

# "Masters of Anaesthesia"

## M.S.A. Degrees during the 1893 World's Fair from Chicago's Post-Graduate School of Anaesthesia

George S. Bause, M.D., M.P.H.

ON May 1, 1893, the Columbian Exposition Fairgrounds opened at the 1893 Chicago World's Fair. That same day, inaugural classes began at Chicago's "Post-Graduate School of Anaesthesia." Postgraduate education for nonspecialist doctors (dentists and physicians not specializing in anesthesia) at proprietary schools preceded society-linked educational programs for physician- and dentist-anesthetists.

### Proprietary Propriety: Groundwork for a Groundbreaking School

In western Pennsylvania, United States, a German-American named Rev. Dr. Samuel J. Hayes (1833–1897, Dentist-anesthetist, Pittsburgh, PA) had rotated through careers as a farmer, teacher, school principal, and then preacher, before settling on his final vocations as a dentist-anesthetist and manufacturer of proprietary volatile anesthetic mixtures for delivery through one of his multiple patented bubble-through vaporizers.<sup>1</sup> (fig. 1) To purvey his anesthetic wares, in 1888 Hayes joined what was then one of America's oldest regional dental organizations, the Mississippi Valley Association of Dental Surgeons.<sup>2</sup> The Association's president that year was Allison W. Harlan, D.D.S. (1851–1909, Dentist and editor, Chicago, IL), who 6 yr earlier had proposed a World's Columbian Exposition in Chicago to celebrate the 400th anniversary of Columbus reaching America.<sup>3</sup>

To conduct business effectively in Chicago, the Pittsburgh-based Hayes needed a "dental depot" for distributing his volatile mixtures and vaporizers for producing general anesthesia. By September of 1889, he had legally incorporated his Chicago branch of the Hayes Dental and Surgical Manufacturing Company. After distributing his products to German-speaking professors of Chicago's American College of Dental Surgery, Hayes began accumulating glowing testimonials (e.g., "unquestionably...efficient" and "revolutionizing the Science of Anaesthesia") that he used later in advertisements.<sup>4,5</sup>

By February of 1890, Hayes had joined those dental professors in meetings of the Chicago Anaesthetic Club, an interprofessional organization of dentists and physicians interested in anesthesia-related innovations.\* Later that year, at the October meeting of the Club, Hayes learned about hypnotic anesthesia alongside Loomis P. Haskell, D.D.S.

(1826–1916, Dentist and Professor, Chicago, IL). The latter had launched Chicago's "Post Graduate School of Prosthetic Dentistry" in 1888.<sup>6</sup> Haskell's school would provide Hayes with a template for patterning Chicago's Post-Graduate School of Anaesthesia.

As managing the Chicago corporate branch became more time consuming, Hayes found less time available for supervising his Pittsburgh base of operations. Fortunately, his son, Will W. Hayes (1869–1893, Dentist, Pittsburgh, PA) received a D.D.S. degree from the University of Maryland in March of 1891 and rejoined the Hayes family business as the managing dentist at the Pittsburgh branch.<sup>7</sup> Will's return liberated his father to launch "the world's first journal devoted to the arts and sciences of anaesthesia," *The Dental and Surgical Microcosm* (hereafter, *Microcosm*). Like the Chicago Anaesthetic Club, the *Microcosm* was geared toward both dentists and physicians interested in anesthesia. To capture Fair-going doctors' attention, Hayes clad all of the issues of the *Microcosm's* Volume 3 in an orange cover. As a quarterly publication, the *Microcosm* would provide Rev. Dr. Hayes with a pulpit for preaching the gospel of "anaesthesia, not asphyxia," for advertising Hayes' corporate wares, and (as a reference manual) for schooling postgraduates in anesthesia. As Hayes advised, "Those [postgraduate students] who will read up at home before entering the school, will have less work to do while attending."<sup>8</sup> To attain the largest pool of candidates for his Post-Graduate School of Anaesthesia, Hayes planned to distribute copies of his *Microcosm* from his anesthesia demonstration area at the Columbian Exposition's Manufactures and Arts Building.<sup>9</sup>

Despite his other commitments, Hayes continued to modify the bubble-through anesthetic vaporizer that he had originally patented in 1882. In April of 1892, he filed for a patent on his No. 2 Vaporizer. The No. 2 would be the workhorse "Generator" for Hayes' postgraduate school. In filing the patent and in printing advertisements for his proprietary anesthetic mixtures and vaporizers, Hayes was risking the wrath of many dentists who questioned the propriety of professionals advertising and securing patents.

In America in the early 1890s, physicians and dentists received little beyond perfunctory lectures and cursory hands-on teaching with respect to administering general

Submitted for publication May 30, 2013. Accepted for publication August 22, 2013. From the Department of Anesthesiology and Perioperative Medicine, School of Medicine, and Department of Oral and Maxillofacial Surgery, School of Dental Medicine, Case Western Reserve University, Cleveland, Ohio; and Wood Library-Museum of Anesthesiology, Park Ridge, Illinois.

\* Bause GS: Before the Anaesthetists' Travel Club: The Chicago Anaesthetic Club. Paper presented at the 83rd Meeting of the Academy of Anesthesiology, Santa Monica, California, February 23–26, 2012.

