⁹⁹ *Ibid.*, 176-179.

It could be argued, and it was by the committee and several outspoken members of the Society, that the committee acted proactively in their decision against amalgam. They wanted to end its use before it did any major damage to the profession. In the meetings, they weighed the options and found that amalgam was doing “infinitely more hurt in the hands of the [operator], than good.”¹⁰⁰ It is noted in the records for the annual meetings of the Society that the understanding of amalgam use as malpractice was unanimous. However, correspondence published in the *Journal* reveals that overall opinion on the matter was *not* unanimous after the fact. Those in attendance at the Society’s meetings must not have fully represented the sentiments of all of the dentists. A heated debate on the use of amalgam and on the resolution that was forwarded ensued in the following years. A letter published by a Dr. Allen in 1845 stirred argument both for and against amalgam among dentists. In his letter, Allen wrote that it was “unwise and arbitrary” for the Society to pass a resolution banning a material that many of the members used without proof that any injury had been done to any patients. He also prescribed the ban on amalgam to the rivalry between dentists using and not using the material. Beyond the question of motive, Allen believed that what the committee did was unconstitutional: “then it follows that no resolution passed by a majority, I care not how large, is of any binding force upon the members, if the principle contained in the said resolution conflicts with the principles laid down in the constitution.”¹⁰¹

¹⁰⁰ C.C. Allen, “Letter in Reply to our Remark’s in Vol, 6, No. 2, on the “Resolutions of the American Society of Dental Surgeons, in Relation to the Use of Amalgams for Filling Teeth,” *The American Journal of Dental Science*, Volume VI. No. 4 (1846): 265.

¹⁰¹ *Ibid.*, 271-273.

Many dentists shared Allen's opinion on the matter and further questioned the Society's right to make such a demand of its members or even their right to appoint such a committee. In a letter published on the matter, a dentist observed:

“The society have certainly transcended their powers, and have taken an injudicious course, to put down the practice, and I think the article of amalgam, would not have obtained half so much, had there not “so much fuss” been made about it... Was it ever heard, that a medical society expelled one of their respectable members, for administering a remedy in *certain cases*, which *he found* to be beneficial?”¹⁰²

Many of the members balked at the notion of the Society wielding the amount of power their resolution suggested. The idea that members would need to ‘confess’ and ‘request absolution’ for using a material that they thought was best in their own professional quarters was too much. By making the signing of the pledge mandatory for continued membership, the Society was telling its members that, even if they did not use amalgam, they must agree that it was harmful to patients. As one disgruntled dentist put it, “To expel for refusing to express an opinion; or to give a pledge, was making the refusal malpractice, which was nonsensical and absurd.”¹⁰³ The prides of the dental professionals was wounded when their own society placed them in the same category as the quack dentist, and it was further wounded when their learned opinions were questioned.

The debate was not one-sided, however. Committee spokesmen stated their case as well:

¹⁰² “Resolutions of the American Society of Dental Surgeons in Relation to the Use of Amalgams for Filling Teeth,” *The American Journal of Dental Science*, V no. 4, (1845): 169-179.

¹⁰³ *Ibid.*, 172.

“But for an institution framed almost for the sole purpose of suppressing quackery, to be forced to retain members, who advocate what she has decided to be the worst form of quackery, and who refuse even to give an opinion adverse to such practice, is a rare doctrine-one which we think may be considered both “nonsensical and absurd.”...One of the most prominent objects of this association, as set forth in the preamble to the constitution, is, to correct abuses in dental practice or to suppress quackery.”¹⁰⁴

They reminded their members that the main goal of the Society and the main objective written in their constitution was the suppression of quackery. Anyone who advocated mercury amalgam or who used it were not contributing to the objectives of the Society. They claimed that being a member of the Society was enough to bind one to the goals of the Society. Not only was the resolution right in terms of principle, it was under the prerogative of the society to administer it.¹⁰⁵

There were also several dentists who wrote in stating that while they did not use amalgam, they still questioned the actions of the Society. The Society’s fear and loathing of the quacks who used amalgams was great enough to make a serious professional blunder in forcing their members to sign a pledge and to instill fear at being ousted from the Society and into poor professional standing. The committee did not acknowledge their mistake when they received backlash from members but stood their ground and their resolve strengthened: to side with mercury amalgam was to side with the quacks. As one dentist wrote on the issue in 1845:

“...my professional attainments and character, occupy higher ground than to be compelled to forfeit my self-respect, by submitting to the requirements of resolutions, whose *tone is threatening*. The society has transcended its powers,

¹⁰⁴ “Resolutions of the American Society of Dental Surgeons in Relation to the Use of Amalgams for Filling Teeth,” *The American Journal of Dental Science*, V no. 4, (1845): 177.

