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Distinguished Dentists of Early Chicago

—FRANK J. ORLAND, D.D.S., Ph.D.

Chicago, Illinois

To describe certain dentists of Chicago as distinguished, one must be objective and try to indicate the degree of greatness that might characterize such persons. Greatness is the quality of being great, and that relates to being distinguished. Moreover, that attribute is marked by eminence and distinction; also, one is considered to be distinguished if he has made significant achievements or attained prominence.

The author has chosen twenty-four individuals for inclusion in this essay, and this after having set up certain limitations. All of them functioned primarily as dentists in the Chicago area, although some were dentists who also had medical degrees while others were physicians who also held dental degrees. In addition, all of them are deceased.

In general, they are not listed in the order of their importance, but rather a loose chronological arrangement. The choice of those included was based somewhat on a more-or-less objective analysis of their attributes, as well as how they influenced the development of dentistry in Chicago. The length of each biographical sketch is not necessarily commensurate with the degree of prominence they individually achieved in Chicago dentistry. In fact, in some instances, persons of lesser prominence but of intrinsic importance will be brought to the attention of the reader. And then there are those special people who passed through Chicago, as it were, but really achieved their greatness elsewhere.

THE BACKGROUND DESCRIPTION

The phenomenal growth of Chicago from little Fort Dearborn to a great inland metropolitan port of the world in slightly over a century and a half is quite remarkable. But it is no more so than the great progress made by dentistry during the same period to its current advanced state. And this is due, to no small measure, to the dentists of the Chicago area. This advancement includes, in addition to the application of dental knowledge and skill to the general public, achievements in research, journalism and education.

It was in 1833 that the very first dentist came to Chicago and only a few decades ago that the last dentists cited in this paper became inactive; so in reality we are covering a viable span of only a little over a hundred years. (Not included is any dental practice indulged in by the medicine men of the Indians of this region or the officers stationed in Fort Dearborn during the War of 1812.)

Two individuals share the honor of being the first to bring den-
tistry to the Chicago area. Dr. Peter Temple was the first to practice any dentistry in the pioneer community, but Dr. William H. Kennicott was Chicago's first full-time dentist.

Peter Temple
Graduating from the Medical Department of Jefferson College in Philadelphia, Dr. Temple came the very year Chicago was incorporated as a town in 1833. He arrived in this community of about 200 persons, joining his brother John T. Temple, also a medical graduate. Peter Temple apparently started seeing patients with either medical or dental problems. Later, because his early competitor Dr. Kennicott advertised his dental practice, Dr. Temple also placed an ad on July 7, 1834 indicating he "... respectfully tenders his professional services to the citizens of this town and vicinity [in] Dentistry." Three days later in the same newspaper, Dr. Kennicott advertised that he, by contrast, "confined himself exclusively to dentistry."

Peter Temple also had many other interests besides dentistry, foremost among which were his land dealings. In contrast to his practice, he did so well in this that he became one of the financial backers of the Union & Galena Railroad.

William H. Kennicott
Born in 1806, this young man came originally from western New York. He had been to New Orleans and Natchez in 1822 where he gathered some knowledge in the healing arts. In announcing his intention to practice, he inserted an ad May 25, 1834 in the Chicago Democrat. It stated he would have a four- to five-week engagement in an office of the Eagle Tavern. Prospects looked so good, however, that he decided not to leave this growing boom town. So his next advertisement, two months later, emphasized his specialization as a dentist, though he had studied both medicine and dentistry in New Orleans. In this later ad, he pointed out he was "... more competent that those who practiced dentistry as only a branch of their [medical] profession." Thus, William Kennicott in truth emphasized he was Chicago's first full-time dental practitioner.

An ad placed eight years later in the newspaper, the Chicago Express, provides for us an excellent description of the profession of dentistry in Chicago in those years. He had moved his office opposite the Post Office and stated his hours as 8am to 6pm, but that he also would "... perform operations at [his patients'] residence." Kennicott professed "... to restore the teeth to health and usefulness at all stages of decay, even where the nerves and blood vessels are wholly exposed and with little or no pain." He stated he kept on hand a large supply of
the most approved, incorruptible teeth which he would insert from one
to an entire set at the shortest notice, and in the most useful and
durable manner.

