The Practice of Ophthalmology in Rural Wisconsin in the Mid-19th Century

From the Casebooks of Francis Paddock, MD

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Francis Paddock (1814-1889), a graduate of Fairfield Medical College in western New York State, opened a general medicinal and surgical practice in the small town of Salem in Kenosha County, Wisconsin, between 1838 and 1839, where he lived and worked until his death a half century later. Two early volumes of his casebooks, spanning the years 1841 to 1852, came to light and are now analyzed from the standpoint of ophthalmic-related problems and their treatment. His life as a frontier physician and leading citizen of his community are documented in the context of 19th-century medicine in America and Wisconsin.


The history of American ophthalmology, as usually reported, is the history of celebrated physicians in the major East Coast cities: men and, occasionally, women who first attempted the medical and surgical treatment of eye disease. Subsequently, the historical record continues as their students and successors begin to specialize in eye disease treatment and form the societies and journals we recognize today. But what of rural America, where most Americans in the 19th century lived? What of those people west of the Allegheny Mountains? Is there a record of who treated their eye diseases and how they did it? It is often difficult to gain insights into this aspect of American ophthalmic history.

To help explore this lesser studied facet of American ophthalmic history, one of us (D.M.A.) recently obtained the casebooks of Francis Paddock, MD (1814-1889), a frontier physician and leading citizen in Salem, Kenosha County, Wisconsin (Figure 1). The casebooks cover the details of Paddock's medical practice from 1841 to 1852, and its pages are a window into the extent and method of ophthalmic practice during those years (Figure 2). However, before his casebooks' ophthalmic contents are discussed, the man himself should be given a proper introduction.

FRANCIS PADDOCK'S EARLY LIFE

Francis Paddock was born in Camillus, Oneida County, New York, on September 15, 1814. He was the oldest of 6 children and took his education seriously from a young age. Because of his industrious nature and intellectual curiosity, he acquired a good education and became a schoolteacher at the age of 17 years. He taught in the winter and attended Fairfield Medical College in Herkimer County, New York, during the summer, receiving his medical degree sometime between 1835 and 1839.2

PADDock's MEDICAL EDUCATION AND TRAINING

Paddock's alma mater, Fairfield Medical College, was the first medical school west of the Hudson River and was an offshoot of the Fairfield Academy, a private high school that opened in 1803.3 The academy, in its early years, had several instructors who were physicians. Over time they offered medical courses that included anatomy, surgery, medicine, pharmacy, and obstetrics. By 1812, a total of 43 students were studying medi-
cal subjects, and in that year the academy was granted a charter under the formal name The College of Physicians and Surgeons of the Western District of New York (Figure 3). It continues to be commonly referred to, however, as Fairfield Medical College and was the second medical college to be chartered in New York State, the 11th in the United States. The school attracted numerous well-qualified physicians to its faculty and built an excellent reputation. Nonetheless, the medical college was forced to close its doors in 1840 because of competition from numerous new medical colleges established in New York and surrounding states. During its 28-year lifetime, the medical college granted more than 600 candidates medical degrees, 18 of whom became professors at other medical colleges. Besides Paddock, notable graduates of the medical college include William Mather, scientist and professor of chemistry, mineralogy, and geology; Asa Gray, botanist; and Marcus Whitman, missionary to the Native Americans of the Oregon Territory. Graduates of Fairfield also created a medical college in Ohio, named for Westel Willoughby, MD.5

**PADDOCK’S MENTOR**

Francis Paddock studied with Frank Hastings Hamilton, MD, of Auburn, New York (Figure 4), before leaving for Wisconsin.2 Already distinguished at the time Paddock studied with him, Dr Hamilton became an important figure in American surgery. Hamilton was well trained. In 1833, at the age of 20 years, he received a medical degree from the Medical School of the University of Pennsylvania. He settled in Auburn, where he gave lectures on anatomy and physiology.7 It was during this period that Paddock studied with him.2 Five years after receiving his medical degree, Hamilton was appointed professor of surgery at Fairfield Medical College.