¹⁰⁵ C.C. Allen, “Letter in Reply to our Remark’s in Vol, 6, No. 2, on the “Resolutions of the American Society of Dental Surgeons, in Relation to the Use of Amalgams for Filling Teeth,” *The American Journal of Dental Science*, VI. no. 4 (1846): 274-277.

has violated the compact which ushered it into existence, by enacting resolutions, which are arbitrary, unjust, and unconstitutional, and I believe unless they are abandoned, *the fate of the society is sealed.*”¹⁰⁶

His words were ominous and true; the American Society of Dental Surgeons would never recover from the “Amalgam Wars.” It disbanded in 1856 after many of its members resigned.¹⁰⁷ As members of a practitioner society that thrived on concurrence with procedure, practice, and ideals, the large rift in opinion shook the Society to the core. Dentistry was built on ideals that had strengthened the profession across social ranks and created a reputation as a champion of health care for the average citizen at its inception, but when tested, the fact that it was scientific practice was based on morals and principles became its downfall.

¹⁰⁶ “Resolutions of the American Society of Dental Surgeons in Relation to the Use of Amalgams for Filling Teeth,” *The American Journal of Dental Science*, V no. 4, (1845): 169-179.

Conclusion

In the 1830s two European quack dentists came to New York City. They received admiration from customers and scorn from other dentists by peddling a new material for filling teeth: mercury amalgam. In their dental ‘parlors’ they promised less pain, less time in the chair, and less cost by using ‘Royal Mineral Succedaneum’ instead of the standard of the time, gold. It was not long before their shabby practices were found out and, what was believed, to be less than satisfactory procedures were unveiled. The educated dental professionals could have solely blamed the Crawcours subpar placement of the fillings for the affront to their profession and the harm they caused their patients but they instead chose to focus their efforts on the material the men introduced.¹⁰⁸

The animosity the dentists felt toward mercury amalgam can be attributed to their fear and loathing of the dental quack. Because amalgams were far cheaper than gold and far easier to place than gold fillings, they were irresistible to a man trying to break into the field of dentistry without completing the proper steps. This disturbed the educated dentists who belonged to a young profession which had to, in the not too distant past, fight tooth and nail for their slot in society. And now just when they were beginning to gain gross social recognition some ‘upstart hacks’ wanted the same title of dentist and the same clientele? The very idea of it was enough to anger many dentists but they did not go down without a fight.

¹⁰⁷ “The American Society of Dental Surgeons; the Tabular Sheets and Dr. Chapin A. Harris,” J Am Coll Dent, Sept 1951, 150-157.

¹⁰⁸ James Wynbrandt, *The Excruciating History of Dentistry: Toothsome Tales & Oral Oddities from Babylon to Braces*, (St. Martin’s Griffin, New York, 1998), 125.

The educated dentists formed a society and published periodicals to develop their craft and to also spread awareness of dental quackery and hopefully expel it from society. They used the tools at their disposal. They published experiments done on the material to show its 'poor quality' and they recounted case studies from patients to show the harm amalgam could cause. The dental professionals banded together and tried to create a united front against the charlatan menace with essays and riling commencement addresses. The rhetoric they employed and their choices on writing topics and wording all attest to the educated dentists distrust and detestation of the uneducated dentists.

The growth of the dental profession is a good representation of what was occurring in the medical field in the nineteenth-century. Not only were individuals climbing the social ladder, but large groups of working Americans were as well: the professionals. To be allowed access into a professional field, one had to receive an education created by professionals. And to be considered a 'real' professional, one should have been a member of a professional society and subscribed to professional periodicals. Dental quacks skipped those steps yet wanted the name and pay of an educated, society dentist. This study has focused on mercury amalgams to better understand its role in dentistry in the mid-nineteenth-century and the part it played in the development of the profession. Mercury amalgam was a catalyst for the collapse of the first national dental society in the U.S. and for the contentious relationship between the educated and the uneducated dentists who threatened their professional authority.