Copyright © 2013, the American Society of Anesthesiologists, Inc. Lippincott Williams & Wilkins. Anesthesiology 2014; 120:42–9



**Fig. 1.** Samuel J. Hayes, D.D.S., M.S.A., Founder and Founding Secretary of "The Post-Graduate School of Anaesthesia," Chicago. (Image source: Anonymous: Dr. S. J. Hayes, Controlling Editor. *Dent Surg Microcosm* 1893; 3: n.p. frontispiece to No. 2, April issue.)

anesthesia. There was little economic incentive as virtually no American professional could earn a living as a full-time doctor-anesthetist. Rather than staying stateside for learning about general anesthesia, professionals were wiser to travel to Europe where nonasphyxial inhaler technology had actually evolved beyond sponges, handkerchiefs, and wireframes. Proprietary postgraduate schools in the United States were quite uncommon for physicians, who generally disdained the advertising and patenting of medical innovations and the associated schooling offered by the same innovators. With its generally more accepting view of professional advertising and patenting, dentistry welcomed its first postgraduate program, the proprietary "Chicago Post Graduate School of Prosthetic Dentistry," which began just months before Hayes' 1889 incorporation of the Chicago branch of his Hayes Dental and Surgical Manufacturing Company.<sup>6,10</sup>

By autumn of 1892, Hayes had begun nightly teaching of postgraduate sessions in anesthesia which followed daytime ones that Haskell taught in prosthetic dentistry. Hayes incorporated his "Post-Graduate School of Anaesthesia" in the State of Illinois in September of that year.<sup>11</sup> As "Proprietor and Controlling Editor" of the *Microcosm*, Hayes continued to use his journal to address the professional propriety of both his and his proprietary school's involvements in advertising and patenting Hayes' anesthetic innovations.<sup>12,13</sup> A fierce defender of his proprietary school's independence, Hayes may have affiliated his school with Haskell's "Chicago Post Graduate School of Prosthetic Dentistry"—in order to augment his postgraduates' clinical experience with administering general anesthesia.

## Fair Fights for Frank Lloyd Wright and Samuel J. Hayes: Aesthetic and "Anaesthetic" Retreats to the Schiller Building's Tower

After Chicago's German Opera Company had decided to erect a new opera house and office-tower complex (soon to be known as the "Schiller Building"), they sought the services of Adler and Sullivan, an architectural firm whose head draftsman was the young Frank Lloyd Wright. Dankmar Adler incorporated straight lines-of-sight and sounding-board principles into his extraordinary theater designs. His younger partner, Louis Sullivan, was a proponent of "form ever begets function." As pragmatic sounding as that was, the public loved Sullivan for what Wright called the "supreme erotic adventure of the mind that was...[Sullivan's] fascinating ornament!"<sup>14</sup>

Sullivan's design of Adler and Sullivan's tallest masterpiece, the 17-story Schiller Building, included the "lofty" features that he would recommend years later for designing into skyscrapers:<sup>15</sup>

1. A subterranean utility floor,
2. A welcoming ground floor with a common entrance for large accessible businesses,
3. A stairway-accessible second floor with large subdivisions,
4. Largely undecorated stories of offices piled tier-upon-tier, and
5. A capping top floor for mechanical and utility purposes.

As for detailing the ornament outside and inside the Schiller Building, Sullivan prescribed and Wright dispensed. As Wright recalled, "the Schiller Building, Chicago...had been more largely left to me than any other." Wright considered himself an apprentice to "Master" Sullivan. Regarding himself as a "good pencil in the Master's hand," Wright "could make designs in...[Sullivan's] manner so well that" Sullivan "would sometimes mistake...[Wright's] drawings for his own."<sup>14</sup>

While they were designing and building the Schiller Building, both Sullivan and Wright were disappointed in the "White City" which was being erected for the Columbian Exposition. Rather than presenting the world with contemporary, perhaps even edgy, American design and architecture, the Fair's organizers had opted to retreat to the Beaux Arts tradition. Distressed that the Exposition was infected by what he termed a "violent outbreak of the Classic and the Renaissance," Sullivan lamented that "Architecture [had] died in the land of the free and the home of the brave."<sup>16</sup> As angered as Sullivan was by the Fair's organizers, he would soon turn his wrath upon his lead draftsman, Frank Lloyd Wright.

## Harlan's Aesthetic Connection: Architect Frank Lloyd Wright

Near the end of his 5-yr contract with Adler and Sullivan, Wright began earning extra income by independently designing private residences from his home office in Oak

Park. As Wright's autobiography recounts, although he moonlighted "out of office hours, not secretly," Wright "had broken...[his] contract by doing outside work." Sullivan quickly recognized Wright's hand in designing a home for Dr. Allison Harlan—yes, for the very dentist who suggested that Chicago host the Columbian Exposition. After Sullivan arrogantly announced that he would not "tolerate division under any circumstances," Wright "walked out of the Adler and Sullivan office never to return."<sup>14</sup> He then beat a hasty retreat to the 15th floor of the skyscraper he had helped detail for Adler and Sullivan, the Schiller Building, to set up his new downtown office (see 15, fig. 2).