Dr. William Kennicott also had a younger brother, Jonathan Asa,
who studied dentistry and was for a while associated with him. But the
younger brother did not become a qualified practitioner until several
years after the elder had established himself in practice. William
became a man of considerable importance in early Chicago, even
assisting in water supply improvements by putting wooden pipes out
into Lake Michigan to a depth of twenty feet. He remained in practice
until October 1863 when he died at his country home in the village of
Irving Park northwest of Chicago, now long since annexed to the city.

J. Asa Kennicott

It was J. Asa Kennicott who was listed as one of the Founding
Fathers of the Illinois State Dental Society. Later when this Kennicott
brother moved to Chicago's south Side, he gave the then suburb the
name Kenwood. He had earned an M.D. from Rush Medical College in
1843 but a decade later the Ohio Dental College awarded him a D.D.S.
degree for "valuable contributions to dental science." Among these
were "... the application of the principles of atmospheric pressure to
retain artificial teeth in the mouth and the process of capping the ex-
posed nerves of teeth instead of pursuing the painful operation of kill-
ing them." The celebrated Chicago historian, Andreas, has stated, "Dr.
K. has never confined himself to the dull routine of his profession,
accepting all its processes without question, but has made the subject
dental science a close study and is not only a fine practitioner but an
acknowledged authority in the most advanced lines of modern
research."

Edwin Judson

The next known dentist was Edwin Judson. He arrived in the in-
fant city in November 1840, taking up lodging at the Tremont House.
Here he commenced the practice of his art in the parlor of that well-
known hotel, but soon opened a permanent office. For nineteen years
Dr. Judson practiced in Chicago, with occasional excursions to the
growing villages of the surrounding countryside. His clientele in
Chicago was not merely local for his reputation had spread far and
wide.

This practitioner of dentistry was both industrious and prudent
and invested his earnings in real estate whose value grew with the city.
In 1857 on account of his health he retired to the village of Geneva on
the Fox River where he died at the age of 80 in 1889.

Charles Quinlan

Another prominent early dentist was Charles H. Quinlan who
arrived in the autumn of 1846. He built up a successful practice and
was the first in this city to use sulfuric ether (under the name
Letheon) in 1847. This first administration of ether for a surgical operation was at the request of the faculty of Rush Medical College who felt it would be better for a dentist to take the risk of using this new general anesthetic as William Morton had successfully done earlier in Boston. In 1859 Dr. Quinlan retired from dentistry to go into medicine, but his brother John entered into partnership and specialized in prosthetic dentistry and mechanics.

W.W. Allport

Walter Webb Allport had great versatility in the dental area and was an advocate of higher dental education. A great organizer of professional societies, he was the Father of the World's Columbian Dental Congress. Born at Lorain, New York June 10, 1824, he spent his boyhood on his father's farm near Oswego, but left to learn the tailor's trade. Later, in 1844, he began the study of medicine in a physician's office, but dentistry attracted his attention and he then decided to devote his entire time to it. He attended New York College of Dental Surgery in 1852-53 at Syracuse and received his D.D.S. degree, and then moved with his family to Chicago in 1854. His early prospects in practice were far from bright. He shared an office on Lake Street with a physician and had very little space, only enough to install an old barber chair. His perseverance kept him going until he reached the top of his profession. Many honors were bestowed on him for his many achievements. In 1859 he was elected President of the preliminary convention that organized the American Dental Association at Niagara Falls, and having been instrumental in its organization was again chosen its President in 1886.

In 1863, conjointly with Dr. Haskell, he founded the People's Dental Journal, a quarterly produced in Chicago. The publication's objective was to provide dentists with suitable and readable reading matter for patient education.

Walter Allport took great interest and did much work in the fascinating new field of microscopy. In 1868 he was instrumental in organizing the Chicago Microscopical Club composed of ninety businessmen, physicians and dentists. He became the group's first President and, at a convention held in a public hall, 1500 came to view the collection of instruments and specimens.

