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- Increasing interest among dentists in dental history.
- Encouraging dental schools to develop historical collections on dentistry, and to offer adequate instruction in dental history.
- Developing a broader understanding of the facts of dental history among the leaders in dentistry in order to aid them in their attempts in solving important problems in dental education and practice.
- Stimulating more thorough and comprehensive research in dental history, thereby extending the boundaries of dental knowledge, giving substantial support to growing professional culture.
- Creating an authoritative body to which important questions relating to dental history could be referred for factual verification.

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When our president Dr. Chernin asked me to add some anecdotal addenda to other more profound talks on the history of this dental school, it was not because of any expertise I have as a historian. But rather, I think, he was under the impression I was present at this school’s inception some 140 years ago. It’s true, I’ve survived six deans, but my association with the school goes back only some 73 years.

Rather than a recording and recounting of dates, and naming of illustrious alumni and faculty, I thought I might add a little salt to the main dish of the school’s history. Sometimes it’s the salt that brings out the flavor of the dish.

As you all know, we repeat it ad nauseam: Harvard is the oldest dental school to be associated with a university. There were indeed a half-dozen or so predecessor dental schools, but all were of a vocational or proprietary nature, and added little to knowledge or lustre of the profession. Aside from being the first to be associated with a university, what was unique was the fact that it was the medical faculty that proposed its establishment. I especially enjoy the language of the proposal. It is interesting and significant to emphasize that it was the medical faculty that made this proposal at a time when most medical faculties looked on dentistry as a poor relation, to be endured, but not encouraged. I quote the medical annual report of March 29th, 1867:

Dentistry has become, with the past quarter of a century, a most important art, and a knowledge of which supposes not only mechanical skill, but a thorough acquaintance with the process of dentition, physiologically and pathologically considered. Hence arises the necessity for a knowledge of the general principles of anatomy, physiology, surgery and materia-medica, to which should be added some knowledge of the theory and practice of medicine. A medical school already established is, therefore, the best place at which these various studies can be attended to. It is all-important that the art be cultivated by all means in our power, in order that the crowd of dentists that will hereafter

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be in this city may not be of a lower quality than their predecessors. With such facts, and others that might be named, can there be any doubt that a dental college be established in Boston? Resolved, that the dean be directed to petition the corporation of Harvard College to establish a dental school.

This was unanimously adopted by the Medical School, and on July 17th, 1867, the Harvard corporation voted to establish a dental school. We should note that over a century later, it was again the medical faculty that stood firm and determined the fate of the dental school. It was in 1967 that an ad-hoc committee was appointed by the dean of the medical school to determine the school’s future. A dean of the business school had even proposed closing the school, among others, as its small size made it fiscally untenable. Indeed, in recent years, other great dental schools have closed for no better reason. I wondered at that time, if the dean of the Business school were awakened at night with a toothache, the fact that more Business school students were being graduated, and it was remarkably solvent, would soothe his pain? To quote Shakespeare, “For there never yet was a philosopher that could endure the toothache patiently.” Others suggested that the school become only a post-doctoral program. We waited most pessimistically for the verdict. To our joy and surprise, the medical committee recommended not only keeping the school, but enlarging it. A later medical school committee submitted a report, and I quote, “in the face of Quadrangle space limitation, it is our judgment that 12 additional dental graduates can have a greater impact on medical care than a like increment of medical graduates, in view of the special role of the School of Dental Medicine.” So, over the last 140 years, the Medical school and the University have stayed the course as far as the intent of the founding fathers is concerned.

The obvious person to be chosen dean of the newly founded school was Nathan Cooley Keep, “the little dentist from Boston”, as he was called in the press, as his role as witness in the famous Parkman-Webster murder case of 1847. The case has been written about at great length, both as a grisly murder case, and an early example of forensic dentistry. Arden and Joan Christen have a very interesting article on the subject in the March 2003 journal of our Academy.

Briefly: a Harvard Medical School professor, John Webster, borrowed money from perhaps Boston’s outstanding citizen, Dr. George Parkman, and did not repay. Parkman disappeared, until his incinerated remains were found under Webster’s laboratory. Webster was brought to trial, creating worldwide publicity. Parkman’s remains were identified by the unincinerated denture Keep had made for Parkman, using the new mineral teeth, instead of the more common animal ivory, which would have been destroyed by the heat. Webster’s fate was sealed, despite President Sparks’ testimony that “our professors do not often commit murder”, when Keep fitted the denture to the model he had kept of Parkman’s ridge. It was such an unusual class-3 prognathic occlusion.

The annual report of the University of the following fall simply said, “Professor Webster Resigns.” He had been hanged on court order. Keep had the additional advantage of having an MD degree. This was a requirement for a professorship position in the dental school. In speaking of Dr. Keep, it is also important...
to remember that in 1868, when one Robert Freeman was refused admission to dental training everywhere he had applied, Keep recommended him for admission to Harvard, and the faculty agreed that being black was no bar to dental education at our school. Dr. Keep’s action followed that of Edward Everett, president of Harvard, who earlier proposed admitting a black student to the college. The entire freshman class threatened to resign if he were accepted. Everett’s answer: “If this boy passes the examination, he will be admitted. And if the white students choose to withdraw, all the income of the college will be devoted to his education.” Keep retired in ill health in 1871, and the second dean, Thomas Hitchcock, was appointed. Hitchcock instituted the requirement that examinations be written. When President Eliot asked Dr. Henry J. Bigelow, professor of surgery, why medical school exams, like exams elsewhere in the university, were not written, Dr. Bigelow was forced to reply that medical students were ignorant of expression and could not possibly pass exams conducted in writing.

As an aside: I’m sure you all know that in Cambridge and in parts of Boston, when one speaks of “The President”, it’s the president of Harvard that is meant, not the person who happens to be in Washington. A visitor to President Eliot was turned away and told, “The President is in Washington, visiting Mr. Taft.”

Hitchcock required that a written thesis be part of the requirement for a degree. That still obtains, and that classes be held in summer to increase the amount of instruction he felt necessary for a dentist. He also pioneered the use of a microscope for laboratory instruction. Hitchcock didn’t last long. The late hours of work, the numerous meetings in the school’s interest took their toll. He died at age 35, after only two years in office. Deans since that time have learned their lesson from Hitchcock: meetings are more likely to be at Palm Springs or Las Vegas, or other pleasant resorts to ease the load of the suffering administrator.

As one reads the ancient archives of the school, there is one recurring theme woven into it like the leit-motif of a Wagnerian opera. It can be described as simply as a bank statement on an overdraft: “insufficient funds”. Yet, from the school’s very beginning, struggling to exist on the ragged edge of financial disaster, it had the magnificent impudence to insist on excellence as a pervading focus of the school. Changes in curriculum, high standards of admission were undertaken all completely nonsensical, from a fiscal point of view. Budgetary prudence would have suggested curtailment or retrenchment. If Dean Donoff thinks raising money for the school is tough now, it might cheer him to remember our third dean, Dean Chandler. Dean Chandler’s description of his attempt at fundraising back in 1877, I quote:

Our one attempt at begging in 1877 was enough to satisfy us. We sent out a paper then, and gave it around amongst the different members of the faculty to distribute, asking for $30,000. I took Commonwealth Avenue, as I happened to be living on Commonwealth Avenue at the time. I began at the head of the street and went down the street house-by-house on my side. And about the first question that was asked by every man was, in effect, ‘How much education does it take to teach a man to pull a tooth?’ That disgusted me. I got mad and gave it up. From that request for $30,000, we got just one gift of $100. We had not had another cent given us from outsiders until last commencement, when a gift of $50 was announced by the president. That made $150 given us in about 13 years. We shall not get rich at that rate.

At any rate, the walk was probably good for Dean Chandler, as he was a very stout gentleman, and could use the exercise, as he got nothing else. I could recount other anecdotes of rebuffs from people of wealth over the years. I’m not sure whether it was a son or a nephew of Collis P. Huntington – I heard the story directly from Dean Miner, but I don’t remember now after many years, whether it was Collis Huntington’s son or
nephew – Collis Huntington, with Leland Stanford, owned the Southern Pacific Railway. He owned it as he owned the California legislature, and half the United States Congress: by right of purchase. The Enron scandal and subprime, things of that sort, these are insignificant compared to what these and other robber-barons stole. On being asked for a contribution to the school, Huntington whipped a rather disreputable-looking vulcanite partial denture from his mouth and dropped it on the table, saying, “I paid $1200 for that thing. I don’t think you dentists need any money.” And that ended the interview with the school’s emissary, Dean Miner.

As an adjunct to these observations on dental economics, it may be of interest to say a word about the income of dentists in general a few years back. A questionnaire poll was conducted by Dr. Edwin Kent of the school to determine the average income of Harvard dentists in the year 1928. He found the gross income averaged $10,770, with a net of $6,659. Dr. Kent was rather smug about the fact that the average gross for dentists in the country was $5,000 with a net of $2,600. He ascribed the higher income of Harvard dentists to all the reasons of superiority we still ascribe to our graduates. Incidentally, 1928 was a year of great national prosperity. We can only surmise how badly we might have fared a couple of years later during the Great Depression. These incomes for the time were adequate for pleasant living, but not sufficient to make us sought-after members of the country club set.

I’d be remiss if I left you with the impression we were just one big group of happy campers in those early days. There was a professor of chemistry in the 1870s who enjoyed the unsavory reputation of never passing a student. It was Dr. White’s conviction that no dental or medical student knew enough chemistry to pass the course, so the only grade he ever gave was Fail. Luckily, at that time, one needed only pass a majority of courses to graduate, or the medical and dental schools would have come to a dismal end. Also, on the dark side of the picture, during the regime of President Lowell, there was instituted the rule of *numerus clausus* at the university. For those of you who don’t know what that means, it’s Latin for “closed number.” The closed number was 10% for Jewish students. The university sought to take the best of the Jewish applicants, but Lowell—and he did meet with some resistance—decreed that never more than 10% in a class be Jewish. The application form required that one’s religion be noted along with a photograph, to make sure that Jewish-looking applicants with Anglicized names might not sneak through. Committee members were especially adept at filtering out Jewish students who tried to pass as Unitarians. State laws intervened, and the infamous quota was abandoned.

But on the positive side of the picture, I must recount that it was Lowell, the bigot of the Sacco and Vanzetti case, who was one of the few who later defended Dr. Harold Laski and Zachariah Chaffee—these were two flaming liberals of their time, who were hated in the press, hated everywhere—Lowell was the only person who stood up for them. There’s a dichotomy in the New England Yankee mind that’s hard to fathom.

In retrospect, the greatest single event in the history of the school occurred between 1939 and 1943, when president Conant proposed the drastic changes that created the School of Dental Medicine on what many thought were the ashes of the old school. On what is called Black Monday, although it was really a Tuesday, the faculty unsuspecting was invited to tea at University Hall at Cambridge. After a pleasant tea, he astounded the group by announcing, with a half-dozen exceptions, they were all fired. “Separated”, I believe, is the word he used. Conant’s vision was great and far-reaching. But the method was Draconian and indefensible. There are still very elderly alumni who conjure up thoughts of Benedict Arnold, Judas Iscariot, and the Antichrist when Conant’s name is mentioned. He tried to create a new type of dental school, worthy of its
place at a great teaching and research institution, and he succeeded.

I will not go into the details of the bitter feeling, internecine battles that accompanied the transition to the School of Dental Medicine. An old, entrenched group, seeing their beloved school torn from them by interloping foreigners from across the river, each with its own agenda – compromise was difficult. Good friends no longer spoke to each other. In the end, Conant had to win. I was present some 65 years ago when Conant delivered his ultimatum by quoting the famous incident when President Eliot was reorganizing the medical school. Dr. Bigelow, who bitterly opposed the innovations, declared, “For years, the Harvard Medical School has pursued a smooth and straightforward course. All of a sudden, we find ourselves in the midst of rapid change and experimentation. Why is this so?” Mr. Eliot quietly replied, “I can tell Dr. Bigelow the reason: ‘We have a new president.’” Many of Conant’s changes proved untenable, but they paved the way for an even greater institution. They were all good men, to quote St. Matthew, “Let the dead bury their dead.”