Later, Dr Hamilton would serve as a military surgeon for 2 years during the Civil War and was appointed medical inspector of the US Army in 1863. He was one of the consulting surgeons after President James Garfield was shot and performed many well-known operations in which he improved upon surgical techniques of the time. His inventions include a bone drill and a broken jaw apparatus, and he invented or modified apparatuses for nearly every long-bone fracture. He was the first to introduce the use of gutta-percha, the rubbery sap from certain tropical trees,8 in the manufacture of splints to support irregular joint surfaces and was the first to use gutta-percha in interdental splints.3 In addition, closing old ulcers by new skin transplantation was continually attributed to him by French and German physicians.7

Dr Hamilton was also a consulting surgeon to many hospitals and became a well-known authority on surgery. His important works include *Treatise on Strabismus* (1844), *Treatise on Fractures and Dislocations* (1860; fifth edition was published in 1880), *Practical Treatise on Military Surgery* (1861), and *The Principles and Practice of Surgery* (1872).10 He had many surgical terms named after him, including the Hamilton bandage, a compound bandage for the lower jaw made of leather and linen; the Hamilton test, which involves luxation of the shoulder joint so that a rule or straight rod is applied to the humerus and touches the outer condyle and the acromion simultaneously11; and the Hamilton pseudophlegmon, a circumscribed swelling that may become red and indurated but never suppurates.12

**PADDOCK FAMILY’S MIGRATION TO SALEM**

After Paddock completed his association with Hamilton, Paddock, at the age of 25, together with 3 generations of his family, traveled west from New York in a covered wagon to what was then the Wisconsin Territory. This trip occurred in 1838 or 1839, depending on the information source. On the way, he passed Chicago and,
according to local legend, described it as "a marsh with a few Indian huts scattered here and there." He and his family settled between 2 lakes, now known as Paddock Lake and Hooker Lake, in the town of Salem, Wisconsin, located at the southeast corner of the state. The property would eventually be inherited by Paddock's son, Alva.14

The eldest member of the Paddock clan was David Paddock, Francis's grandfather, a Revolutionary War veteran who lived in Salem until his death in 1847 at the age of 94 years. He was called Blind David because he was blinded by powder burn injuries that had occurred in 1777 while fighting with George Washington during the Revolutionary War at the second Battle of Saratoga.15

Starting life in Wisconsin, the Paddock family purchased approximately 400 acres of land from the government at $1.50 an acre and built a log cabin on the land.13 It was Francis Paddock's original intention to come to Wisconsin to help his parents relocate and then go on to Michigan and begin a medical practice there. However, his father became ill when they arrived. This compelled him to give up his original plans and remain in Wisconsin to manage affairs, where he stayed for the rest of his life, practicing medicine as a frontier physician.2

Paddock's Practice of Ophthalmology
Between 1841 and 1852, Paddock recorded 5122 medical visits in his casebooks, of which 156 (3.0%) were eye related (ie, 13 cases a year, or approximately 1 case a month). Most of these were external diseases that consisted of inflammations of the eyelids, conjunctiva, and cornea, as well as the presence of foreign bodies, frequently described as "motes" or "dirt." The latter were extracted and the eye was irrigated. Patients with inflammations were given topical medications in the form of eye drops (referred to as eye water or eye wash) or salves and pastes. These were prepared by Paddock himself or commercially prepared and stocked and dispensed by him. His preferred treatment for eyelid inflammation was the application of silver nitrate in the form of a caustic pencil. His eye water of choice was a solution of lead acetate. This solution was derived from William Alden's famous recipe and had been adapted, published, and further popularized in the United States by Benjamin Rush, MD, at the University of Pennsylvania. According to Rush's instructions, \( \frac{1}{16} \) oz of sugar of lead (also known as lead acetate; it was referred to as a sugar because it was used as a sugar substitute, although with fatal results because of its poisonous nature)16 and 1 oz of white vitriol were mixed with 2 qt of spring water. This solution was used directly or packaged in small ampules and instilled 3 or 4 times a day.17 An alternative eye drop used by Paddock was a solution made up of 2 g of zinc sulfate dissolved in 1 oz of water.18 Zinc sulfate was also an ingredient in Dr Thompson's Celebrated Eye Water, a patent medicine commercially available from 1795 and well into the 20th century. Its composition, however, was not listed on the label until the passage of the Pure Food and Drug Act in 1906.19 Paddock also prescribed camphor drops and salves. For systemic use, he gave some patients ipecac, opium, and potassium sulfate.