He was the moving force in 1883 to organize the Chicago Dental Infirmary. Here he tried to apply a novel educational concept: prospective students would be taught both medicine and dentistry, and upon graduation would receive both the M.D. and D.D.S. degrees. The faculty consisted of W.W. Allport (M.D., D.D.S., Professor of Dental Pathology and Therapeutics), George H. Cushing (M.D., D.D.S., Professor of Principles & Practice of Dental Surgery), and Loomis P. Haskell (D.D.S., Professor of Prosthetic Dentistry and Oral Defor-
mities). While the faculty was small, the number of students recruited was even smaller, and the School continued but one year! The concept was an idea that has come up several times since in educational circles elsewhere, but it began, and foundered, in Chicago. The Infirmary was then changed to a more conventional dental school and renamed the Chicago College of Dental Surgery which flourished with Dr. Allport as one of the directors for several years.

It was also through Walter Allport's efforts that the Chicago Dental Society was formed in 1864, and he was also a charter member of the Illinois Dental Faculty. Dr. Allport was a leader in education for years, lecturing on dental diseases in medical colleges in Chicago, and was Professor of Dental Surgery at Rush Medical College. This institution in 1881 conferred an honorary M.D. degree upon him. The medical profession in other ways also showed its appreciation of his professional qualifications. Dr. Allport, along with Drs. E.S. Talbot and T.W. Brophy organized the Section of Dental and Oral Surgery in the American Medical Association at its annual meeting on May 3, 1881. He published many papers on a variety of clinical subjects, but he missed his greatest single achievement, the World's Columbian Dental Congress, for he unfortunately suddenly passed away on March 21, 1893.

L. P. Haskell

Loomis Pomroy Haskell was for many years prominent in the field of dental education in both America and Europe. He was born April 25, 1826 in Bangor, Maine. He founded the Haskell Postgraduate School of Prosthetic Dentistry, which he conducted for ten years in Chicago, as well as conducting classes in Berlin and Hamburg, Germany; Vienna, Austria; and Paris, France in 1898 and 1899. For forty years he had been a contributor to nearly all the dental journals, and was co-publisher of the People's Dental Journal Quarterly in 1863 and 1864.

George H. Cushing

George H. Cushing is best remembered by historians for his chapter “The Profession of Dentistry in Chicago” in the important 1895 History of Chicago, Illinois by Moses and Kirkland. He was born in Providence, Rhode Island on May 11, 1829. Here he entered a dental office at age 17, studied for two years, and then opened an office in Rhode Island where he practiced one year. In 1857 he moved to Chicago and practiced in partnership with the Quinlan Brothers; after ten years he established an independent practice. He became interested in dental society affairs, ultimately achieving national prominence. He was one of the founders of the Illinois State Dental Society and twice its President. One of his leading qualities was faithfulness to whatever trust he assumed. Regarding “his” Illinois State Dental Society, for thirty-three years he never missed a meeting! He was always present at the opening of each session and stayed until adjournment. He also served as President of the Chicago Dental Society and the Chicago
Charles R. E. Koch

Charles R.E. Koch was born in 1844. He served a preceptorship in the office of Dr. J. Asa Kennicott, but left to fight with the Union Army in which he served with distinction. When he left for the war, Dr. Kennicott advised him to carry "a little dental equipment" in his knapsack so that in an emergency he might relieve a comrade's dental suffering. His opportunity came in Cairo, Illinois where he treated an officer, and his reputation spread among the military. Because of these operations in the field during the Civil War he could be regarded as at least the "grandfather" of the army's Dental Corps.

For his many achievements he was honored by being elected President of the Chicago Dental Society in 1875, and in 1877 President of the Illinois State Dental Society. He was President and Secretary of the Illinois State Board of Dental Examiners from 1886 to 1891 when he was made President of the National Association of Dental Examiners. He took issue with Truman Brophy, insisting that all dental graduates take the State Board examination regardless of the excellence of the school from which they graduated. He became Secretary of Northwestern Dental School in 1904 and served until his death.

His greatest achievement was his monumental History of Dental Surgery published in 1909 in two volumes. It has a great deal of information and is illustrated with excellent photographs of the many major dental personalities of the earlier times and up to that date.