Following the transformation of the dental school, another scary time was when the American Dental Association considered not accrediting the school because they felt it deviated from the accepted principle of separation of medicine and dentistry. Fortunately, Columbia University was making changes in its dental school at the time, and the New York Board of Examiners, under pressure from very influential people, approved both Harvard and Columbia. The ADA reluctantly followed suit, but indicated it was a course of action suitable for only very small schools, and not to be a model. It is, indeed, a small school. To paraphrase Daniel Webster, speaking of his alma mater Dartmouth, but we say, “That there are those of us who love it.” I really do like to brag when I say that from this small school, in the year 2005, 15 out of the 50-plus dental schools had deans of Harvard training. The number of department heads and faculty, unbelievably high all over the world. I must confess, teaching here is easy. Our students enter with such unbelievable high grade-point averages, it really is difficult to spoil them. And you’ve all heard the old canard, “Those Harvard students may be OK in a research laboratory, but I wouldn’t let one fill my tooth.” Sheer nonsense. Over the years, our students have been tops in the clinical part of the board examinations.

It reminds me of the story, too, of somebody asking President Eliot once, why Harvard was such a repository of such great wisdom and knowledge. And he said, “It’s because the freshman bring so much with them, and the seniors take so little away.” (laughter) However, lest you think our students are paragons, they can on occasion be pretty difficult. I still recall the student riots of 1968. Students in my course on the Fundamentals of the Stomatognathic System refused to take the final examination, because exams, they said, were an expression of academic authority. They said that I knew that they knew the material, and the exam was not necessary. “Nothing personal, Dr. Epstein.” I consulted University counsel, and counsel said that if I said they had to take the exam and they did not, the class would fail. Unfortunately, a very painful personal tragedy occurred in my family on the day of the exam. I posted a make-up date, and the class, apparently not wanting to add to my pain, took the exam without incident. I awake at night sometimes, wondering what the outcome might have been otherwise.

I could go on indefinitely about the school. It was Marcus Tullius Cicero, who said in De Senectute, “Old men talk too much.” Perhaps I’ve said enough to add a little flavor to the history of a great institution. We’ve always marched to our own drummer, or, being in New England, sail uncharted seas – sometimes in the wrong direction, but always with the good sense to tack and come about. You can make money by betting on the truth of President Lowell’s statement, “The constant tradition of Harvard University is the tradition of constant change.”
Although dental education and the profession has changed dramatically over the last 140 years, the Harvard School of Dental Medicine has always been an institution that didn’t necessarily follow trends, but looked at change as a way to improve dental education and improve the practice of dentistry. And that’s evident throughout its history.

If I had to name three or four things that have been important, it was changing the curriculum from a five-year to a four-year problem-based education system, a system that I had come to appreciate while not here full-time geographically, as Head of Oral Maxillofacial Surgery at Mass General Hospital. I would come here for department meetings, but most of my interactions were with third and fourth year students and graduate students.

But in 1986 Paul Goldhaber asked me to help design and implement what was the first course in the new problem-based learning series for Harvard Medical School, and that was called Patient-Doctor I. Since it was a course that was all about learning the patient’s story of their illness, and about having a little more medical knowledge, he felt, and I think correctly so, that oral surgeons should be involved. Subsequently we’ve involved other people. But that was an unbelievable experience for me personally because it got me to be involved with first-year students, which I normally wouldn’t have done in the position of running a graduate program and heading a department of oral and maxillofacial surgery.

Before I became Dean, in a talk I gave to the faculty. I talked about the scholarship of teaching, and I talked about my hope that during my tenure as Dean, faculty would reach their full potential: in being able to practice and being able to do scholarly things; being able to advance the profession and being able to lead a good life.

The philosophy is that dentistry was and is a branch of medicine. The Faculty of Medicine has two schools, School of Dental Medicine and the Medical School. Being part of the Medical School is critical. It means more work for our students, but I can tell you nothing gives me greater pleasure than to walk through the Medical School and have Medical School faculty tell me Bruce, medical students and dental students are absolutely indistinguishable. That’s because there’s a fabulous admissions program that really targets the very best. If I jokingly want to inflame faculty, I tell them that if you take the very best students and don’t ruin them they turn out all right. There’s more to that. We’ve been able to change programs and do things that allow people to do extraordinary things.

Dr. Bruce Donoff
Dean, Harvard School of Dental Medicine

collected and edited by Dr. Charles B. Millstein
Boston has long been considered as a leader in medical and dental education. For the first example, we turn to history. Over 125 years ago Oliver Wendell Holmes spoke of the flowering of American literature. He named his native Boston, “The Hub of the Universe” since it was the intellectual center of the continent and the planet. Beacon Hill and Harvard College were home to some of the best literary minds of the time, including Emerson, Thoreau, Longfellow, and Henry James. Holmes was also a founding father of Harvard Dental School in 1867.

For the second example of Boston’s scientific and medical prominence, we look at the present. In 2006 Harvard University President Lawrence H. Summers said, “Draw a circle with a five-mile radius from this point and you encompass the greatest concentration of biomedical talent on earth … We [Harvard] have launched the Broad Institute for Genomics in collaboration with MIT and embarked on planning and construction of more than 20 football fields worth of laboratory space to be devoted to interdisciplinary science in Cambridge and Allston.” This quote illustrates Boston’s continued leadership in science, technology, and education, which has only grown since Holmes’ earlier statement.

For the final example of Boston’s future leadership, we look to two recent inventions developed at MIT laboratories that will change the way we teach and practice dentistry. The first is Kindle, an electronic book computer appliance using an electronic paper display onto which numerous books can be downloaded. The second is the Brontes chair side optical scanning device system which eliminates the need to take impressions, pour up models, and fabricate crowns manually. These and other developments highlight Boston’s increasing role in creating and fostering innovations that not only change education and practice, but point to a bright future for the city and its legacy.
Architecture

Since the early 1970s, four decades of dental students, patients, and researchers have spent time learning, waiting, and working, in a generation of buildings created by modernist architects. The period extending from World War I to the early seventies bypassed both the Victorian and Art Deco periods which preceded them. Visionaries such as Walter Gropius, a founder of the German Bauhaus School, emigrated to this country from Germany and chaired the Architecture Department of the Harvard School of Design from 1938-1952. As this group broke with the past, they emphasized inherent morality and social consciousness as part of their creed. In 1946 he founded The Architects Collaborative, an avant-garde architectural firm which was enormously successful. He taught his students to use the emerging technologies of the day which included concrete, glass, and steel. Embellishment and frivolity were not considered necessary components of good architecture. At the School of Design, he was followed by José Luis Sert, an early modernist under whom a number of Boston’s foremost architects trained, from 1953-1969.

The architecture of local universities reflects the milieu in which they were created. The research and education building at the Harvard School of Dental Medicine was masterfully fashioned from glass and steel allowing for visual transparency. It was designed by Martha and Elliot Rothman as well as Gabriel Yaari, all of whom graduated from the Harvard School of Design and studied under Sert. This building is a representation of the modern twentieth century interdisciplinary research that takes place within.

Tufts University School of Dental Medicine, dedicated in 1971, was designed by another graduate of the Harvard School of Design. Herbert Gallagher of The Architects Collaborative (TAC) formulated the plans for both the Proger building and the Dental Health Sciences Tower at One Kneeland Street. Both are ten-story towers within a heavily traveled cityscape in the South Cove area. Concrete panels cover the steel girders which offer support for each building; neither is transparent. They reflect the modernist buildings of the late 1960s and early 1970s.

TAC’s Roland Kluver, another Harvard graduate, had just completed work on the Evans Building at the Boston University Medical School campus. Boston University chose him to design the first three floors of the new School of Graduate Dentistry, which is adjacent to the Evans Building. The balanced square structure displays large concrete panels with glass insets.

A four-story addition was created by Rothman Partners Architects in 1973 and thus completed the chapter on Goldman’s work as a visionary doer. Peter Klein, the architect of the Austin wing which was a built for the Forsyth Dental Center in 1970, was trained in Munich and is based in Cambridge, Massachusetts. John Hein oversaw this addition which enabled Forsyth to change direction. Adequate research space now available allowed the Center to emphasize its mission of pure dental research.
Modern Dental Research

The growth of interdisciplinary biological research of the last half of the 20th century has had a significant impact on the biological basis of disease and prevention. The PhD degree in basic science has become the mark of professional achievement and advancement. Training for dentists interested in science came from two major sources.

The first training center began at Columbia University under Dr. William Gies, a biological chemist. He realized that dental problems could be tackled in much the same manner as any other disease process. He determined that the profession needed PhD-level researchers trained in basic science. Gies founded the International Association of Dental Research and edited its journal. He was assisted by his protégé Theodor Rosebury, under whom John MacDonald received his PhD in bacteriology. MacDonald was able to acquire funding from the Canadian government to start a small laboratory at his alma mater, the University of Toronto’s Dental School. Soon after, he became director of Forsyth.

Alfred Leroy Johnson established two unique post graduate training programs at Yale University and the University of Rochester. The former granted a MD degree and the latter a PhD degree. Rochester became a leading center for educating dentists in basic science. John Hein, who followed MacDonald at Forsyth, earned his PhD in chemistry at Rochester under Harold Hodge, a well-known toxicologist. In 1942 Johnson became the first dean of the Harvard School of Dental Medicine.

Dental Education

Over the past century, creating a scientifically capable dental student has been a major goal for the profession. Johnson probed this situation thoroughly and recorded his thoughts in a short text, Dentistry As I See It Today, in 1955. He foresaw a small dental school in which the students would be educated in basic research, to stimulate their scientific inquiry and ability to think through complex biological problems. HSDM reflects these ideas today. Building on a framework started by former Dean Paul Goldhaber in 1967, the present Dean, Bruce Donoff, has written widely on the subject. In his article, “It Is Time for a New Gies Report,” he views the need for strong basic science education as a prerequisite for well trained clinician-scholars.

Henry Goldman, a graduate of Harvard Dental School, shaped a school at Boston University to educate dental specialists because he felt that advances in clinical therapy came through specialty education. What began as a small one-chair dental clinic at the Beth Israel Hospital in Boston in 1946 eventually evolved into the Boston University School of Graduate Dentistry, a degree-granting institution. In 1975 the school opened an undergraduate component and became a traditional dental school. Under Goldman’s successor, Spencer Frankl, it has complemented the founder’s vision of a biologically oriented center with worldwide participation.
The Tufts University School of Dental Medicine maintained its dedication to educating students and clinical care. Over the last 37 years and a succession of three deans, it had become a leading center for clinical training. Today it is the second largest school in the country and is undergoing a 95,000 square foot, five-story vertical expansion to upgrade its care giving facility. This project, planned by Architectural Resources Cambridge is highlighted by glass, steel, and transparency. Leadership in Energy and Environmental Design (LEED) standards have been factored into their addition.

Over the last decade the Forsyth Institute, the largest private dental research institute in the country, has undergone several changes. With the relocation of the School of Hygiene, the loss of several significant researchers, and the inability of the Institute and the City of Boston to reach an agreement on a new addition, Forsyth chose to sell its century-old building. The purchaser, the Museum of Fine Arts, is busy upgrading and preserving the Neo-Classical structure. Forsyth today is seeking new directions while attempting to sustain its independence and affiliation with HSDM.

The Future

The profession’s heritage is reflected in the architecture and the modern laboratory facilities that are part of the framework of a university medical school complex. Progressive design becomes possible through advances in building materials. These external changes suggest the internal transformations occurring within the research laboratories directed by highly trained scientists. And these developments, both symbolically and concretely, signify the continuation of Boston’s place at the cutting edge of the dental universe.
Recollections of Tufts & Forsyth

Esther M. Wilkins, DH, BS, DMD
Clinical Professor of Periodontics, Tufts University School of Dental Medicine

Reminiscences of the history of Tufts University School of Dental Medicine can best be told in four parts, each to describe aspects related to the four locations in Boston. Tufts College acquired the Boston Dental College in 1899, after it had been in operation since 1868. The new Tufts Dental School was built on Huntington Avenue, and was ready for opening in 1901.

Our Class of 1949 was the last class to graduate from the “old school,” as it was known, when the college moved to Harrison Avenue in Chinatown. Fond—and not so fond—recollections of the days at Huntington Avenue included the location of the principle lecture hall on the fourth floor (accessible only by creaking wooden stairs for our daily 8 o’clock lectures prior to clinic at 9), as well as the rats that occasionally ran through the locker room.