### **Harlan's "Anaesthetic" Connection: Dentist-Anaesthetist Samuel J. Hayes**

Although Allison Harlan's home design had complicated Frank Lloyd Wright's life, it was Allison Harlan himself complicating Samuel Hayes' plans. Harlan chose not to intervene when Fair Commissioners "would not allow demonstrations in the use" of "Hayes' Process of, and Apparatus for Generating and Applying Anaesthetics" at the Columbian Exposition. Incensed when live demonstrations on patients (of his anesthetic mixtures and vaporizers) were barred, Hayes resigned the corporate space allocated to him in the Fair's Manufactures and Arts Building.<sup>9</sup> Fortunately, he was rescued by his close ties with Chicago's German-speaking community. There was adequate space available on floor 13 of the newly constructed German Opera Building, which had been renamed the Schiller Building. The 13th floor had been avoided by potential lessors due to the triskadecaphobia, the fear of the number 13, that many Germans and Americans shared. A no-nonsense man, Hayes did not hesitate to lease Room 1303, his tower office (see 13, fig. 2). However, Hayes appreciated the adjoining 13th floor Club Room and Corridor (see C, fig. 2) in the bridging 13th-floor wing which extended back to the 13th floor Recital Hall (see R, fig. 2).

The Club Room had flanking restrooms and cloak rooms to receive family members of patients who chose to visit Hayes' Post-Graduate School to be anesthetized for minor (usually dental) procedures. When available, the Recital Hall could be quickly accessed by postgraduate students for morning lecture(s). Remarkably, the Recital Hall, like much of the Schiller Building, featured the Sullivan-prescribed but Wright-detailed ornament. So, just as Frank Lloyd Wright had done, Hayes now retreated to the Wright-decorated "Schiller." And the young architect's office retreat on floor 15 was located a mere two floors above the office of dentist-anesthetist Hayes.

### **Morning Lessons from a Master Faculty, Then Afternoons at the World's Fair**

While recruiting a master faculty for his master's degree program, Hayes conscientiously balanced the number of dental and medical professionals. Fortunately, for teaching purposes, he could periodically rotate in pairings of dentists with



**Fig. 2.** The Schiller Building, designed by Adler and Sullivan and detailed by Frank Lloyd Wright. Key: 15 = 15th floor tower offices: Frank Lloyd Wright shared Room 1501 with another architect. 13 = 13th floor tower offices: Samuel J. Hayes rented Room 1303 for his company (Hayes Dental and Surgical Manufacturing Company) and additional space for Chicago's "Post-Graduate School of Anaesthesia." C = 13th floor Club Room and Corridor: Hayes had clinical access to this area—above the actual Schiller Theatre—for morning use by his Post-Graduate School of Anaesthesia. R = 13th floor Recital Hall: Hayes and his postgraduate faculty lectured postgraduates here on some weekday mornings before clinics. (Adapted from: American Architect and Building News, Jan 9, 1897. In the public domain. Adaptations are themselves works protected by copyright. So in order to publish this adaptation, authorization must be obtained from the owner of copyright in the translation or adaptation.)

physicians. Of his faculty of six instructors, the four professors were quite literally periodical—they were all editing Hayes' journal, the *Dental and Surgical Microcosm*. By May of 1893, Hayes grandfathered himself and his other faculty members in as honorary M.S.A.s (*i.e.*, "Masters of the Science of Anaesthesia" who had already mastered the use of Hayes' anesthetic mixtures and vaporizers).<sup>17</sup> And just as he had reached out with his "Dental and Surgical" publication, Hayes now invited dentists and physicians to Chicago's Post-Graduate School of Anaesthesia for training by his master faculty. The School's inaugural postgraduate class started on May 1, 1893, the day that the Columbian Exposition fairgrounds opened. One month later, 10 M.S.A. degrees were awarded to 10 dentists and physicians by Chicago's Post-Graduate School of Anaesthesia.<sup>18</sup>



**Professor Frederick Gaertner, M.D., LL.D., M.S.A. (1860–1929) (Surgeon and Professor, Pittsburgh, PA)**

The most celebrated member of the Post-Graduate School's faculty, Gaertner was Hayes' longtime friend and colleague, a fellow German-American resident of Pittsburgh. Gaertner served as associate editor of Hayes' *Microcosm*. A world-respected surgeon and pathologist, Gaertner had trained with a host of European medical luminaries, including Berlin's Virchow, Vienna's Billroth, and Strassburg's von Recklinghausen. In Paris, he visited the Pasteur Inoculating Institute and was eventually awarded not only the French Academy of Science's LL.D. degree but also the decoration of the Legion d'Honneur. As the most famous professor on Hayes' faculty, Gaertner opened and closed each monthly course with No. 1 and No. 8 lecture topics. Note that no specific description of course work is extant beyond lectures cited. Presumably the bulk of students' time was spent on observing and participating in demonstrations of Hayes' anesthetic mixtures and apparatus on dental patients for brief procedures.