Works Cited

- “Address of the Publishing Committee, to Their Professional Brethren Throughout the United States of America,” *American Journal of Dental Science* 1, no. 1 (1839): xi.
- A Fatal Enemy to Teeth.” *Transaction of the Pennsylvania State Dental Society: Together with the Constitution, By-Laws and Code of Ethics*. (Lancaster, PA.: Pennsylvania Journal of Dental Science, Print. 1875), 185.
- Alexandra Oleson, *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial Times to the Civil War*, (The Johns Hopkins University Press, 1976), 33.
- “Amalgam.” *The Western Dental Journal*. I (1887): 247-251.
- American Journal of Dental Science* I no. 1 (1839): vii.
- American Journal of Dental Science* VI (1845-6): 216.
- “The American Society of Dental Surgeons; the Tabular Sheets and Dr. Chapin A. Harris,” *J Am Coll Dent*, Sept 1951, 150-157.
- Anirudh Kandada, “Components of an Experimental Study Design.” *LibreTexts Statistics Library*. UC Davis: University of California, 20 Nov. 2013. Web. 06 Dec. 2016.
- A. Snowden Piggot. *Chemistry and Metallurgy as Applied to the Study and Practice of Dental Surgery*. (Philadelphia: Lindsay and Blakiston, 1854), 438-449.
- Bethanne Kelly Patrick & John M. Thomson, *An Uncommon History of Common Things*. Vol. 2, (Washington, D.C.: National Geographic, 2009).
- Brook Hindle. “The Underside of the Learned Society in New York, 1754-1854.” *The Pursuit of Knowledge in the Early American Republic: American Scientific and*

Learned Societies from Colonial times to the Civil War, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 102.

“Calomel.” *1911 Encyclopædia Britannica, Volume V*. Web. 02 Feb. 2017.

C.C. Allen, “Letter in Reply to our Remark’s in Vol, 6, No. 2, on the “Resolutions of the American Society of Dental Surgeons, in Relation to the Use of Amalgams for Filling Teeth,” *The American Journal of Dental Science*, Volume VI. No. 4 (1846): 265-277.

Chapin A. Harris, “Address, Delivered Before the American Society of Dental Surgeons, at the Opening of its Fourth Annual Meeting;-Baltimore,” *The American Journal of Dental Science* IV, no. 1 (1843): 7.

“Charter of Incorporation of the American Academy of Arts and Sciences.” *American Academy of Arts & Sciences*. Web. 06 Dec. 2016.

“Cheap Dentists.” *American Journal of Dental Science* IV, (1843-4): 215-216.

“Communication From Dr. E. Parmly.” *The New York Dental Recorder* IV (1850): 190.

E. Townsend, “Dissertation on the Elevation of the Dental Profession,” IV, no. 4 (1845): 25, 26.

“The First Dental Periodical the American Journal of Dental Science,” *Journal of the American Dental Association* 26, (1939): 969.

H. Berton McCauley, DDS. “The First Dental College: Emergence of Dentistry As An Autonomous Profession,” *Journal of the History of Dentistry* 51, No. 1 (2003): 42,43.

- “History of the French Académie de sciences.” Institut De France: Académie des Sciences. <http://www.academie-sciences.fr/en/Histoire-de-l-Academie-des-sciences/history-of-the-french-academie-des-sciences.html> (accessed February 1, 2017).
- Horace H. Hayden, “Opening Address.” *American Journal of Dental Science* II, no. 1 (1841): 2.
- Ira M. Rutkow, MD, MPH, DrPH, “Medical Education in Early 19th Century America,” *Journal of the American Medical Association*, 1999;134(4):453.
doi:10.1001/archsurg.134.4.453
- James. H. Cassedy, “Medicine and the Learned Society” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 33-35, 265.
- James Wynbrandt, *The Excruciating History of Dentistry: Toothsome Tales & Oral Oddities from Babylon to Braces*, (St. Martin’s Griffin, New York, 1998), 125.
- J. F. Flagg, “Metallic Pastes for Filling Teeth,” *The American Journal of Dental Science* IV no. 1 (1844): 210.
- John Allen, “Address on the Pursuit of Professional Excellence,” *American Journal of Dental Science* VI, no. 1 (1845): 30.
- John C. McCabe, “Thoughts on the Abuse of Dental Practice.” *American Journal of Dental Science* I, no. 1 (1839): 133-135.
- John S. Haller. *Medical Protestants: The Eclectics in American Medicine, 1825-1939*. (Carbondale and Edwardsville: Southern Illinois University Press 1994), 70-90.