Our college Deans are memorable for their research, particularly that which proved significant to fluoride history. Dean Basil Bibby conducted the early research on topical fluorides. Since I was a licensed dental hygienist, he employed me to supervise the fluoride tablet study that was being conducted with the children at the Perkins School for the Blind, and a topical application (lead fluoride) study for selected grades in the Medford, Massachusetts school system. After our first two years, Dr. Bibby became Director at the Eastman Dental Dispensary in Rochester, New York. He was followed by Dean Joseph Volker, who was our dean for a year and a half before he accepted the responsibility as the first dean of the new dental school at the University of Alabama. Since he invited several members from the Tufts faculty to move with him, the Alabama school gained the nickname “Tufts of the South.” Dr Volker gave us many of our lectures in restorative and preventive dentistry, and his knowledge and ability as a speaker was much appreciated and enjoyed.

One morning our scheduled 8 o’clock lecturer did not appear. After we waited about 10 minutes we left and stomped our way down the long creaky stairway. Near the bottom, we encountered Dean Volker who took one look and said, “What’s wrong? You all look mad.” To which we replied that our lecturer had not shown up.

"Come on back up.” he said, as he started up the stairs, “I’ll give you your 4:00 lecture now so you can go home early.” And with no notes, or

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other material, he delivered a beautiful lecture that included references. “How could he remember all that?” I thought, and later checked some of them in the library to make sure, but they were perfect.

Another of our outstanding professors was Dr. Irving Glickman, who became internationally famous in periodontology. He was not noted for being humorous, but on St. Patrick’s Day, he appeared for lecture wearing a brilliant green necktie. The class broke out in laughter. Without a smile, he walked to the center, put his books down, placed his hands firmly on each side of the benchtop, looked up at us with a very serious glare, and, when we quieted down, announced, “When in Rome, do as the Romans do.”

**Tufts at Harrison Avenue**

When Tufts moved, I had moved to Seattle to join the faculty at the University of Washington, where I was the Director of Dental Hygiene. I returned to Boston in 1964 to enter the postdoctoral program in Periodontics at Tufts. Finding Tufts in the new environment of its second home provided new experiences. After two busy years as a student working to receive my certificate as a periodontal graduate, I joined the Department of Periodontology to assist in teaching the predoctoral students.

Remembering experiences in that big clinic which covered nearly the whole second floor, include a snow day when nearly all the patients showed up (especially the older ones), and many students, but a shortage of faculty. As the only periodontal faculty member present, I hurried from one patient to another with a long list. Frequently I was asked to sign in a student for anesthesia for restorative or other procedures than for periodontal, something that was strictly against the rules. At lunch one of the professors of removable prosthetics chuckled when he said that he had checked everything that morning except for his own department!

Plans were beginning for another move as Dean Louis Calisti saw the need for more space for research and postdoctoral clinics. The new building was being designed and built on the corner of Washington and Kneeland streets, literally around the corner. We moved in in 1972. Now when we spoke of Huntington Avenue, it was the “old-old school” for those of us who had been there. Harrison Avenue became the “old” school.

After only a few years in the new clinics, the wet-fingered dentist disappeared and infection control was dictated into all clinical procedures. The many new advances in dental technology brought new opportunities for better teaching. The new Simulation Laboratory (generally referred to as the “Sim Lab”) for preclinical procedures made it impossible for a student to blow on dust that accumulated on a preparation in a practice model because the student was all dressed up in a mask, gown, and gloves as if the real patient was in the dental chair. In addition to the clinical changes, community service and the problems of access to care began to have more influence on total dental education.

The new dental school, going skyward five more stories, will tell its own story for the future.
The cornerstone for the Forsyth Dental Infirmary for Children was laid on June 4, 1912. The building was ready for dedication on November 24, 1914. It was dedicated “to the children.”

The four Forsyth brothers had accumulated their wealth by continuing in their father’s business, manufacturing vulcanized rubber products. The family was described as “a benevolent Scottish clan” with “amazing combination of generosity and Scotch thrift.”

It was James Bennett Forsyth who had asked his dentist, Dr. Ervin Johnson from the Tufts College Dental School, “If you had a sum of money to leave, what would you do with it?” Dr. Johnson was ready with the recommendation: to build a dental infirmary for children. Dr. Edward Branigan, also a Tufts Professor, had attempted to use Tufts facilities on Saturdays to provide some dental care for the children of Boston, but had never been able to secure funding for a clinic.

It was after James Bennett passed away in 1909 that his brother Thomas Forsyth told the two dentists that $2 million would now be available for building the dental institution. Thomas, along with the other surviving brother John, purchased the plot of land on the Fenway where the Infirmary was built.

At the start, local dentists volunteered time for providing care for the children. Eventually, Forsyth became a renowned clinic where intern-dentists from dental schools all over the world were trained in pediatric dentistry and orthodontics.

The school for dental hygienists was started in 1916, and students provided clinical dental hygiene treatment for the children. Adults were included later (by appointment) to meet the requirements for licensure and accreditation of the educational program.

For many years, the Boston schools had a special bus to bring whole classes of children to Forsyth. The children would wait in the Oral Hygiene room on the lower level, where the walls were covered with beautiful mosaic murals depicting fairy tales, such as the Pied Piper and Rip van Winkle. The dental hygiene students provided instruction in toothbrushing and other aspects of oral health. The children were then called by groups to the clinic upstairs. They passed through a turnstile and deposited a nickel (later a dime) before going into the big, beautiful, high-ceilinged clinic, where child-sized dental chairs lined the area adjacent to tall windows. Notable features of the clinic were the multifauceted sinks in the middle of the clinic, where the dental hygiene students scrubbed their hands. Each faucet was turned on by a knee-activated device, clearly a forerunner of our modern infection control systems.

**Beginnings of Research**

Plans for research were included in the original design of the Infirmary. Dr. Percy Howe was the first director of research. Dr. Howe was a graduate of Bates College and the Philadelphia Dental College. He first practiced in Auburn, Maine before moving to Boston. Throughout his career, he had great desire to explain the causes of the diseases he was treating, and even conducted various experiments in his own small laboratory in his dental office. Miller’s theory of a bacterial cause of dental caries was the accepted theory at that
time. At the Forsyth clinic, as Director of Research, Dr. Howe’s efforts were directed primarily towards dental caries, which was the major care need for the hundreds of Boston schoolchildren who were in attendance. Once he had given up his practice and became Director of Research at Forsyth, he developed a staff of specialists for bacteriology, chemistry, and other sciences, along with trained technicians for research in saliva, pyorrhea, dental caries, and nutrition, particularly vitamins. He became famous for the “Silver Nitrate Precipitation by the Howe Technique” in which he arrested extensive carious lesions. His publication on the technique appeared in Dental Cosmos, September, 1917, one of his many publications over the years.

Dr. Howe firmly believed in the connection between oral health and general systemic health. He constantly fought against the theory of “foci of infection” which was widely accepted in the dental and medical world, where extraction of all the teeth was used as a primary treatment for many systemic diseases such as arthritis, heart disease, kidney trouble, as well as for lesser ailments such as headache, insomnia, and neuralgia. He was invited to address dental and medical groups around the world, and at all times gave the Forsyth Dental Infirmary for Children well-deserved publicity.

The Forsyth Institute

During the tenure of Dr. John Hein as Director (1962-1991), Forsyth was renamed the Forsyth Dental Center. Its objectives were, as always, education, treatment, and research, with an ever-increasing emphasis on research. Dr. Hein was able to attract increased grant money for research, and a large building extension was added, which allowed for increased facilities. Some of the original germ-free research animals were studied at Forsyth. Forsyth research in the periodontal area, led by Dr. S. S. Socransky, has earned special fame over the years.

Later the name was changed yet again to The Forsyth Institute. Plans for moving the renowned research center are underway, since the neighboring Museum of Fine Arts has purchased the original Forsyth building. The Forsyth School for Dental Hygienists, the oldest dental hygiene program in continuous operation in the United States, has found a new home at the Massachusetts College of Pharmacy and Health Sciences on Longwood Avenue, Boston.

References


2. Ibid., p. 6.

3. Ibid., p. 8-9.

4. Ibid., pp. 49-52.

5. Ibid., p. 70-73.
...But here is this huge clinic, with hardly anybody working there. There were no laboratories in the building. The library was empty. Nobody in the library at all. A few offices, hardly anybody around. Perhaps partly because of the storm. Except, at one end of the clinic there was an orthodontic program run by Coenraad Moorrees, and I had a long talk with him, and I was impressed with Moorrees. He obviously was a researcher and deeply interesting in a twin study with the Harvard School of Public Health. So, my impression was that I was being invited to be the curator of a Gothic mausoleum. I was truly disappointed to find that there was virtually nothing there.

I had to go that evening to the Harvard Club to meet Harvard senior people and the board of trustees. And I had some time in the afternoon to think about what I was going to say to them. And I went back there that evening to say that, in my view, there was no way that the Forsyth could make a useful contribution, a significant contribution to dental health, if it were to continue its mandate of simply doing restorative dentistry for children in Boston – that the only way that I saw to make some progress was to make the mandate primarily research. And I wanted to know from them, from the trustees, whether in fact they felt that shift in emphasis would be compatible with their responsibilities as trustees of the Forsyth gift. They told me they’d already crossed that bridge, and they were entirely prepared to pursue that direction, and in fact they were interested in me because they knew that that’s what I would want to do.

I went home and I thought about it for a couple of months before I made up my mind. It was a very difficult decision because I had a good laboratory; I had good colleagues at home to work with. We had an active research program, and I knew that if I came to Forsyth I was going to have to start over completely. But it seemed to me that over the long haul it offered great opportunity.

Dr. John MacDonald

Director, Forsyth Institute

collected and edited by Dr. Charles B. Millstein
There was one very large lab that we all worked in, Dr. MacDonald himself, Ron Gibbons, and virtually everyone that worked in microbiology worked in a lab that is the current library at Forsyth Dental Center. A very impressive room with an arched ceiling, you know, tiled arch ceiling, which is an unusual architecture. But we all worked in this one particular lab, 3-6 feet of bench space. Equipment was all around the edges, and each person had their particular area.

Dr. MacDonald’s major area of interest at that time was in the so-called “mixed anaerobic infection.” He was very interested in taking the microorganisms that reside in the periodontal pocket and infecting guinea pigs in the guinea pig groin area, producing subcutaneous abscesses. And these subcutaneous abscesses became models of how mixtures of organisms cause infection. He studied those extensively, and Ron Gibbons and I collaborated with him on these investigations, and found that specific mixtures could cause abscesses that were continuously transmissible and were likely to have the pathologic capabilities of initiating periodontal infections. And, indeed, some of the organisms that we studied at that time are considered to be very important pathogens today.

One of the organisms, Bacteroides melanogenicus, was a key organism in that infection. Its name has changed many times, but it is now known as Porphyromonas gingivalis, and seems today to be extremely important in human periodontal disease. Ron Gibbons spun off at that particular time when he started to study some of the things like the nutritional requirements of Porphyromonas gingivalis, and he found out that it required unusual compounds like vitamin K, and other factors that were produced from the environment, such as the hemin that came from the red blood cells in the local area. He also started work in dental caries at that time, and his major emphasis in the MacDonald years was the storage of intracellular polysaccharide in bacteria, and he made the assumption that these organisms stored carbohydrate at mealtime. It was available, and they could continue to use acid between meals, which would lead to the decalcification process. By coincidence, one of the organisms he was studying with that property was the organism now known as Streptococcus mutans, which turned out to be one of the most important agents of human dental caries. So he got started in that line of investigation at that period of time.

Dr. Sigmund Socransky
Professor Emeritus, Forsyth Institute

collected and edited by Dr. Charles B. Millstein
Henry Goldman and Dental Education: Reflections on the Early Days at Boston University

Sheldon Peck, DDS, MScD
Clinical Professor of Developmental Biology, Harvard School of Dental Medicine

Dental education at Boston University began in 1958 as an outgrowth of Henry M. Goldman’s desire to create a university-based center for advanced graduate training in the dental specialties. By 1963, the Boston University School of Graduate Dentistry was established. Henry Goldman (1911-1991), an unwavering visionary, is largely responsible for the solid foundation on which is built the successful present-day Goldman School of Dental Medicine at Boston University.