**Lecture Topic No. 1: "Physiology and Physical Diagnosis".** A brilliant scientific researcher, Gaertner prefaced his opening lecture with his views favoring vivisection.<sup>19</sup>

He then lectured briefly about the microscope and about hemometers before discussing anemia with the class. His concluding remarks were directed at teaching the class about acute and chronic hallmarks of scourges like syphilis, tuberculosis, cholera, and additional febrile illnesses.<sup>20–23</sup> In many ways, Gaertner's opening lecture topic reminded the postgraduates about disease states assessable by history and physical examination. The class learned about disease phases which, if detected preoperatively, might preclude or postpone general or dental surgery.

**Lecture Topic No. 8: "Jurisprudence".** This topic ranged through preliminary discussions of professional ethics and whether healthcare professionals should advertise, obtain patents, or submit to examining boards.<sup>12,13,24</sup> Fully trained in Europe as both surgeon and surgical pathologist, Gaertner was one of America's leading medico-legal experts. Drawing from the pages of Hayes' *Microcosm*, Gaertner could lead his postgraduates in discussing scores of anesthetic complications (mostly relating to the clinical use of nitrous oxide). Gaertner likely concluded his jurisprudence discussion by reminding the class why the "microscope [was] the principal factor in discriminating medical, medico-legal and legal complications."<sup>25</sup>

**Professor Charles Gilbert Davis, M.D., M.S.A. (1849–1928) (Surgeon and Professor, Chicago, IL)**

Hayes' fellow teetotaler and a fierce temperance advocate, Charles Gilbert Davis, had just returned to Chicago from the Parisian surgical clinic of J. E. Péan. With that founder of modern gynecology, Davis had completed in 1892 a 6-month postgraduate course in surgery. Now back in Chicago as Hayes' acknowledged expert in postgraduate education, Davis was named Dean of the Post-Graduate School of Anaesthesia as well as a corresponding editor of the *Microcosm*. Of course, Davis' standing in the School was enhanced

further after he was invited to lecture at the World's Psychical [Psychological] Science Congress at the Fair. If Professor Gaertner's lectures had been aimed at detecting a patient's fitness for dental or general surgery, then Professor Davis' lectures were steered more toward ascertaining how a patient would "take" an anesthetic or might even be psychologically prepared to require more, less, or perhaps no anesthetic.

**Lecture Topic No. 2: "Physiognomy, Phrenology, and Temperament".** The study of facial features and expressions (physiognomy) and of prominences or depressions on the skull (phrenology) were thought to offer clues as to the relative ease or difficulty in anesthetizing patients.<sup>26</sup> Rather than blaming the doctor-anesthetist for anesthetic complications, why not point to an imbalance in the mixture (temperament) of a patient's psychological makeup? What Hippocrates had suggested was an excess of body fluids ("humors") such as black bile, blood, yellow bile, or phlegm, Galen had interpreted, respectively, as predominantly melancholic (introverted), sanguine (congenial), choleric (ambitious), or phlegmatic (relaxed). So a preanesthetic evaluation of a patient's temperament was considered helpful in anticipating anesthetic difficulties or complications.<sup>27</sup> For example, a patient's temperament was believed responsible for whether that patient would experience transient or prolonged excitement from nitrous oxide.<sup>28</sup> A patient of predominantly sanguine temperament might pose more of a challenge at induction of general anesthesia; a choleric patient, at emergence. Phlegmatic individuals were prone to cardiovascular "concussion" and anesthetic overdose; in contrast, melancholic or nervous ones were prone to syncope. Gaertner reminded the class of Hayes' observation that asphyxia "will vary in different patients in accordance with temperaments and nervous conditions."<sup>29</sup>

**Lecture Topic No. 3: "Psychology and Hypnotism in Anaesthesia".** Gaertner readily transitioned from his Lecture Topic No. 2 to his No. 3. After all, temperament was a bridge to discussions of hypnosis and anesthesia. And patients of melancholic or nervous temperament were believed to be more susceptible to hypnotic suggestion.<sup>30</sup> After reviewing common sense approaches to gaining a patient's confidence, Davis underscored Hayes' emphasis on the "power of mental impressions" and reminded postgraduates that hypnotic suggestions could serve as "an aid to anaesthesia."<sup>31,32</sup> Davis also "delivered before the class" his pointers on "Hypnotic Anesthesia."<sup>30,33,34</sup> Even before he read it before the World's Psychical Science Congress during the Columbian Exposition, Davis rehearsed his lecture "Hypnotism with Special Reference to Hypnotic Suggestion" on Hayes' postgraduate students. Highlights of Davis' presentation were eventually published by the American Medical Association.<sup>35</sup>

**Professor James M. Clyde, D.D.S., M.S.A. (1832–1919) (Dentist and Professor, Springfield, MO)**

Like Samuel J. Hayes, Clyde was a farmboy who became a teacher, a principal, and finally a dentist. Compared with the

other professors, what Clyde may have lacked in originality, he made up for in enthusiasm. He was familiar with all of Hayes' lectures and was able to demonstrate "Hayes Process for Administering Anaesthesia" almost as well as Hayes himself.