- “The Last Importation of Transatlantic Quackery, Reshipped for England, with the Usual Allowance of ‘Draw-Back,’” *The American Journal of Dental Science* IV no. 1. (1843): 71.
- Lawrence H. Meskin, “‘Royal Mineral Succedaneum’ Revisited,” *The Journal of the American Dental Association* 125, no. 3 (March 1994): 234-236.
- Leonard J. Goldwater, *Mercury: A History of Quicksilver*, (Baltimore, Maryland: York Press), 1972, 230-284.
- L. Mackall, “Communication, On the Impropriety of Plugging Teeth with Two Kinds of Metals in the Same Mouth,” *American Journal of Dental Science* (1839): 85-87.
- The London Lancet: a Journal of British and Foreign Medical and Chemical Science, Criticism, Literature, and News*, I, no. 1 (Jan. 1845).
- Malvin E. Ring, “Solyman Brown, A Giant of Dentistry and its Poet Laureate,” *Journal of the California Dental Association* 30, no. 3 (2002): 216-221.
- Martin Kaufman, *American Medical Education: The Formative years, 1765-1910*, (Westport, Connecticut, London, England: Greenwood Press, 1976), 10-13, 39, 65-72.
- Nathan Reingold, “The Professionalization of Science” in *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial times to the Civil War*, ed. Alexandra Oleson & Sanborn C. Brown (Baltimore and London: Johns Hopkins University Press, 1976), 33-49.
- “The Prospectus,” *American Journal of Dental Science* 1, no. 1 (1839): 5-6.
- “Rejection of Quack Advertisements,” *The American Journal of Dental Science* V no. 1, (1844): 234.

- “Resolutions of the American Society of Dental Surgeons in Relation to the use of Amalgams for Filling Teeth,” *The American Journal of Dental Science* VI no. 1 (1845): 169-179.
- Roger Hahn, *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803*, (Berkeley, Los Angeles, London: University of California Press, 1971), 42.
- Sally Gregory Kohlstedt, *The Formation of the American Scientific Community: The American Association for the Advancement of Science, 1848-1860* (University of Illinois Press, 1976), 1-17, 190.
- Solyman Brown, “Dissertation on the Pursuit of Professional Eminence.” *American Journal of Dental Science* II, no. 1 (1841-42): 124.
- Starr Paul, *The Social Transformation of American Medicine*, (Basic Books, 1982), 79-80.
- “Subscription List,” *American Journal of Dental Science* 1, no. 1 (1839): 244.
- Thomas M. Schulein. “Significant Events in the History of Operative Dentistry,” *Journal of the History of Dentistry* 53, No. 2 (2005): 69-98.
- “Quackery,” *The American Journal of Dental Science* IV no. 1 (1844): 289-293.
- Westcott, A. “Report of the Onondaga County Medical Society, on ‘Mineral Paste’.” *American Journal of Dental Science* IV no. 3 (1844): 176-200.
- W. H. Lintott, “Progress of Dental Science in America.” *American Journal of Dental Science* II, no. 1 (1841-2): 300.
- William B. Warner, The Enlightenment: A (French) Restoration, *The Eighteenth Century*, Vol. 54, No. 3 (Fall 2013), pp. 415-419.

William E. Channing, *Self-Culture: An Address Introductory to the Franklin Lectures*,

(Boston: Dutton and Wentworth Printers, 1838), 11-13.

William W. Dwinelle, "Quackery in High Places," *American Journal of Dental Science*

V, no. 4. (1845), 276-277.