It is a pleasure to be a participant in a symposium reflecting on the beginnings of Boston’s famous centers of teaching and learning in dentistry. Indeed, “The Hub” has been an international hub for dental education since 1867, when the university-based paradigm for dentistry was innovated at Harvard.

Compared with the dental schools at Harvard and Tufts, whose long histories have been discussed here, the Boston University dental school initiative was unquestionably the “new kid on the block.” In fact, I had the privilege of attending not one but two fledgling dental schools of top quality. I began my dental studies at the University of North Carolina School of Dentistry in Chapel Hill in 1962, a mere 12 years after its inception. Four years later, I matriculated at Boston University School of Graduate Dentistry (BUSGD), three years after its establishment, to embark on a two-year postdoctoral program in orthodontics. With the addition of BUSGD, Boston became the second city in the USA — after Chicago — to support three degree-granting, university-based dental institutions. (Today, Boston is the only American city...)

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city with three dental schools, since Chicago has seen the closing of its venerable dental programs at Northwestern and Loyola Universities, leaving it as a one-school city with the University of Illinois School of Dentistry remaining.)

It was well known that Henry Maurice Goldman, DMD, (1911-1991), the founding father and first Dean of the Boston University School of Graduate Dentistry, was a deeply driven man (Fig. 1). He was an indefatigable worker and a positive idea man who would never accept “no” as an answer. Young Henry was an energized oral pathologist and periodontist, producing a stream of publications and a key textbook *Periodontia* by the time he was 30. Several years later, his drive gave shape to a legendary postdoctoral training program at the Reisman Dental Clinic of the Beth Israel Hospital in Boston. In 1958, his persistence succeeded in creating a Department of Stomatology at the Boston University School of Medicine for the education of dentists seeking specialty training. Goldman saw this initiative, to start a stomatology department within the School of Medicine, as a necessary precursor to strengthen his advocacy for a new dental school. By 1963, his dream of a new kind of dental institution materialized when the Trustees of Boston University officially established a unique School of Graduate Dentistry, exclusively for postdoctoral specialty education in dentistry.

The new school finally was consolidated conceptually, but the physical plant for BUSGD was still scattered all over Boston, in locations that varied according to Goldman’s ingenuity and network of contacts. Orthodontics was located separately from the other specialty training clinics, which for the most part occupied the Reisman Dental Clinic of the Beth Israel Hospital in another part of town. The Orthodontics Clinic was located in the BU Medical Center on the 4th floor of the Stoughton Street side of the Talbot building, a labyrinthine Victorian style structure built in 1871 for use as the Massachusetts Homeopathic Hospital. The postdoctoral students in orthodontics often interpreted their isolation and autonomy as a mark of privilege, and jokingly referred to their top floor Talbot quarters as “The Ivory Tower.” In fact, this spacious and special venue for orthodontics at BU was a direct result of Goldman’s determination to lure his choice for department head. To entice Herbert I. Margolis, DMD (1900-1984), to leave his department at Tufts and take the orthodontics chair at BU, Henry Goldman did anything and everything to please him. Goldman had the 4th floor of Talbot renovated to house a 10-chair orthodontic clinic with neighboring rooms for a lab, X-ray facilities, conferencing space, a chairman’s office, a secretary’s office and other amenities. He even allowed Margolis to admit only one class at a time, meaning that the two-year program invited new students only every other year, unlike the annual admissions and overlapping classes found in the other specialty programs. When Anthony Gianelly replaced Herbert Margolis as chairman in 1967, the BU postdoctoral orthodontics program was normalized with yearly admissions of students.

On a note of trivia, Talbot building in its “circa 1963” somewhat weathered form is preserved forever in Otto Preminger’s award-winning film *The Cardinal*. That year, the famed Hollywood director came to Boston with John Huston, Carol Lynley and other prominent actors to shoot part
of the film. He searched for a large, brick Victorian period building to film some outdoor sequences for this Boston-based story, and settled on Talbot as the ideal setting. Clinic was memorably disrupted for several days from all the hoopla. A massive rebuilding in the 1980s transformed the Talbot building into the present BU School of Public Health, while retaining its eye-catching 19th-century architectural lines.

From its beginnings in 1958 as the medical school’s Department of Stomatology, the new graduate dental program had classrooms, research space and administrative offices located in several contiguous old three-story red-brick tenement buildings on the BU Medical campus, centered around 57 East Newton Street, site of the Dean’s office. Once a visitor worked past Dr. Goldman’s protective secretary Janice, one saw the Dean sitting at his large desk teeming with papers and projects, or moving around doing tasks while he and you spoke.

By the mid-1960s, a second desk was in the square, dark-walled room. That desk in a corner of the Dean’s office was for Kurt H. Thoma, DMD (1883-1972), Goldman’s mentor and role-model at Harvard, where Thoma retired as Charles A. Brackett Professor of Oral Pathology, Emeritus, and Professor of Oral Surgery, Emeritus. Henry Goldman brought him to BU to head the one-year didactic oral surgery program. Occasionally, the great Dr. Thoma would be seen at his desk. Gaunt and frail, then in his 80s, he still displayed the bearing of authority and intellect, befitting the solo author of world-renowned textbooks on oral pathology and oral surgery. This scene particularly impressed students who viewed Dr. Thoma as a living legend in dentistry. Recalling the sight of both great men at work quietly and individually in one room is a very touching and exhilarating memory.

Henry Goldman was a remarkable fund raiser. He used his considerable social resources, his charming wife Dorothy (Dottie) and an engaging, country-club style of golf, combined with a dash of hubris as needed, to find a significant number of new donors to support his ambitious projects at BUSGD. He was known to have extracted more than a few financial pledges for his new school from high-powered executives and friends during their gingivectomies.

Goldman astutely exploited a special situation in Boston to put together rather quickly an all-star faculty for his new BU-affiliated dental program. He recognized in the late 1950s that there was a pool of accomplished dental specialists available in the Boston area who were still not acknowledged for their acumen at the university faculty level. Many of these leading dentists were Harvard graduates who, years after dental school graduation, received minimal faculty advancement.
or encouragement at their alma mater due to the university’s ingrained biases at the time, including a conspicuous residue of anti-Semitism. Thus, Goldman was able to secure top-flight local clinicians as chairs of his new specialty departments at BUSGD, people such as Leo Talkov, David Baraban, Bernard “Chick” Chaikin, Joseph Barron and Herbert Margolis, all Harvard dental alumni, as was Henry Goldman himself.

With all his skills as a monument builder, a superb clinical scientist and a prodigious contributor to the written record, it may be surprising to learn that Henry Goldman was not a memorable speaker. “Inspirational” and “organized” were not the kinds of adjectives a listener would summon up to describe a lecture given by Dr. Goldman. Trying to take notes was often painful. I remember vividly a guest lecture by Dean Goldman in the first-year course on occlusion. He spoke about the process of mastication and trituration of food among primates, and proposed to demonstrate how monkeys chew, with a banana he pulled from his coat pocket. Although he was performing in full seriousness, the simultaneous events of his chewing on a banana and talking remained comically embedded in his students’ memories long after his scientific message had been lost.

By the late 1960s, the Boston University School of Graduate Dentistry was no longer an unproven experiment from mind of Henry Goldman. It was a tangible success, a recognized national and international force in dental education. Some of the original, founding chairmen were then yielding to younger appointees as second-generation department heads: oral surgery (Kurt Thoma; 1967 Melvyn Harris), periodontology (Bernard Chaikin; 1967 Gerald Kramer), orthodontics (Herbert Margolis; 1967 Anthony Gianelly). Furthermore, the other departments were fully operational to form an impressive totality for advanced specialty training: endodontics (chair, Herbert Schilder), pedodontics (chair, Spencer Frankl), prosthetic dentistry (chair, Leo Talkov), public health dentistry (chair, Lester Block) and oral pathology (chair, Henry Goldman).

Dean Henry M. Goldman received perhaps his greatest institutional satisfaction in 1969, when all the BUSGD specialty training programs began moving from a patchwork of locations into a state-of-the-art new three-story building at 100 East Newton Street in the Boston University Medical Center (Fig. 2). How illuminating it was of Goldman’s vision and dogged personality for him to breathe life into the world’s first university entity and structure comprehensively dedicated to graduate dental education.

Goldman retired in 1977, to be succeeded as dean by Spencer N. Frankl, DDS, (1934-2007). Today, the school officially is called the Henry M. Goldman School of Dental Medicine at Boston University. In addition to its original mission of specialty training, the school since 1972 has had a full predoctoral program leading to the DMD degree. A recent internal census showed the school with close to 600 predoctoral students and 200 postdoctoral students. Moreover, faculty (full-time and part-time) numbered over 300 and staffing was over 200. Henry M. Goldman, the optimistic visionary in dentistry at Boston University, would surely be delighted that nearly 6000 dentists are alumni of the well-managed 45-year-old dental school that proudly carries his name.

**Additional Reading**

Chester Keefer (vice-president of Boston University) decided that he wanted to set up a graduate program in dentistry, because he was looking to enlarge the programs at Boston University. He approached me to do this. I told him that I would decide only if I could define dentistry as I saw it. He said that this was a radical departure from what he had been thinking, and so he would decide whether he wanted to do that. Subsequently, he called me and said, “I’ve decided to go along with your ideas if you want to come. But we have no money to do it. Your ideas need a lot of money.” So we got the money.

The bulk of the money came from foundations and from private sources in Boston. But when we started the school, all the money that was available for dental schools for construction and for starting up programs had been given out. There was no more money for dental schools from the federal government. The search went on and I found out that there was money for graduate schools. I read the law, and I could see nowhere where it said dental schools or medical schools. It said graduate schools. I convinced the people in Washington that dentistry was a graduate study! It required people to go to the university before they could enter dentistry, and so they told me that the law was for graduate schools of arts and sciences, and not for the health sciences. But I said, “But it doesn’t read that way!” They had left it out inadvertently. We applied for the money through that loophole, and we got it. In order to satisfy getting that money, we had to put in the word, “graduate”. We said, Boston University School of Graduate Dentistry. That was the only reason for it. How else could we satisfy them? And that’s why we got the grant. It is the only school in the United States, the only school in the world that has that name! And it’s a fluke! It’s a regular dental school. We needed a lot of money to start. The school started with $15 million, and we had to raise it but BU gave us nothing.

To raise money, I went to the Kresge Foundation and told Mr. Baldwin, who was in charge that we wanted money from him for the building. We were getting nowhere, and he was wearing glasses, and I said to him, “Mr. Baldwin, if you had a tumor in your eye, and you went to the eye doctor to get examined and he didn’t recognize it, you’d be damn upset. Why do you expect any less from the dentist?” We got a half a million dollars.

Dr. Henry Goldman  
Dean, Boston University School of Graduate Dentistry

collected and edited by Dr. Charles B. Millstein
Tufts as an institution has a great history. It was probably the university’s best known graduate school. The application to acceptance ratio was higher than any other school in the country. It also had an outstanding faculty. We had people such as Irving Glickman, probably the father of periodontology. We had had other great teachers such as Gerald Shklar in pathology.

When I looked at the facilities, they were probably the poorest of any dental school in the country, and I’d visited several at the time. For example, we were located in seven different areas in the South Cove: the dean’s office was in the corner of 136 Harrison Avenue; he dental clinic was on the second floor, and that was about the only contiguous space we had. We had offices up on the seventh floor; Gerald Shklar was located down the street in a condemned mattress factory. Social dentistry was in the back of a furniture warehouse. The thing that impressed me the most, and really got me started, was that the student lunchroom was next to the anatomy lab in the basement of 136 Harrison Avenue.

Ultimately when we built the new school, there was a cafeteria on the seventh floor of the dental school building. The purpose was so they could see out over Boston and not be in the basement of an anatomy lab.