**Lecture Topic No. 4: "The Anatomy and Functions of the Nervous System".** Although Clyde lacked the formal ministerial training that Hayes had received, Clyde had served as a principal at a seminary. Therefore, he readily preached Hayes' gospel of "anaesthesia, not asphyxia." To present Lecture Topic No. 4, Clyde relied heavily on Hayes' 1893 reprinting in the *Microcosm* of W. C. Barrett's article on "Nervous Force." Barrett had presented his paper a decade earlier to the American Dental Association under the title of "The Origin and Physiology of Nervous Force."<sup>36</sup>

**Lecture Topic No. 5: "The Forces of Life".** Although he produced little original material for the postgraduates, Clyde was nonetheless well connected in terms of dental politics. Allison Harlan's classmate at Ohio College of Dental Surgery, Clyde had preceded Harlan as a president of the Mississippi Valley Association of Dental Surgeons.<sup>37</sup> A corresponding editor for Hayes *Microcosm*, Clyde "borrowed" the postgraduate thesis (submitted to the School) by E. W. Doolittle, D.D.S., M.S.A., to lecture other postgraduates on "the Spirit and the Material" as "The Forces of Life."<sup>38</sup>

#### **Professor Samuel J. Hayes, D.D.S., M.S.A.**

Hayes was both the "controlling editor" for the *Microcosm* and founder and founding secretary for Chicago's Post-Graduate School of Anaesthesia. On the faculty, he was principally responsible for lecturing about and demonstrating how his own proprietary anesthetic mixtures and patented vaporizers were advancing both the science and art of anesthesia.

**Lecture Topic No. 6: "The Science of Anaesthesia".** Perhaps Hayes' favorite paper on the science of anesthesia was the lead-off article that he published in the inaugural issue of his *Microcosm*: S. A. Waterman's "The effects of anaesthetics upon the human system as evidenced by spectroscopic observations."<sup>39</sup> That same journal issue featured Hayes' editorial views on F. W. Silk's "practical points" on nitrous oxide, as well as Hayes' own presentation on "The Science of Anaesthesia."<sup>40,41</sup>

**Lecture Topic No. 7: "The Art of Anaesthesia".** Because he sold proprietary mixtures of chloroform with alcohol and other agents, Hayes carefully critiqued the views of Julian Chisolm's article on chloroform as "the best of anesthetics."<sup>42</sup> In terms of the art of anesthesia, Hayes taught that too little anesthetic could lead to syncope; too much, to the "convulsion" of overdose.<sup>43</sup> Hayes emphasized how to resuscitate a patient "in threatened death from chloroform."<sup>44</sup> Perhaps feigning modesty, Hayes taught the class his proprietary techniques by referring to the article that he had penned and published under Gaertner's byline: "Hayes' Process of Generating and Applying Anaesthetics, the Most Improved."<sup>45</sup>

Practical hands-on use of Hayes' Vaporizer No. 2 was taught by Hayes, Clyde and/or two more instructors, including E. W. Doolittle, M.D., M.S.A., and E. P. Hayes, D.D.S.,

M.S.A., the last of whom was not a relative of S. J. Hayes. Samuel Hayes made every effort to ensure that monthly there were a minimum of six faculty members available to cover lecturing and to supervise anesthetics. However, one competing (medical) journal editor poked fun at Hayes' faculty choices: "A considerable Faculty is listed of a proposed "School of Anesthesia," with the titles M.D., A.M., D.D.S., and M.S.A., but, strange to say, no D.D.'s or LL.D.'s appear there."<sup>17</sup>

**Inducements to Training at "The Post-Graduate School of Anaesthesia".** For attending class each weekday morning for 1 month and then passing Hayes' examination on anesthesia, postgraduates received a master's degree in the science of anesthesia, the M.S.A. This was initially to be obtained at a cost of \$100 (approximately \$2,580 in Year 2013's U.S. dollars). The nation's economic downturn forced Hayes to reduce tuition to \$60. Those who had previously licensed use of Hayes' anesthetic vaporizers could even see tuition discounted down to \$40 for the month.<sup>46</sup> Dentists who vacillated about enrolling at the school might be enticed to attend by the promise of receiving postgraduate training in prosthetic dentistry at the school's "Annex."<sup>17</sup>

Hayes hoped that his international faculty would attract foreign postgraduates. After all, Professor Clyde was a Canadian-American, and all of the school's professors were German-speaking, with three of the four claiming German descent. Professor Gaertner was an internationally recognized surgical pathologist and medico-legal expert. Both of the physicians, Gaertner and Davis, had trained in multiple European surgical programs. Professor Davis connected the Post-Graduate School of Anaesthesia with upcoming international congresses on Homeopathy and on "Psychical Science" (psychology) taking place during the 1893 World's Fair.

Hayes probably hoped that such links would help him recruit postgraduates from other congresses and other countries. A grand visionary, Hayes dryly observed, that "Many from abroad, will no doubt, take advantage of attending this School and taking the course while attending the Columbian World's Fair."<sup>47</sup> Note that this was a time when well-heeled professionals could elect to vacation as "tourists" who actually toured for 1 or 2 months at or in the vicinity of the Columbian Exposition.