These treatments were relatively expensive, with Paddock collecting an approximate average of 90 cents for a "penciling" procedure, 50 cents for a vial of eye water, and 25 cents for salves, with prices apparently adjusted to patients' means. From the same ledgers, for comparison, we note 25 lb of beef was 60 cents, a pair of "thick" shoes was 49 cents, and laborers were paid 50 cents a day.

Surgical procedures were mostly of a minor nature. No cataract operations were recorded, although an operation for strabismus is mentioned in 1852, only a decade after Johann Friedrich Dieffenbach first performed this procedure. Significantly, Hamilton, Paddock's preceptor, was an American pioneer in strabismus surgery and, as mentioned, published a monograph on the subject.20 Strabismus and stammering were generally thought at the time to be comparable diseases, both caused by contraction of the muscles surrounding the eye or tongue. Four years after Hamilton's monograph...
was published, Paddock records cutting the frenulum of a child's tongue in treatment of stammering.

EXEMPLARY OF EYE MEDICINE
USED BEFORE AND AFTER
THE DATES OF THE
CASEBOOKS

Other examples of eye medicines used by American physicians during the approximate time of the Paddock casebooks (1841-1852) include those used on the Lewis and Clark expedition and on the Oregon Trail. For the Lewis and Clark Expedition (1803-1806), Meriwether Lewis included much of his company's medical supplies based on recommendations by Dr Rush, even though Thomas Jefferson preferred herbal remedies. Their medical supplies included 6 oz of sacchar or sugar of lead (lead acetate) for the treatment of eye problems. Another example is from 1866, when the John and Mary Louisa Black family left Missouri bound for Oregon. Before the family's departure, their physician gave them a list of medicines (with recommended doses) they should take with them. The list survives. For the eyes, the physician recommends: "sugar of lead--4 drachms [lead acetate] and eye water--made of 2 grains of sulph of zinc to one ounce water. The doctor recommended two ounces of water be made up."

PADDOCK'S PRACTICE
OF GENERAL MEDICINE

Regarding Paddock's practice of general medicine, it was similar to that described by other country physicians in the mid-19th century. He brought patients into this world and helped them leave it. He set broken bones, treated gunshot wounds, and struggled with infections and dysfunction of any and all of the organ systems with the limited knowledge and rudimentary therapies that were available to him, with variable results.

Paddock was also an example of the typical country physician in that he had to ride horseback for miles in all kinds of Wisconsin weather. Local history recalls him carrying medicine in saddlebags as howling wolves followed him during the winter. He would store his medicines on shelves in the pantry and when his supplies got low, he would divide what was left among his patients. He would pull a tooth for 25 cents. One night he had to deliver a newborn at a home without a candle. Thinking quickly, he put grease in a dish, placed a rag inside, and lit it, giving him enough light to make the delivery.

PADDOCK'S LEGACY:
CONTRIBUTIONS
AS A PHYSICIAN AND
COMMUNITY LEADER

On August 19, 1841, Paddock married Martha Cecilla Munson, and they had 14 children together, 9 of whom survived to adulthood. Paddock was the first medical professional in the area, however, he was, of necessity, a man of multiple trades. When not engaged in his medical practice, he was also a politician, businessman, and a farmer. He eventually became one of the wealthiest and most influential members of his community. He was a member of the Masons and helped organize the Old Settlers' Club of Kenosha County, which was eventually moved to the south side of Paddock Lake in Salem, and entertained guests from around Wisconsin, including Congressman and Governor Robert La Follette. From 1842 to 1844, Paddock was the supervisor of Salem. He also served as the Commissioner of Schools and Justice of the Peace. In 1855, he was elected to the Wisconsin State Senate.

In 1843, Paddock acquired an additional 281 acres of land from the US Land Patent Office. He became well known and respected, not only for his proficiency in treating fevers, but also for his large cattle herd. The Paddock farm had between 1500 and 2000 sheep and, at one time, more than 100 cows and a similar number of horses.

Concerned with providing his children the best education possible, Paddock's land became the site of the Paddock schoolhouse. According to local history, when there were no funds to pay a teacher for the local children, he would keep a teacher in the house for his own children and the neighbor children and pay the salary himself. He converted the front room of his home into a schoolroom for this purpose.