While we were revamping the old clinic, we had one summer for a planning session to establish a curriculum of the new school. We organized it, I think, in a tremendous fashion. We sent questionnaires to the entire faculty and alumni to write and tell us the kinds of things that we needed for a new school: how we should teach, what we should teach, what they saw as our present shortcomings. Next, we gathered all of that information and put it into a series of group workshops, individual workshops, and assigned people to those various facets. We had outside consultants coming in, as well as some of the outstanding educators at that time. Together, we created a workable blueprint for our future.

One thing that the dental school acquired was the position on the front face of the medical center. One Kneeland Street was a prime location that would interface with the community. It represented ambulatory care and preventive care. Our model was prevention and we rightfully belonged at the front doorstep of the medical center.

—Dr. Louis Calisti
Dean, Tufts Dental School

collected and edited by Dr. Charles B. Millstein
The Transformation of the American Association of Oral Surgeons into the American Association of Oral and Plastic Surgeons

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Fought mostly in open trenches and in close combat, World War I produced a horrifying number of highly destructive wounds of the face. “No wounds of the European war have been quite so shocking,” the New York Times of August 4, 1916 reported, “as those of the human face. Shrapnel is the worse devastation. Noses are blown off, cheek bones crushed, upper jaws caved in, and lower jaws shot away.”

These injuries resulted when a soldier raised his head above the parapet of the trenches and offered a ready target to a bullet fired by the ever-present enemy.

Few surgeons were prepared to treat the avalanche of broken faces that dramatically increased as the war became more intense. At the time, there was no recognized specialty of plastic surgery. General surgeons performed reconstructive surgery “as a sideline.”

Furthermore, in 1915, the treatment of maxillofacial injuries was not one of the major preoccupations of surgery. Nor was the treatment of gunshot wounds.

A dire and immediate need arose for the organization of specialized centers. The makeshift methods employed in the past were inadequate. There were 2,000 facially disfigured and mutilated soldiers in France alone in 1918.

In desperation, sculptors fabricated masks of cooper and tin to cover the missing parts of these faces, reminiscent of the contemporary musical Phantom of the Opera. A novel published in 2006, The Crimson Portrait by Jody Shields, focuses on the British facial cripples. “The military have decided that the men without faces are worse than cripples,” Shields writes. “Not to be seen. Not to be mentioned.” Dr. Varaztad Kazanjian, the oral surgeon, and Anna Coleman Ladd, the sculptress, are prominently portrayed in the book. These mutilated soldiers formed an organization of mutual aid, called the Broken Faces (Les Gueules Cassees).

Among those administering to the British casualties early in 1915, were the aforementioned Dr. Varaztad H. Kazanjian, a dentist with the Harvard Unit in France, and Dr. Harold Gillies, who established a center at the Queen Mary Hospital in Kent, England.
When America entered the war in 1917, Dr. Vilray P. Blair headed a sub-section plastic and oral surgery with Dr. Robert H. Ivy, DMD, MD as his assistant. “When we entered World War I,” Dr. John S. Davis reported, “there was total ignorance of plastic surgery.”

Never before had surgeons been required to treat so many and such extensive facial injuries with little president to follow. It tested the limits, talents and creativity of surgeons. Fortunately, there existed some depth of knowledge to draw upon. Prior to world War I, there were several “oral surgeons,” dentally trained, who treated diseases and performed surgery of the mouth and jaws including cleft lip and palate:

- **Simon Hullihen** (1810-1857) MD, DDS, (honorary) was a pioneer in Oral Surgery and a founder of the Wheeling Hospital.
- **James E. Garretteson** (1828-1895) DDS, MD, was the originator of the specialty of oral surgery, author of the first book on the subject. He established the first hospital to care for the oral surgical patients.
- **Norman Kingsley** (1829-1913) MD, DDS, became the father of modern orthodontia and developed a technique for obturators in cleft palate treatment and for jaw fracture.
- **Matthew H. Cryer** (1840-1921) DDS, MD, established the first dental internship and became the country’s leading authority on the anatomy of the face and cranium.
- **Thomas L. Gilmer** (1849-1931) MD, DDS developed a technique for intermaxillary wiring of the jaws for fixation of fractures.

- **Truman W. Brophy** (1848-1928) MD, DDS attained an international reputation for his surgical procedures for cleft lip and palate patients and popularized the concept of oral surgery as a specialty in dentistry.
- **Chambers J. Lyons** (1874-1935) with only a DDS, studied under Truman Brophy and developed the largest oral cleft practice in the country.

The surgeons who had treated the facial wounds during World War I assembled in Atlantic City, New Jersey on June 10-13, 1919, during the Seventieth Annual Session of the American Medical Association, in the then-existing Section on Stomatology.

This Section regularly elected officers and had a representative in the House of Delegates, like any other Section of the American Medical Association, and was in existence from 1881 to 1926. In those early days the Section on Stomatology of the American Medical Association was the principal national outlet and common meeting ground for those interested in the medical and surgical aspects of diseases and malformations of the region of the mouth and jaws.

At this session on June 13, 1919, a paper was presented by Dr. Varaztad H. Kazanjian on “Prosthetic Appliances in Surgical Treatment of Wounds of the Face and Jaws.” The paper received an immensely favorable response not only for its content and its finely executed drawings of his complex appliances, but also by the personality of the author. The Section on Stomatology was the forerunner of the Association and Society of Oral and Plastic Surgeons which were to follow. It demonstrated a reproachment between medicine and dentistry.

It was not until 1919 that the first American textbook on reconstructive surgery, *Plastic Surgery, Its Principles and Practice*, written by John Staige Davis, appeared. He was the first to limit his practice to that specialty.
About two years later, the American Association of Oral Surgeons was established in Chicago, Illinois on August 8, 1921.*

The Association’s prime mover and first president was 73-year-old Dr. Truman Brophy, who was joined by Dr. Frederick B. Moorehead of Chicago and Dr. Henry Sage Dunning of New York City. It became the first professional society for plastic surgery.17

Dr. Brophy was a “take charge” man. “If a path to a desired end were not beaten,” it was observed of him, “he never hesitated to break virgin soil.” Brophy organized and became the first dean of the Chicago College of Dental Surgery, and served for nearly 50 years, until 1920.18 “He made the dumb speak and the sad smile.”19

It was Brophy who insisted that a member should have both MD and DDS degrees. He had beforehand obtained a charter from the State of Illinois for the establishment of an “American Association of Oral Surgeons”. It was granted to Brophy and to Drs. Thomas L. Gilmer and Frederick B. Morehead. The name and charter were chosen out of haste, since the American Association of Exodontists was in the process of forming an association and wanted to use the same name.20

These three men then elected Drs. Brophy, Gilmer, Morehead, Cryer and Dunning as the original trustees and adopted a constitution and bylaws (modified slightly) from that of the American Gynecological Society.

There were twenty active fellows. Ivy pointed out that 14 of these fellows were either Fellows of the American College of Surgeons or were elected to fellowship within three years.

In this selection of Founder Members, there were two exceptions to the “double degree” requirement: Vilray P. Blair held only the MD degree, and Chalmers J. Lyons held only the DDS. But these two men were held in such high esteem in the field of oral surgery, as then constituted, that the “double-degree” requirement was modified for them and they were taken in as “associate” fellows.

“Although there has been criticism in some quarters of Brophy’s decision to use the term Oral Surgery in the original Charter and name of the Association,” Ivy emphasized that, “the fact that this classification was at the time officially recognized by the American College of Surgeons is sufficient evidence that most of the Founder Members were in good standing with general surgeons throughout the country: their dental training probably endowed them with some special knowledge in the area of the mouth and jaw.”

Ivy carefully investigated the educational background of most of the “double degree” men

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*This was not the first time an Association of Plastic Surgeons was discussed, however:

In a letter dated November 1962, Dr. William Shearer writes as follows. "In 1914 Dr. Brophy asked me to go to London to attend the meeting of the Clinical Congress of Surgeons of North America. That year, the first World War broke out. I got the vision of need of an organization of a society of surgeons better trained in war tragedies. When I returned to America I stopped in Washington, D.C., to see Surgeon General Gorgas and told him about my vision. He said, ‘Dr. Shearer go ahead, this is war to the death.’ I worked seven years to get it formed.”

“Finally I told Dr. Brophy if he did not call a few men together and organize the society and take out a charter in Illinois that I would. So in 1921 it was done. He called by phone to come to Chicago as this society was thought of by me and ‘you are the real father of it.’ One of my family was sick so I told him to go ahead.”

“Brophy insisted that the man should have the degrees of MD and DDS I said that was a mistake because many men with MD only were better prepared now, and only a few men had both degrees. It was brought into being by men of both degrees regardless of my protest. Later they saw their mistake and it was changed. We took in one man with DDS only before the change, Dr. Chalmers Lyons of Ann Arbor, Michigan.”

(McDowell, pp. 146-47)
and reported “that the MD degree of each was genuinely earned by regular years of study, followed (in most cases) by internship in the general field of medicine and surgery: it was not a mere courtesy title.”

Ivy personally knew the founding members. His view of the Association and its double degree requirement was more accepting and conciliatory than those who would follow.

The first regular meeting of the Association convened in Philadelphia in October of the same year (1921) during the session of the American College of Surgeons. Attending were Drs. Brophy, Carmody, Dunning, Ivy, Logan, Minor, New, Schamberg and Sherer. The meeting was largely organizational. Dr. Brophy was elected President; Dr. Gilmer, Vice-President and Dr. Dunning Secretary-Treasurer. It was voted to met annually in the same place and at approximately the same time as the American College of Surgeons. Requirements for membership in addition to the one previously mentioned were as follows: at least five years should have elapsed since the applicant’s graduation from medical or dental school, and he should have had five years of practice in the specialty. Ten associate members were to be admitted. These were to be men holding either a medical or a dental degree, but only one physician and one dentist could be admitted per year.

As associate members they were to be accorded all the privileges of active membership except those of voting and of holding office. At this initial session it was voted to change the name of the society to “The American Association of Oral and Plastic Surgeons” but this was not executed until 1931.22 This failure to change the name sooner resulted in correspondence among a considerable group of members who considered resigning and forming a new “American Association of Plastic Surgeons.”

There was a counter view of Ivy’s conciliatory position. The concept of a “double degree” for fellowship “was wrong and the name was a mistake” according to McDowell, in his paper published in 1963. He later became editor-in-chief of Plastic and Reconstructive Surgery.24

“Major operative surgery was, and is, a postgraduate discipline learned by extensive postgraduate training and/or experience.”

McDowell continues. “It would be unreasonable to require an additional undergraduate academic degree for entree to this surgical training camp, and mad to try to substitute the degree for the camp. Moreover, general plastic surgeons had developed, and were developing, most of these operations throughout the past century—and especially in World War I—so that the time was at hand for plastic surgery to receive recognition for the role it had been playing.”

“In 1921, the term ‘oral surgery’ was apparently just as vague, and subject to as many different interpretations and misinterpretations as it is today,” McDowell asserted. “There is, and was, little doubt that dentists could and should do most of the minor surgical procedures on teeth and gums. Perhaps a better term for this is, and was, ‘dental surgery’.”26

“The difficulty was (and perhaps is),” McDowell continues, “in deciding what the name and training should be for the surgeon who gets farther and farther away from the teeth—out into the jaws, tongue, face, neck—doing ever more major surgery for malignancies, crushing compound injuries, and complex deformities. Brophy, and his group, apparently feeling that this work was beyond the capabilities of dental surgeons, decided that undergraduate studies leading concurrently or successively to the MD and DDS degrees, plus some postgraduate training and/or experience in surgery, was the best preparation.
The term “oral surgeon,” being suitably unattached and indefinite, was appropriated for this new association of surgeons doing this kind or work.  

“The double-degree requirement and the name ‘Oral Surgeons’ turned out to be mistakes of such magnitude” McDowell insisted, “as to almost preclude the new society from getting off the ground.”

In response, Ivy defined the scope of oral surgery, as follows, “In my opinion, the following conditions unquestionably come within the jurisdiction of the properly trained and certified dental oral surgeon: The extraction and other operations on the teeth themselves, including impacted and unerupted teeth the care of infections of the jaw bones and surrounding soft tissues, resulting from dental infections and jaw injuries, the fixation of fractures of the maxillae and mandible, with due regard for collaboration with other specialists—neurosurgeon, plastic surgeon, otolaryngologist, ophthalmologist, in disorders that overlap these fields in the treatment of infections of the maxillary sinus of dental origin, best handled, however, in collaboration with an otolaryngologist, the treatment of benign tumors and cysts of the mouth and jaw bones, for which intraoral treatment if adequate, the correction of developmental deformities requiring surgery—prognathism, and open bite, and correction ofankylosis of the temporomandibular joint.”