### **Chicago's "School of Anaesthesia" Dwindles, but Its Postgraduate Legacy Grows**

#### **The Decline of a School: From World's Fair Class to Correspondence School**

By 1896, Samuel Hayes' health had declined so precipitously that he had consented to advertising his school as it had been renamed by Dean Davis as "The School of Anaesthesia, Chicago" (fig. 3). Although Hayes *Microcosm* still listed "S. J. Hayes" as secretary, the pragmatic Dean Davis had advertised nationally that an unrelated

Hayes—one of the School's graduates, Ephraim P. Hayes, D.D.S., M.S.A.—had succeeded the ailing S. J. Hayes as the new secretary.<sup>48</sup>

Samuel Hayes died in 1897. That year, Dean Davis tried to run the school as a “University Extension” program. So ironically, Dean Davis, once a *corresponding* editor of Hayes' *Microcosm*, was now trying to run a *correspondence* school. As Davis prepared for his retirement from surgical practice (but not medicine) by 1900, what was once Chicago's Post-Graduate School of Anaesthesia just disappeared.

### **The Decline of a Faculty: The Curse of Floor 13?**

The original associate editor for Hayes' *Microcosm*, Professor Frederick Gaertner, lived a long, prosperous life as a surgeon, surgical pathologist, and medico-legal expert. However, his fellow professors did not fare as well after departing from Floor 13.... The Post-Graduate School's founding secretary Professor Samuel Hayes lost his only son (to tuberculosis) in 1893, his wife in 1894, and his own life by 1897.<sup>1</sup> Professor J. M. Clyde ended up divorced and abandoned in a nursing home by 1910. Professor Charles G. Davis lived longer than those dental colleagues, and during his surgical retirement would author religious tracts as well as advertisements

for his Colorado-based Hot Radium Springs. However, he would be humiliated by the resurfacing of earlier allegations of plagiarism, by a fraud investigation by the American Medical Association, and by the scathing critiques (by H. L. Mencken) of Davis' writings as “tedious religious exhortations by a bore.”<sup>49,50</sup> And as a final postscript, the dentist with whom Dean Davis had replaced Samuel Hayes—E. P. Hayes—suffered misfortunes like those that had plagued most of the Post-Graduate School's faculty. After opening a dental office branch in New York for E. P. Hayes, his trusted dental partner killed Hayes' wife there in a murder-suicide. A broken E. P. Hayes expired a couple years later back in the Chicago area.

### **The Decline of a Building: From Tragedy to Comedy?**

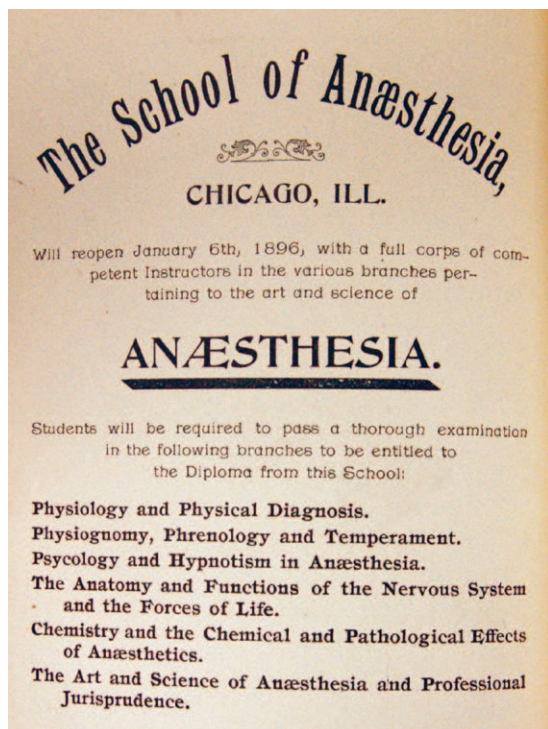
And what became of the original home of Chicago's “Post-Graduate School of Anaesthesia”? Sadly, bankruptcy forced the 1898 sale of the Schiller Building. It was renamed the Dearborn Theatre and then the Garrick Theatre. In a sad down-spiral, live theatrical productions gave way to cinematic, then to televised, and finally to cinematic ones again. Despite heroic efforts by preservationist Richard Nickel and others in Chicago, the building was demolished in 1961 to make way for a parking garage.<sup>51</sup>

Ironically, out of the combined tragedies of losing both Adler and Sullivan's tallest masterpiece and the home of Chicago's original “Post-Graduate School of Anesthesia,” there would emerge a twist of comedy. Four terra cotta busts salvaged from the Schiller Building facade now decorate the exterior of Chicago's famous Second City Comedy Club.

### **Legacy**

So what is the legacy of Chicago's Post-Graduate School of Anaesthesia? In America's Midwest by 1906, at least two schools were competing as replacements for S. J. Hayes' school. A Chicago dentist Dr. Laird W. Nevius was advertising his “School of Anaesthesia and Extraction of Teeth.”<sup>52</sup> In Des Moines, Iowa, William H. DeFord, D.D.S., M.D., was running his own Post-Graduate School of Anaesthesia.<sup>53</sup> By 1909, Chicago's Charles M. Paden, D.D.S., M.D., was advertising Paden's Post-Graduate School of Anaesthesia.<sup>54</sup>