In context: 19TH-CENTURY MEDICINE IN AMERICA AND WISCONSIN

It is important to fully understand Paddock and the challenges he faced as a frontier physician in Wisconsin. To do so, one needs a basic understanding of 19th-century medicine and medical education in the United States and the state of Wisconsin.

19TH-CENTURY MEDICAL EDUCATION

After the War of 1812, the number of medical schools increased rapidly. However, the medical school facilities were simple, with only 2 rooms for lectures and dissection; there were no laboratories and few libraries. The clinical instruction was poor, with a typical faculty consisting of 5 to 7 professors who derived their sole income from student fees for classes and private lessons. The medical school year was a term of 3 to 4 months with only 2 years of instruction required to attain a medical degree, the second year being a repeat of the first. Graded curriculum did not exist until after 1850 and was considered a great medical school reform. Needless to say, medical education in the first half of the 19th century was lacking in nearly every conceivable way, not resembling today's rigorous preparation in the least.

Typically, a physician out of medical school would study as an apprentice for a few years to an established physician. Apprentices managed the established physician's horses and acted as the physician's chauffeur for house calls. They helped with repairs...
and other household duties and filled patients’ prescriptions. In return, the apprentices received room and board and studied medicine with an experienced physician.\cite{24} It is unclear whether Paddock had the opportunity to become a physician’s apprentice, but if so, it is likely that he may have been apprenticed to Dr Frank Hastings Hamilton; however, it cannot be determined from available sources whether Paddock was Hamilton’s apprentice or just his student.

**WISCONSIN MEDICAL HISTORY**

Besides 19th-century medical education, also relevant to this discussion is Wisconsin medical history. Wisconsin became a territory in 1836. In 1838, Paddock arrived at an untamed and sparsely populated frontier. There were only 11,683 settlers living in Wisconsin when it became a territory. However, between 1836 and 1840, the territory population increased by 164\%, and the following decade it increased almost 10-fold.\cite{24} One reason for this rapid growth was that Wisconsin was marketed by local promoters as “remarkably free from those causes of endemic diseases . . . which have been the misfortune of large portions of Michigan, and the scourge of Indiana, Illinois, Missouri, and part of Iowa.” It was declared “the healthiest of western States.”\cite{24,7} These bold proclamations comforted fearful prospective settlers because sickness and premature death were common occurrences. However, this hyperbolic praise was untrue, and many Wisconsin settlers died of any number of diseases. Malaria, cholera, smallpox, typhoid fever, dysentery, and erysipelas, along with childhood diseases such as scarlet fever, measles, and diphtheria, were common for pioneers on the Wisconsin frontier. These pioneers were helped little by the medical profession, which did not understand how diseases were caused and did not know how to cure them. Anyone could proclaim himself a “doctor.” Early Wisconsin residents tended to their own medical needs, trying their own cures and falling prey to their lack of knowledge and experience.\cite{24}

Wisconsin became a state in 1848. This happened during the period of frontier medicine in Wisconsin, which encompasses most of the years of Paddock’s casebooks. The Wisconsin physician of that period was on call every hour of every day of every year. The frontier physician traveled on horseback, by horse-drawn buggy, or on foot. Saddlebags carried all surgical instruments, bandages, drugs, and an obstetrical case. Patients were typically scattered within a 20- to 25-mile radius, and the physician travelled to respond to their ailments at the speed of 2 to 5 mph. During the winter, physicians rode sleighs or cutters, which often overturned in high snow drifts. Proper clothing was critical to their survival. For their hard work, most frontier physicians earned paltry incomes because patients often did not pay their medical bills in cash but bartered items such as food.\cite{24} Paddock was unique in this regard because he was one of the wealthiest members of his community.

The image of frontier medicine that carries over to this day is that of a frontier physician mounting his saddlebagged horse and heading out into the night to heal the sick in dimly lit log cabins. These iconic images provided a limited view of frontier medicine, but they were common, and they leave us with a recognized physician-patient relationship model that has outlived the image of a frontier physician.\cite{24} Paddock fit the profile of a frontier physician, but his education, training, ambition, and personal and financial success make him a standout.