It was a house divided. “There was wide disagreement in how to organize and run a society.”

“One group thought that preparation should consist of several years of training in general surgery, then branching out into plastic surgery; another group thought that preparation should consist primarily of obtaining both the DDS and MD degrees, and then branching out from the mouth into surgery of the surrounding areas. There was, of course, some conflict between these two ideas.”

“Seldom has any organization survived so many wrong starts,” McDowell wrote, “and so much adversity, and even perversity.”

The word Oral was dropped In 1942 and the American Association of Plastic Surgeons emerged. The intent of the Association always remained intact—to be an exclusive club with limited membership.

Two “gentleman surgeons from Europe,” Jacques Maliniec, born in Poland, and Joseph Gustav Aufricht, born in Hungary, arrived in America in 1923. They and others formed a more open, less exclusive society, The Society of Plastic and Reconstructive Surgery, in 1931, which became the American Society of Reconstructive Surgery in 1941.

“Wartime advances aside,” Aufricht observed, “plastic surgery after World War I remained an undefined specialty without a hospital-based ‘home’.” Aufricht wondered, in retrospect, whether this was because the specialty was not “fully clarified.” Its boundaries and those of the related fields were still undefined.

As far as dentistry was concerned an independent dental surgical society came into being in 1918: The American Society of Exodontists, called Extraction Specialists.

Its founder, Dr. Menifee Howard, observed in 1918 that, “We were not recognized either within or outside the dental profession. When the United States entered World War I, exodontists were being inducted into the army as private soldiers. The (Red) Cross did not recognize us. No dental school had a postgraduate courses in our specialty. Everyone was for himself.”

Barely three years later in 1921, the American Society of Exodontists became the American Society of Oral Surgeons and Exodontists, whose name lasted until 1946 when it became the American Society of Oral Surgeons, whose name endured until 1975, when the American Association of Oral and Maxillofacial Surgeons was born.

Drs. Robert H. Ivy and Varaztad H. Kazanjian, intimate friends who had entered their specialty by way of dentistry, embodied in their life work the transition from dental surgery to oral surgery, to maxillofacial surgeon and to plastic surgery.
Robert Ivy, DDS, MD, born in England in 1881, traced his ancestry 30 generations previously to King Alfred the Great and Egbert, first King of England, who died in 838.37 He came to the United States in 1898 under the influence of his uncle, Dr. Matthew H. Cryer, who was the chief assistant to James Garretson. Ivy received his dental degree from the University of Pennsylvania in 1901 and became one of the first to serve a dental internship. He subsequently matriculated at the University of Pennsylvania School of Medicine. His medical education was interrupted by a call for service in China, where he practiced dentistry for two years. He returned to Pennsylvania and received his MD degree in 1907 and completed his residency in 1910.

In World War I, Robert Ivy served in Vichy France, as an assistant to Vilray P. Blair, MD, where many maxillofacial injuries were being treated.

Robert Ivy next turned to the field of plastic surgery in which one of his distinguished contributions was his long service as editor of the renowned periodical Plastic and Reconstructive Surgery. He introduced the multi-disciplinary, coordinated team approach to cleft palate problems and established the Pennsylvania Cleft Palate Division of the Public Health Bureau.

In 1957, at a meeting of the Society of Maxillofacial Surgeons, a group of dual-degree members passed a resolution condemning oral surgeons. In protest, Dr. Robert Ivy resigned his membership in the Society of Maxillofacial Surgeons.38 Dr. Ivy’s loyalty to dentistry and his respect for dentistry’s contributions to patient care through the oral surgery specialty are especially noteworthy in a man who also accomplished much for the medical specialty of plastic surgery. He was a positive individual who saw the potential for advances in both plastic surgery and oral surgery.39

Varaztad H. Kazanjian, DMD, MD was born in Ottoman Turkish Armenia in 1879 escaping “the seemingly endless strife and turmoil that scarred his ancient homeland.” He originally settled in Worcester, Massachusetts and worked in a wire mill. In 1902, he entered Harvard Dental School which, at that time, had no academic requirements for admission. Upon graduation with a DMD degree in 1905, he began a teaching career that spanned his entire professional life. He became interested in fabricating appliances for abnormalities of the face and jaws.

Upon the outbreak of World War I, he served in the British Royal Army Medical Corps as Chief Dental Officer of the First Harvard Unit. It was one of the great tests of his life.

A British journalist labelled his as “Miracle Man of the Western Front” for his creative treatment of the fractured faces of the British Tommies. Originally slated to serve three months he was implored to stay longer, until the end of the war. King George V honored him at Buckingham Palace. Returning to America in 1919, he entered Harvard Medical School and received his MD in 1921. He became the first professor of Plastic Surgery in the history of Harvard and established a practice in Boston that drew patients from all over the world. He died in 1974 and is remembered as “The World’s Most Famous Plastic Surgeon”.40

Through it all, no matter what heights that Ivy and Kazanjian reached in their specialty of plastic surgery, their background in dentistry remained remembered and appreciated.

The formation of the prototype American Association of Oral Surgeons in 1921 represented a reproachment between medicine and dentistry. It was highly controversial and its founders were labelled “Young Turks”.41 Nonetheless, it provided the soil for the flowering of the American Association of Oral and Plastic Surgeons and later the American Association of Plastic Surgeons.
References


4. Ibid.


7. Converse, p. 261


13. Converse, p. 263.


15. Official program of the Scientific Assembly of the Seventieth Annual Session of the American Medical Association, Atlantic City, June 10-13, 1919, Section of Stomatology, pp. 87-90. Dr. Kazanjian’s paper was delivered on June 13 and published in the Journal of the American Medical Association 73, no. 17 (October 25, 1919) 1265-1271.


18. Ibid.


25. McDowell, ibid.


31. McDowell, p. 150.

32. Hiat, p. 14A.


34. Hiat, p. 12A. Also Paletta p. 142-43 for biographical sketch of Aufricht.


36. Ibid.


38. Ibid, p. 92.

39. Ivy, Link With the Past, p. 6.


41. McDowell, pp. 240 and 268.
Some manufacturers and tradespeople designed their trade cards to serve as bookmarks, perhaps to ensure that these useful items could bring repeated attention to the product or service, rather than being discarded after only one look.

Dr. D. B. Hand was born on March 31, 1848 in Hawley, Pennsylvania. At age 14 he became head of the household when his brothers enlisted in the Civil War. However, he did not neglect his education: after his chores were done, he finished up his studies by candlelight. According to the Polk Medical Directory for 1906, David B. Hand was an 1867 graduate of University Medical College, New York City and practiced at 201 North Washington Avenue, Scranton, Pennsylvania. He lived much of his adult life in Dalton, Pennsylvania, where he was well-regarded as a physician and surgeon, practicing in Scranton. He built up a large practice as a children’s specialist until his death in 1923.

Dr. Hand prepared a line of children’s remedies during a 10-year period after observing “the misuse and torture to which little children were subjected—stupifying ‘dope’ to quiet them; severe, wrenching purges for their bowels, and the other old-fashioned medicines.” His remedies for children were “THE LITTLE ONE’S FRIEND, IN THE TIME OF NEED” and included:

- DIARRHOEA MIXTURE
- COLIC CURE
- PLEASANT PHYSIC
- WORM ELIXIR
- COUGH AND CROUP MEDICINE
- GENERAL TONIC
- CHAFING POWDER
- TEETH LOTION

Dr. Hand’s Teething Lotion is still produced! The current product is described as: “An exclusive formula to relieve your baby’s painful gums without benzocaine,” made up of “SD alcohol38-b, sterile water, carbomer 940, hamamelis water, polysorbate 80, menthol, sodium hydroxide, sithicone, D&C red#33, FD&C #3.”

“Mother’s love for baby, practically applied, relieves suffering and smiles and sunshine follow.”

Dr. Croll is in private practice in pediatric dentistry in Doylestown, PA. Dr. Swanson served as President of the American Academy of the History of Dentistry from 1985-1986.
Dr. Hand’s Remedies

Lithograph. 2” x 7”. Circa 1910.
Dear “Vee,”
This is a pretty little city but it hasn't stopped raining long enough so that I can tell what it looks like. The Normal training is different from the University training, in that it is not so difficult. Have met several University girls and also a few Ballard girls up here which makes it more like home. Anna.
This photographic postcard, a view of downtown Bellingham, Washington, is postmarked September 25, 1920.

The scene depicts the central business area of Bellingham, looking northwest down East Holly Street. Further down the street, two horse drawn vehicles, a few automobiles and several distant streetcars can be observed. In the foreground, the descending streetcar tracks are especially noticeable.

By 1920, three well-known “painless” dental companies were operating on East Holly Street, Whatcom County, Bellingham, within a few blocks of one another. Each firm was headed by a senior partner, who directed associate dentists who worked within a group practice. Shown on the left side of this card (lettered in reverse) is a two-story high sign which was mounted in 1909 atop the four story Exchange building. Identified as “Whatcom Dental Office”. This firm was located on the second floor at the corner of Holly and North State Street. Dr. Charles C. Turner, manager of the “painless” dental clinic, was responsible for the erection of this ostentatious sign.

During the 1920s, Whatcom dental ads depicted a cartoon character who would later be adapted into MAD magazine mascot Alfred E. Neuman. The fictitious goofy-looking young fellow with a missing right central maxillary tooth first appeared around 1895 in New York City dental advertisements. By portraying a fearless, happy-go-lucky dental patient, this dental group boasted “painless extraction of teeth” (minimally aided by the patient’s choice of “nitrous oxide gas, ether or chloroform”).

Several blocks down the street, a banner sign spelling “New York Parlor,” was strung out between Railroad and Cornwall Avenues, over East Holly Street. During the night, the name of this instantly recognized landmark was illuminated by electric bulbs which outlined each letter. Local ads for this chain, located at 101-111 East Holly Street, claimed that its three dental staff members were “The Big Men in Painless Dentistry!” Their $8.00 fee for a full set of dentures came with “free painless extracting.” These same ads also proclaimed the outstanding professional skills of the firm’s white frocked “Lady Assistants,” who “not only devote their entire time to making our patients comfortable, but also sterilize every instrument used and keep the offices neat and clean.”

Further down East Holly Street (not shown on this card) was the Painless Parker chain, opened in 1917. Its office was located at the corner of East Holly and Commercial Streets on the second floor, ironically above a candy store. One of the many Painless Parker franchises in the US, it utilized an injected local anesthetic called “hydrocaine” to insure painless dentistry. This dental group, which originally consisted of five dentists and four female assistants, remained active for 35 years, until the death of Dr. Parker in 1952. At that time, many of his offices were converted into individual dental practices and all signs throughout the country that advertised his name were removed.

Interestingly, during the 1920’s, some dental parlors of this ilk began to encourage and provide regular dental checkups and teeth cleaning as preventive measures to improve oral health.
About 2,500 years ago, in the 5th century B.C., Herodotus of Athens (484-424 B.C.) singlehandedly invented recorded history. Engaging in a methodical and rational study of the human past, he laboriously wrote a nine-volume account of the Greco-Persian Wars, which had occurred between 500 and 479 B.C. His book, “The Histories,” was the world’s first extensive work composed in prose rather than in the more conventional medium, verse. It offered a chatty and digressive, yet comprehensive account of a squabbling, unsteady coalition of Greek city-states who fought against the greatest expeditionary forces ever launched by the Persian Empire. In spite of their cultural ties, the defiant and proud city-states were often bitterly at odds with one another, yet when the Persian’s threatened their freedoms, they put aside their differences and joined together to defend themselves as one united force.