Discrete from these postgraduate educational efforts for the nonspecialist were those targeting the specialist doctor-anesthetist (the physician- or dentist-anesthetist). Did the former efforts pave the way for the latter? From 1905 to 1906, postgraduate schools in anesthesia for physicians and dentists were being organized and heavily advertised. During that same timeframe, The Long Island Society of Anesthetists was founded in New York, and Francis H. “Frank” McMechan, M.D. (1879–1939, Physician-anesthetist and founder of the International Anesthesia Research Society) was specializing as a physician-anesthetist in Cincinnati, Ohio. The annual Congress of Anesthetists that Dr. McMechan started in 1922 has evolved into the current 4-day annual meeting of the International Anesthesia



**Fig. 3.** Advertisement for the 1896 reopening as “The School of Anaesthesia, Chicago.” In his proprietary journal, controlling editor Samuel J. Hayes, D.D.S., M.S.A., devoted a full-page of advertising space to the postgraduate school that he had founded in 1893. Note that the roster of lecture topics had not changed significantly from the original ones covered in 1893. (Image source: Anon: The School of Anaesthesia, Chicago, Ill. Dent Surg Microcosm 1896; 5:n.p.)



Research Society. And the New York Society of Anesthetists' 2-day scientific program begun in 1930 has expanded into the currently 5-day annual meeting of the American Society of Anesthesiologists.

To date, no conclusive evidence supports whether non-specialist education evolved into specialist education or whether similar circumstances prompted both types of education to develop independently. Moreover, the term "postgraduate" is associated today with multiple anesthesia meetings. The largest American meeting now titled as "post-graduate" was first advertised in 1945 without that moniker. At that time, while preparing to step down as the business manager of *ANESTHESIOLOGY*, Paul M. Wood, M.D., published an article in the *Journal* announcing the inaugural New York State Regional Meeting of the American Society of Anesthesiologists. Today, that meeting convenes as the United States' second largest anesthesiology meeting annually, the New York PostGraduate Assembly in Anesthesiology or PGA.<sup>55</sup>

### Summary

On May 1, 1893, the Columbian Exposition Fairgrounds opened at the 1893 Chicago World's Fair. That same day inaugural classes began at Chicago's "Post-Graduate School of Anaesthesia." This proprietary school paved the way for future postgraduate programs focused on anesthesia. Post-graduate education of nonspecialist doctors (dentists and physicians not specializing in anesthesia) clearly preceded society-linked educational programs for physician- and dentist-anesthetists. Any relationship between nonspecialist and specialist postgraduate programs remains speculative and merits further investigation.

### Acknowledgments

Special thanks to the late Katharine Hayes A. Kellock (Washington, D.C.) and to Ward Miller (Preservation Chicago, Chicago, Illinois). The author also thanks the staff of the Wood Library-Museum of Anesthesiology (American Society of Anesthesiologists, Park Ridge, Illinois): Margaret Jenkins, Teresa Jimenez, M.S.L.I.S., Felicia Reilly, M.A.L.S., Judith Robins, M.A., and Karen Bieterman, M.L.I.S.

Supported in part by a Paul M. Wood Fellowship, Wood Library-Museum of Anesthesiology, Park Ridge, Illinois.

### Competing Interests

The author declares no competing interests.

### Correspondence

Address correspondence to Dr Bause: 5247 Wilson Mills Rd, No. 282, Cleveland, Ohio 44143. [ujyc@aol.com](mailto:ujyc@aol.com). Information on purchasing reprints may be found at [www.anesthesiology.org](http://www.anesthesiology.org) or on the masthead page at the beginning of this issue. *ANESTHESIOLOGY*'s articles are made freely accessible to all readers, for personal use only, 6 months from the cover date of the issue.