Another frontier physician living in the Wisconsin territory around the same time was Thomas Steel, MD. He was one of the best-trained physicians in the territory, having received his medical degree from the University of Glasgow, Glasgow, Scotland, in 1833. He settled in Waukesha County, not far from Mukwonago near Spring Lake. Steel described being a frontier physician as “a harassing occupation to mind and body.”\cite{24,21} The heavy burdens and responsibilities faced by frontier physicians are illuminated by the fact that of 5 physicians in Waukesha County, of which Steel was 1, a total of 3 ended up with serious mental disorders.\cite{24}

**19TH-CENTURY MEDICAL TREATMENT**

One must remember that a major challenge faced by these frontier physicians was that 19th-century medical treatments were crude and often useless. “Heroic medicine,” also known as allopathy, was commonly practiced from the 1790s to the mid-1800s.\cite{25} It was a painful way to practice medicine, causing more harm than good and turning many patients against the medical profession.

Rush, of eye water fame, who most likely influenced Hamilton (and, through him, Paddock), was one of the most famous allopathic physicians of the time. He told his students that there was only one disease: “morbid excitement induced by capillary tension.”\cite{25,2} This phrase cannot be translated into modern terms. Rush claimed that there was only one remedy: a combination of bloodletting and the purging of the stomach and bowels.\cite{25} Bleeding, vomiting, and purging formed the basis of allopathic medicine. These “heroic” treatments created patient distrust and fear of physicians.\cite{25} The physicians who prescribed these treatments were referred to scornfully as “leeches,” and their treatments punished the sick and shortened lives. “Heroic” medical practices dated back to antiquity, but some medical historians blame Rush for their popularity because of his great influence as the close friend of President Thomas Jefferson and other leaders of the time. When he spoke, people listened and dissenting voices were drowned out. On the other hand, Rush helped the medical establishment progress by championing women’s education and better treatment of the poor.\cite{25} However, by the 1830s, allopathic physicians were facing competition from more popular homeopathic physicians who avoided harsh “heroic” methods, “stressed the need for sympathetic attention,” and “provided an alternative to the . . . excesses of orthodox physicians.”\cite{25,2} Patients did not want to suffer any longer.

**19TH-CENTURY AMERICAN ATTITUDE TOWARD THE MEDICAL PROFESSION**

Such painful medical treatments help explain why the American attitude to-
ward the medical profession in the 19th century was not a favorable one. A new political movement would further erode public goodwill toward the medical profession. When Andrew Jackson was inaugurated as president in 1829, the medical profession became a victim of the new outburst of Jacksonian democracy that spread throughout the country. The Jacksonian ideals set out to establish equality of all adult white men, or “the common man.” Views that only proven “best” men should be in charge of public affairs were seen as elitist and thus abandoned. In medicine, patients rejected “elitist” physicians and believed anyone could be cured by commonsense approaches. At the time, state and local medical societies were establishing medical regulations, standards, and certifications. Fifteen states had institutions that licensed physicians. However, during the 1830s, new attitudes that favored commonsense approaches over medical knowledge led the medical profession to abolish state licensing in most of these states. By the early 1840s (the start of Paddock’s casebooks), anyone could practice medicine regardless of qualifications. Scientific medicine became consumed by medical quackery. It is to Paddock’s credit that he was able to maintain a thriving medical practice and was given such respect by his neighbors, considering the prevailing attitudes toward physicians during his years of practice.

CONCLUSION

Despite all the challenges, Paddock succeeded as a frontier physician and a member of his community. As exemplified by his casebooks, treatment of the eye constituted a small but significant portion of the busy general practice of medicine in mid-19th-century rural Wisconsin. Most of the ocular disorders seen were blepharitis, conjunctivitis, keratitis, and presence of foreign bodies. Foreign bodies were removed; inflammation and infections were treated mostly with topical medications, the active ingredients of which included lead acetate, zinc sulfate, silver nitrate, and camphor. The cost of treatment was high.

Although Paddock’s casebooks give insight into the practice of a Midwestern frontier physician in the mid-19th century, the man himself is deserving of further study for his effect on and contributions to his community. Frontier physicians such as Paddock should not be forgotten. They must have their stories told because to see where we are going, it is important to see where we have been.

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REFERENCES

2. Portrait and Biographical Album of Racine and Kenosha Counties, Wisconsin, Containing Biographical Sketches of Prominent and Representative Citizens. Chicago, IL: Lake City Publishing Co; 1892.