Surprisingly, the Greeks claimed victory twice (in 390 and 380 B.C.). As a result of Herodotus’ amazing historical accounts, Cicero (106-43 B.C.), the famed Roman orator, statesman and philosopher, named him “The Father of History,” a title that still applies today.1-2

Herodotus was born in 484 B.C. in a Greek colony located in a coastal area of Ionia, which was part of the small city of Halicarnassus in Asia Minor. Traveling extensively throughout the Mediterranean and the Black Sea regions, he chronicled both the rise of the Persian Empire and the complex interactions among the Greek city-states, of which Athens had emerged as the wealthiest in 500 B.C.3-5 In about 447 B.C., after Herodotus had settled in Athens, he recorded these accounts, along with detailed observations of varied cultures. The reoccurring theme within his accounts emphasized the inevitable decline of power-hungry, empire building nations, by imperial hubris and catastrophic retribution.

Hippia: The Tyrant of Athens

During the time of the Greco-Persian War, a “tyrannos” or “tyrant” was conceptualized as an absolute monarch who ruled a Greek city-state without constraints, sanctions or limitations.1-2,6 This extremely powerful individual was typically connected by birth to an important aristocratic Greek family. Having absolute authority over others, such a tyrant was, naturally, intensely loathed and envied. (Interestingly, in Athens and Syracuse,
institutions that had been initially established under tyrannical rule eventually gave rise to democratic forms of government.)

Beginning in 528 B.C., Hippius and his brother Hipparchus, sons of the noted tyrant Pisistratus, shared power in Athens as co-tyrants.\(^4-6\) After the assassination of Hipparchus in 514 B.C., Hippias ruled alone until 510 B.C. Known for his harsh severity and cruelty, Hippias was despised by the citizenry.

**Hippias Escapes to Persia and Plans Retribution**

By 510 B.C., during the rule of King Cleomenes I, Hippias had become so unpopular that he was forced into exile by the Greek city-state of Sparta.\(^2\) Fleeing to Sardis, he took refuge at the court of the nearest Persian Governor, Artaphernes, and incited the Persians to rise up against Greece.

By 499 B.C., Greeks throughout the Mediterranean area had begun a succession of open rebellions against their Persian overlords, whom they derisively called “barbarians.” Although they emphatically and repeatedly used this term, the Greeks did not ascribe to it the derogatory meaning of today. Rather, to them, barbarians were outsiders who could not speak their language, and who uttered syllables that sounded like “bar-bar-bar”\(^1\).

This “Ionian Revolt” of Greek colonies in Asia Minor triggered the Persian Wars and the Asian invasions of the Greek mainland between 490 and 480 B.C.\(^3,5-6\) According the accounts of Herodotus, King Darius I The Great (550-486 B.C.) was so infuriated with the Greeks that he raised two expeditions against their country. The first mission, dispatched in 492 B.C. under the leadership of his son-in-law Mardonius, failed when the entire fleet was lost in a mighty storm. The second offensive, led by Artaphernes and Datis, was aimed at the beaches surrounding Marathon, a plain hemmed in by mountains and sea.

Because of his familiarity with the Greek terrain, Hippias was recruited to guide the Persians to this area and to set up a Persian army camp there. Hippias knew that the battle skills and equipment of the Persian cavalry were overwhelmingly superior to those of their Greek counterparts.\(^1,5-6\) Thus, he was convinced that this campaign would ensure the Persians a guaranteed victory, and himself, the restored status as a tyrant of Athens. With his former powers reclaimed, he could then mastermind a new, pro-Persian regime in Greece.\(^7\)

When the Greek citizens discovered that the aggressive and powerful Persian armed forces were about to invade their land, they gravely feared the outcome of such a savage attack. How could the Greek nation, currently so weak and scattered, resist the brutal onslaught? At that time, the ever-enlarging Persian empire surging out of Iran stretched from Egypt to India and from the Persian Gulf to the Black Sea: a total area of over two million square miles. As this coercive, hostile nation expanded westward, it destroyed the outposts of Greek civilization one by one, including those on the isle of Cyprus and in the lands of Thrace and Macedonia. With their highly trained professional army, the Persian horde island-hopped across the Aegean Sea, conquering as they pressed onward.\(^5-10\)

In spite of internal difficulties, and against all odds, a number of the fiercely independent and freedom-loving Greek city-states ordered their troops to Marathon. When the Persians landed, the Athenians dispatched the runner, Pheidippides, to Sparta, where he sought long-pledged aid.\(^7,10\) Amazingly, the young athlete covered the 150 mile distance in two days. However, his arduous journey had been in vain, for when he approached the famed Spartan warriors, they were in the midst of celebrating a religious festival to their god, Apollo, and refused to blaspheme this holy event by going to war.

\(^*\)The battle most likely took place on September 11, 490 B.C. However, because the calendar of Sparta was one month ahead of its Athens counterpart, it could have occurred on August 11, 490 B.C.
When the two rival armies met*, the Greek officer-in-charge, General Miltiades, was leading some ten thousand heavily armored foot soldiers (hoplites), chiefly from Athens and Platæa. Their seemingly impossible mission was to fight against an estimated twenty thousand, highly trained and well equipped Persian infantry and cavalry troops. The major obstacle facing the Greek army was the superior offensive power of the Persian cavalry. The Greek infantry line could not effectively cross any open plain because, in making this move, it would expose its rear forces to open attacks by the mounted Persian archers.6

Hippias’ Dream and The Omen of His Lost Tooth

In his book, Herodotus describes the experiences of Hippias, just before The Battle of Marathon:2

So they waited for the full moon while Hippias, son of Peisistratos was leading the barbarians to Marathon. During the previous night, Hippias dreamt that he was sleeping with his own mother. He interpreted this vision to mean that he would return to Athens, recover his rule, and die as an old man there in his native land; at least that was his interpretation of his dream at that time. After Hippias led the captive slaves from Eretria to the island of the Styrians, which is call Aigilia, and had them disembark there, he directed the ships to put in at Marathon.

When the barbarians had come ashore, he set about assigning them to their various positions. In the midst of this work, however, he was seized by an unusually severe fit of sneezing and coughing, and since he was getting of age, most of his teeth were loose, and one of them fell out with the force of his coughing and landed in the sand.* Hippias tried very hard to find it, but the tooth was nowhere to be seen. He then groaned to those standing nearby, “This land is not ours, and we shall not make it subject to us, either, for

my tooth now holds all that was to be my share.” In this way, Hippias concluded that his vision had been fulfilled.

The Battle of Marathon

In his account, Cottrell succinctly describes the large scale Marathon engagement and its outcome:9

The 10,000 Athenians encamped at the south end of the plain, flung up a crude stockade, and awaited attack for several uneasy days. Then the Persians re-embarked their cavalry and some of their troops and marched the rest south along the Bay of Marathon.

[General] Miltiades perceived the foe’s strategy: While the Persians on the plain checked or defeated his army, the amphibious force would sail around Cape Sunium and land before defenseless Athens, in danger of betrayal by pro-Persian politicians. Only a double miracle could save Athens – and Greece: victory at Marathon against a superior, professional army, then a swift march back in time to defend the city. Miltiades knew that the Persians were strongest in the center, where they massed their archers, and weakest in the wings. So he placed his weakest troops in the center, his strongest in the wings. His idea was to envelop the enemy by crushing the Persian wings. Then he could wheel in on the exposed flanks of the Persian center.

*The aged Hippias appeared to be suffering from a severe case of periodontitis, a disease which destroys the supporting bone around the roots, causes pocketing, and subsequently loosens teeth. It is likely that he coughed up a periodontally involved central or lateral maxillary incisor.
According to Herodotus, The Greeks swept across the plain, surprising the foe and thwarting archers who were typically accustomed to slower targets. Much to the surprise of the Persians, the first line of Greek combatants approached their enemies by forming a frontal run and screaming their battle cry: “Eleleu! Eleleu!” The Persians interpreted this dramatic and highly unconventional charge (a new tactic in warfare) as “suicidal madness.”1-3 Because the Athenian troops were equipped with a higher grade of armor and longer spears than were their opponents, they routed the enemy wings and attacked the Persian center from the rear. The battle ended when the entire Persian army, hotly pursued by the Greeks, first crowded together in confusion and then, in panic, fled toward their anchored ships. Some Persians, unaware of the local terrain, mistakenly ran into the nearby swamps, where they either drowned or were swallowed alive by the quicksand.

On the beach, in hand-to-hand combat, the Greeks captured seven ships. The remainder of the Persian flotilla escaped and sailed for Athens. Simultaneously, the Greek troops hurriedly marched back to Athens to defend the coastline. As the Persian fleet approached their intended destination, they saw from a distance, Greek soldiers lining the shores on command posts of the old Athens port. Thus, in great haste, the frightened Persians fled. With his tooth left behind on the beaches of Marathon, Hippias disappeared into obscurity. One can only wonder if, on that day, the course of history had been forever altered due to the loss of one wobbly Greek tooth!

**Aftermath**

Surprisingly, the Greeks had lost comparatively few soldiers. Herodotus records that 6,400 Persian bodies were counted on the battlefield, while 192 Athenian troops lay dead.

The Greek citizens, now in awe of their country’s military victory, quickly became overconfident and puffed up with pride. However, Themistocles (527-460 B.C.), a prominent Athenian statesman, eventually convinced the Greeks that the Persians would return.1-3,5,9 Thus, the Athenians built up a massive fleet of warships and prepared other strategic defenses to fortify themselves against any future Persian confrontations.3 Although King Darius the Great died (in 486 B.C.) before he could mass enough troops to lead another attack against the Greeks, his son, Xerxes of Persia, masterminded an invasion of Greece ten years after the Persian defeat (480-479 B.C.) According to Herodotus, the Persians were equipped with a staggering fighting force of 2,641,610 men, supported by 1,207 warships and 3,000 smaller vessels.2 Greece and Persia engaged in three key battles: Thermopylæ (a Persian victory); Salamis and Platæa (both Greek victories).

Herodotus detailed an account of how the brave, undermanned Spartans ferociously guarded a narrow mountain pass at Thermopylæ:2-3,5

Here, they defended themselves to the last, such as still had swords using them, and the others resisting with their hands and teeth; till the barbarians who now encircled them on every side, overwhelmed and buried the remnant that was left beneath showers of missile weapons.

These last two confrontations resulted in an ultimate Persian retreat and the continued freedom of the Greek colonies of Ionia.11 Will Durant summarized the worldwide importance of the Greek victories over the Persians when he wrote the following:6

The Greco-Persian War was the most momentous conflict in European history, for it made Europe possible. It won for Western civilization the opportunity to develop its own economic life—unburdened with alien tribute or taxation—and its own political institutions, free from the dictation of Oriental kings. It won for Greece a clear road for the first great experiment in liberty; it preserved the Greek mind for three centuries from the enervating mysticism of the East, and secured for Greek enterprise full freedom of the sea.

The Athenian fleet that remained after Salamis now opened every port in the Mediterranean to
Greek trade, and the commercial expansion that ensued provided the wealth that financed the leisure and culture of Periclean Athens. The victory of little Hellas against such odds stimulated the pride and lifted up the spirit of its people; out of very gratitude they felt called upon to do unprecedented things. After centuries of preparation and sacrifice, Greece entered upon its Golden Age.

**Democracy Flourishes Under Pericles**

The unity of Greece began with their victory against Persia in 479 B.C. As a result, the government of Athens became the first true democracy in history. During the following 50 years, independent thought and practice was dominated and perpetuated by Pericles (who died of the plague in 429 B.C.) He stated that, “Each single one of our citizens, in all the manifold aspects of life, is able to show himself the rightful lord and owner of his own person, and do this, moreover with exceptional grace and versatility.”

However, in 431 B.C., the outbreak of the Peloponnesian War weakened the Greek form of democracy. Two major dominions had emerged in Greece at that time: Sparta, a militaristic, authoritarian land force; and Athens, a democratic sea power. Political rivalry between these two city-states instigated an internal war within Greece that not only tarnished Athens’ image, but culminated in her defeat in 404 B.C. Two and a half centuries later, in 146 B.C., Athens fell under Roman rule. However, the democracy which had been initiated on the beaches at Marathon, eventually prevailed.