### References

1. Bause GS: America's first patented series of bubble-through anesthetic vaporizers: Reverend Samuel J. Hayes' sermons against asphyxial anesthesia. *ANESTHESIOLOGY* 2009; 110:12–21
2. Rose AG: Proceedings: Forty-fourth annual meeting of the Mississippi Valley Association of Dental Surgeons. *Dent Register* 1888; 42:245
3. Truman BC: History of the World's Fair: Being a Complete Description of the World's Columbian Exposition from Its Inception. Chicago, Mammoth, 1893
4. Cigrand BJ: [Testimonial dated Feb 3, 1890]. *Dent Surg Microcosm* 1891; 1:79
5. Leininger G: [Testimonial dated April 16, 1890]. *Dent Surg Microcosm* 1891; 1:80
6. Anonymous: The Biographical Dictionary and Portrait Gallery of Representative Men of Chicago and the World's Columbian Exposition. Chicago: American Biographical, 1892, pp 655–6.
7. Hayes SJ: In memoriam. *Dent Surg Microcosm* 1893; 3:215
8. Hayes SJ: The "Post-Graduate School of Anaesthesia." *Dent Surg Microcosm* 1893; 3:147
9. Hayes SJ: Space re-signed [sic]. *Dent Surg Microcosm* 1893; 3:137
10. [Secretary of State of Illinois:] New Illinois Incorporations. Chicago, Chicago Tribune, 1889, pp 6
11. [Secretary of State of Illinois:] New Incorporations. Chicago, Chicago Tribune, 1892, pp 10
12. Anonymous: How doctors advertise. *Dent Surg Microcosm* 1891; 1:128–9
13. Byrne JE: Is it proper and professional for dentists to obtain and hold patents for their inventions? *Dent Surg Microcosm* 1891; 1:42–8
14. Wright FL: An Autobiography. New York, Duell, Sloan & Pearce, 1943
15. Sullivan LH: The tall office building artistically considered. *Lippincott's Monthly Mag* 1896; 57:403–9
16. Sullivan LH: The Autobiography of an Idea. New York, Press of the American Institute of Architects, 1924, pp 324–5
17. Gould GM: The "School of Anesthesia, with Annex." *Med News* 1893; 62:554
18. Hayes SJ: The School of Anaesthesia, of Chicago, Ill. *Dent Surg Microcosm* 1893; 3:212
19. Gaertner F: Vivisection. *Dent Surg Microcosm* 1891; 1:71–6
20. Otis FN: The early diagnosis and treatment of syphilis. *Dent Surg Microcosm* 1891; 1:133–5
21. Babcock RA: The treatment of consumption. *Dent Surg Microcosm* 1893; 3:189–96
22. Gaertner F: Asiatic cholera; its causes and prevention. *Dent Surg Microcosm* 1892; 2:107–11
23. Vaughan VC: Fevers of (a) fatigue, (b) exhaustion, (c) none-elimination. *Dent Surg Microcosm* 1891; 1:182–5
24. Examining boards in New York society. *Dent Surg Microcosm* 1891; 1:174–81
25. Gaertner F: The microscope the principal factor in discriminating medical, medico-legal and legal complications. *Dent Surg Microcosm* 1891; 1:229–37
26. Howerton GT: Is phrenology a science? *Dent Surg Microcosm* 1892; 2:112–7
27. Buck EJ: General anaesthesia. *Dent Surg Microcosm* 1892; 2:81–92
28. Cigrand BJ: The past, present and future of anaesthesia. *Dent Surg Microcosm* 1892; 2:1–13
29. Hayes SJ: Nitrous oxide gas, and the two gas lights, Drs. Thomas and Gilford. *Dent Surg Microcosm* 1892; 1:188–97
30. Davis CG: Hypnotic anaesthesia. *Dent Surg Microcosm* 1893; 3:161–75
31. Ferris AN: Gain and retain the confidence of your patients. *Dent Surg Microcosm* 1891; 1:34–5

32. Hayes SJ: Power of mental impressions. *Dent Surg Microcosm* 1892; 1:272
33. Davis CG: Hypnotic suggestions as an aid to anaesthesia. *Dent Surg Microcosm* 1895; 4:165–70
34. Davis CG: Hypnotic anaesthesia. *Dent Surg Microcosm* 1893; 3:161–75
35. Davis CG: Hypnotism, with special reference to hypnotic suggestion as an aid to the anesthesia of chloroform and ether. *J Am Med Assoc* 1895; 25:573–5
36. Barrett WC: The origin and physiology of nervous force. *Trans Am Dent Assoc* 1883; 22:94–107
37. Anonymous: Ohio College of Dental Surgery. *Dent Cosmos* 1880; 22:203
38. Doolittle EW: The forces of life. *Dent Surg Microcosm* 1893; 3:176–84
39. Waterman SA: The effects of anaesthetics upon the human system as evidenced by spectroscopic observations. *Dent Surg Microcosm* 1891; 1:1–13
40. Hayes SJ: [Editorial review of F. W. Silk's] Chemistry, physiology and pathology of nitrous oxide—Practical points. *Dent Surg Microcosm* 1891; 1:52–5
41. Hayes SJ: The science of anaesthesia. *Dent Surg Microcosm* 1891; 1:14–25
42. Hayes SJ: Editorial [on Chisolm's Chloroform, the best of anaesthetics]. *Dent Surg Microcosm* 1892; 1:260–6
43. Hayes SJ: Death from syncope with partial narcosis [sic]. *Dent Surg Microcosm* 1893; 3:61–2
44. Miles FT: Resuscitation in threatened death from chloroform. *Dent Surg Microcosm* 1891; 1:33–4
45. Gaertner F: Hayes' process of generating and applying anaesthetics, the most improved. *Dent Surg Microcosm* 1893; 3:1–7
46. Hayes SJ: To licensees. *Dent Surg Microcosm* 1893; 3:225
47. Hayes SJ: The "Post-Graduate School of Anaesthesia." *Dent Surg Microcosm* 1893; 3:147
48. Davis CG, Hayes EP: Polk's Medical and Surgical Register of the United States. Detroit: R.L. Polk & Co, 1896, pp 134
49. Anonymous: News items; Chicago Hypnotism. *Med Record* 1891; 40:100–1
50. Mencken HL: [Book review of] *Why Not Now?* by Charles Gilbert Davis. *Smart Set* 1910; 31:160
51. Nickel R, Siskind A, Vinci J, Miller W: The Complete Architecture of Adler & Sullivan. Chicago, Illinois, Richard Nickel Committee, 2010, pp 379–82
52. Anonymous: A new school. *Am Dent J* 1906; 5:417
53. Anonymous: A new school. *Am Dent J* 1906; 5:225
54. Paden CM: Paden's Post-Graduate School of Anaesthesia. *Northwestern Dent J* 1909; 8:364
55. Wood PM: New York State Section regional meeting. *ANESTHESIOLOGY* 1945; 6:573