The names and circumstances of these aforementioned ancient, epochal battles have since become a historical reminder of man’s unending quest both to conquer and to be free. More than two millennia after they had occurred, the English poet Lord Byron (1788-1824), wrote:

*The mountains look on Marathon—*
*And Marathon looks on the sea;*
*And musing there an hour alone,*
*I dreamt that Greece might still be free*
*For standing on the Persian’s grave,*
*I could not deem myself a slave.*

**Postscript**

In 490 B.C., Pheidippedes, a professional Greek courier, ran 22 miles, non-stop from Marathon to Athens to report the Athenian’s victory over the Persians at Marathon. After delivering the message, he died of exhaustion. 2,386 years later, a similar, long distance run, called a “marathon,” was held in Athens at the 1896 Olympic Games.

Later, during the London Olympic Games of 1908, the Englishmen in charge of the event decided that the race would be run from Windsor Castle to the White City Stadium, a distance of 26 miles. However, in retrospect, they also wanted to strategically end the competition in front of Edward VII’s royal reviewing box. As a result, they added an extra 385 yards to the competition. In 1924, 26 miles 385 yards/42.195 kilometers became the official, standardized distance for all future marathon races.

**References**


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**Bremner Award for Undergraduate Dental Students**

A certificate, $500 cash prize and up to $300 travel and related expenses will be awarded to the winning unpublished essay on:

1) A subject relevant to the history of dentistry

2) The result of an original research effort related to dental history

3) A composition revealing an uncommon appreciation and understanding of historical items related to dentistry.

Eligibility: Contest open to all predoctoral students of dentistry in the US and Canada, including undergraduate students preparing for admission to dental school. Purpose is to encourage the student and research of the history of dentistry. Entries must be original essays, not more than 5,000 words, on a subject relevant to dental history.

Selection: A special committee of the Academy will judge all entries received prior to March 1, 2009, for the current year’s award. The winner will be announced prior to June 1, 2009, so that said winner may be in attendance at the annual meeting of the Academy.

Application: Send typed essays (in triplicate), following the Instructions for Authors for the Journal of the History of Dentistry, along with a statement of authenticity by the Dean or responsible faculty, by March 1, 2009.

The Award is presented at the annual meeting of the American Academy of the History of Dentistry.

Please submit papers prior to March 1, 2009.

Please direct correspondence to:
Dr. Arden G. Christen
7112 Sylvan Ridge Road
Indianapolis, IN 46240
Dentistry on Stamps

Hannelore T. Loevy, CD, PhD
Aletha A. Kowitz, MA

Bees belong to the order of insects known as *Hymenoptera*, which also includes wasps and ants. Bees live on the pollen and nectar of flowering plants. The bodies of bees have branched hairs which facilitate pollen collection. Honey bees are ecologically important, not only because of the honey they produce, but because of their role as pollinators for many species of plants. As bees forage from flower to flower, some of the pollen they collect for food falls off their bodies and remains in the flowers visited. This pollen distribution enables plants to reproduce. Farmers and beekeepers carefully place beehives in specially-chosen areas in order to facilitate pollination.

Bees also excrete a waxy substance, synthesized in glands on the underside of the abdomen. This beeswax is used in building and sealing the distinctive honeycomb cells of the hive structure. Beeswax is solid at room temperature and melts at around 145 degrees Fahrenheit. It burns easily above 160 degrees. Beeswax has been used for centuries for soaps, candles, wood polish, cosmetics, lotions and balms.

In dentistry, beeswax was used in the past in the sealing of cavity preparations, as well as for prosthodontic applications. The wax is difficult to work with in its pure state, so additives such as paraffin are employed to alter its elasticity, flow, and thermal expansion. Experimental blends are created for clinical applications, attuned to the viscosity and elasticity needed.

Recently, the United States Postal Service issued a set of four commemorative stamps which call attention to pollination by bees, other insects, and other animals. Many other countries have also issued stamps showing different types of bees, most often to highlight the importance of pollination, but in some instances, wax production. The first day of issue of these stamps in the US was June 28, 2007.
A Sourcebook of Dental Medicine
Being a Documentary History of Dentistry and Stomatology from the Earliest Times to the Middle of the Twentieth Century.
by Gerald Shklar, DDS, MS
& David A. Chernin, DMD, MLS
864 pages, hardcover

The aim of this book is to make available to the profession of Dental Medicine and other interested parties the extensive literature of the past dealing with the diagnosis, description, causes, treatment and prevention of oral diseases. Drs. Shklar and Chernin are presenting the original texts concerning the diagnosis and management of oral diseases ranging from ancient Egypt through the world of the 20th Century.

Many of the basic texts of the past have already been translated into English, French and German from the original Sanskrit, Greek, Latin and Arabic. However, a number of important texts have never before been translated into English. The authors are presenting all these materials to the English-reading professionals in medicine and dental medicine in this 864-page reference book.

Price: $90. Available from: Maro Publications
Maro Pub. Ltd., P.O. Box 145, Waban, MA 02468
www.maropub.com

Limericks With A Smile:
Dental, Oral and Facial Limericks of Yesterday and Today
by Joan A. Christen, BGS, MA
& Arden G. Christen, DDS, MSD, MA

The authors have compiled 188 previously-published limericks related to dental, oral and facial themes; plus they offer an additional 384 personally-composed limericks. The humorous verses in this collection are at once bawdy, whimsical, ludicrous and cynical, and though simple in format, they communicate in few words their strong, sometimes paradoxical message. 159 pages with complete index.

Price: $20, postage paid. Available from:
Dr. Arden G. Christen, 7112 Sylvan Ridge Road,
Indianapolis, IN 46240-3541 (US check only)

Intriguing and Eccentric Characters
& Stories from the World of Dentistry
By Arden G. Christen, DDS, MSD, MA
& Joan A. Christen, BGS, MS

In this 230-page book, the authors have glimpsed into the lives of 32 dental characters: professionals who range from the noble to the bizarre. Introducing this work is a chapter on one of the most memorable and controversial characters of all time, Dr. Painless Parker (1872-1952). All of these fascinating individuals have left indelible marks on their chosen profession. The stories from this collection may be inspiring or infuriating, ingenious or absurd, credible or questionable—but seldom are they dull.

Price: $20, postage paid. Available from:
Dr. Arden G. Christen, 7112 Sylvan Ridge Road,
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A Little Treatise on the Teeth:
The First Authoritative Book on Dentistry (1563)
by Bartholomæus Eustachius
Edited by David A. Chernin, DMD, MLS
& Gerald Shklar, DDS, MS

One of the greatest anatomists of all time, Eustachius’ major studies remained unknown until their eventual Dutch translation and publication in 1714. Eustachius contributed substantially to the development of dental science. His conceptual advances concerning tooth development and function, based on anatomical dissections, were further buttressed by detailed plates of the musculature of the face, floor of the mouth, the neck, the tongue, and the roots and crowns of the teeth. In addition to giving us the first clear description of the dental pulp and root canal, Eustachius also conceived of the periodontal membrane as a gomphosis.

This volume presents the first direct English translation from the original Latin Libellus De Dentibus, and maintains the Latin and English texts on facing pages. Eustachius’ observations are an illuminating precursor to 21st-century medical science, and still represent a timely and relevant reference for any practicing dentist.

Price: $60. Available from: Maro Publications
Maro Pub. Ltd., P.O. Box 145, Waban, MA 02468
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FROM THE ARCHIVES: VOL. 1, NO. 8 & 9

BULLETIN OF THE HISTORY OF DENTISTRY

OFFICIAL MONTHLY PUBLICATION OF
AMERICAN ACADEMY OF THE HISTORY OF DENTISTRY

MEETING OF THE A.A.H.D. IN CLEVELAND


The officers for 1953-1954 are: Dr. L. Laszlo Schwartz, president; Dr. William N. Hordgkin, president-elect; Dr. Milton B. Ashwell, vice-president; Dr. Harold L. Faggart, secretary-treasurer.

The following internationally known dental historians, all well over eighty years of age, were elected to honorary membership: Vincenzo Gherini, Italy; Sir J. Frank Colyer, England; Lillian Lindsay, England; Hermann Prinz, United States.

The Academy accepted an offer from Dr. K. D. K. Fremmer to set up a fund supported by the proceeds from royalties derived from the third edition of his Story of Dentistry, shortly to be published. The fund is to be used to make awards to students as prizes for historical studies or to promote the development of the history of dentistry in other ways.

The Bulletin of the History of Dentistry was made an official publication of the Academy to be carried on as at present arranged.

FLYING TO JOSIAH FLAGG

A statue honoring Josiah Flagg, Sr. in the Circular Congregational Churchyard, Charleston, South Carolina, was dedicated June 15. The memorial reads: "In this churchyard is buried Josiah Flagg, 1763-1816, first native-born American to make dentistry his life's work and the first to carry to any foreign land evidence of American dental progress. Soldier in the American Revolution, sailor in the War of 1812, died in Charleston, September 16, 1816. Erected by the South Carolina Dental Association and the City of Charleston." Dr. Harold L. Faggart, secretary of the A.A.H.D., gave the principal address.

According to the evidence adduced by Dr. B. W. Weinberger in his Introduction to the History of Dentistry in America, vol. 2, p. 123, 193 ff., Isaac Greenwood, not Josiah Flagg, was the first native-born dentist to practice in this country, since the
Former began to practice not later than 1760, and the latter not earlier than 1783.

A HISTORY OF THE AMERICAN DENTAL ASSOCIATION

Preparation of a History of the American Dental Association will presently be begun in commemoration of the one hundredth anniversary of the origin of the organization. The Board of Trustees have set up a fellowship at Loyola University, Chicago, so that a professional historian, Dr. Robert W. McCluggage, on the teaching staff of that institution, may devote half his time during the next three years to the collection of material and writing of this work. It is expected that the manuscript of this history will make a three-hundred page book when it is published.

The history contemplated will be an account of the development of the American Dental Association against the background of the progress of the profession in the United States. The known sources for the history are in transactions and other published literature, but uncollected documentary material may exist in the files of older dentists and in libraries. Members of the Academy of the History of Dentistry may be of service in discovering some of these sources, the whereabouts of which is not generally known. An indication of such material sent to the Bulletin or to Dr. McCluggage would be greatly appreciated. Plans for publication will await the production of the manuscript.

FLORIDA PIONEER DENTIST

From the forthcoming History of the Florida State Dental Society, by Robert T. N. Oveth, historian of the Society, excerpts concerning one of the pioneer dentists of the state, G. B. Briscoe, of Bradenton, were published in the Journal of the Florida State Dental Society 23:15-18 Feb. 1953. The account was reprinted in The Tampa Tribune, September 20, 1952.

PAST OFFICERS OF KENTUCKY STATE DENTAL ASSOCIATION

A list of all officers of the Kentucky State Dental Association from 1870 to date, including past presidents, past secretaries, past first, second, and third vice-presidents, and past delegates to the American Dental Association appeared in the Journal of the Kentucky State Dental Association 5:16-18 April 1953.

HISTORY OF NONANATOMIC TEETH

Victor J. Years, in Journal of Prosthetic Dentistry 3:596-617 September 1951, has contributed an article entitled "Thirty Years of Nonanatomic Teeth." A posterior tooth manufactured by Ask in 1853 he believes to be "the first deliberate departure of design in manufactured teeth for gaining mechanical or some other unmentioned advantage." In this account, a molar tooth designed by Maury, the French dentist, in 1820 has been overlooked. This tooth was constructed with a sausage-shaped occlusal surface with a platinum post upright in the center to the same height as the rim of the depression.

EDITORIAL NOTE

The Bulletin is issued through the courtesy of the American Dental Association, 277 East Superior Street, Chicago, Illinois.
MEMBERSHIP LIST OF A.A.H.D.

The membership list of the A.A.H.D. has been corrected to date. Any errors should be reported to Dr. Faggart, the secretary, or to Dr. Denton, the editor of the Bulletin.

<table>
<thead>
<tr>
<th>ACTIVE MEMBERS</th>
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Announcing the 58th Annual Meeting of
The American Academy of the History of Dentistry

June 11th & 12th, 2009
at the American Dental Association
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Chicago, IL

“The Evolution & Development of Dentistry in America”

Accommodations will be offered at the Ritz-Carlton hotel, across from ADA Headquarters.

We are accepting proposals for presentations. Please send titles and abstracts to:

Dr. David A. Chernin
284 Harvard Street
Brookline, MA 02446

Or e-mail: dac@histden.org
58th Annual Meeting
The Evolution and Development of Dentistry in America
American Academy of the History of Dentistry

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