Truman W. Brophy

A very versatile man in many fields, Dr. Brophy was especially renowned as an oral surgeon as well as an outstanding dental educator. Truman Brophy was born on a farm in Kane County near Lockport, Illinois on April 12, 1848. Later in 1866, when he was 19, the family moved to Chicago. In early boyhood he had decided to study dentistry and in accord with the custom of that time, after acquiring some prac-
tical knowledge through office apprenticeship, he engaged in practice for himself.

The Great Chicago Fire of 1871 found Truman Brophy quite prosperous for one so young, but left him almost penniless. Before again engaging in practice he determined to extend his knowledge by a course of systematic training and study. Accordingly, he went to Philadelphia and enrolled in the Pennsylvania College of Dental Surgery receiving his D.D.S. in 1872. He then returned to private practice after visiting hospitals in eastern United States where he learned many techniques from eminent oral surgeons. This whetted his appetite for more education, so he entered Rush Medical School and earned an M.D. degree in 1880. Brophy had been elected President of his class and his career had been so remarkable, that almost immediately upon graduating he was chosen by the faculty as Professor of Dental Pathology and Surgery. In the summer of 1882 he took the initiative toward founding the Chicago College of Dental Surgery, and was solely instrumental in raising the money for the erection of the building. This venerable building was only recently bulldozed away, but the school carries on as Loyola University’s School of Dentistry.

As a surgeon, Truman Brophy became internationally known for the special operation on cleft palate and hare-lip which he espoused, though many of his contemporaries thought it too radical and performed too early in the life of the afflicted. His critics were ultimately convinced of the value of early surgery using the “Brophy operation,” and his persistence has been recorded as a majestic fight and victory in the annals of surgery.

Dr. Truman Brophy was named President of the first Commission of Education in the new Fédération Dentaire Internationale in 1900. Later he was elected President of the FDI itself, and his term began in 1921 when he presided at age 72 at The Hague. Dr. Brophy was named the 1924 Laureate of the W.D. Miller Prize of the FDI, and he continued to serve as the FDI’s President until 1926. He died two years later at age 80.

Eugene Talbot

Eugene Soloman Talbot can be classed as an investigator and prolific writer. He was born in Sharon, Massachusetts March 8, 1847. He first saw Chicago in the spring of 1867, then went to the Pennsylvania College of Dental Surgery, graduating in 1872, and returned to Chicago to practice. But in 1878 he entered Rush Medical College and received his M.D. in 1880.

With the belief that dentistry should occupy the place it deserved as a specialty of medicine he, with others in 1881, secured three radical changes in medical-dental relations: chairs in Dental and Oral Surgery were established in the five medical colleges of Chicago; a Section on
Stomatology was created in the AMA; and the Chicago Dental Infirmary was established whereby students were enabled, along with their medical courses of instruction to have special dental instruction in the dental infirmary and be graduated in Medicine and Dentistry. But this innovation did not succeed. He did make notable contributions, however, through his voluminous writings which were published world-wide, and with many appliances he devised.

Charles E. Bentley

Charles Edwin Bentley was born February 21, 1859 in Cincinnati where his parents were free literate residents of that city, though some of his relatives across the Ohio River in Kentucky were still slaves. Young Bentley attended school in Cincinnati but in the early 1880's moved to Chicago. Music became a part of his life and he traveled the United States and abroad as a tenor with a troupe. Charles Bentley decided to go into dentistry and upon graduation in 1887 was appointed to Rush Medical College as an oral surgeon in its outpatient dispensary. He was such an excellent teacher that he was named Professor of Oral Surgery at Harvey Medical College until the school ceased to exist in the early 1900s.

The Chicago Odontographic Society was organized in Dr. Bentley's office in 1889, and he became its first President. In 1892 he was first Vice-President of the Chicago Dental Society. Charles Bentley was always in demand to present professional clinics and was a constant contributor to the literature of the day. He was also prominent in community affairs; in fact, he was one of the earliest interracialists. He strongly resisted the organization of Negro medical and dental societies, arguing that such acts of voluntary separation would encourage the general spread of segregation. He died on October 13, 1929 having led an exemplary personal life with many professional accomplishments at a time when racial distinctions were still commonplace.

John N. Crouse

For a time the dentists in this country were at the mercy of various manufacturing companies who threatened them with lawsuits for having allegedly infringed on patented devices or methods the companies had surreptitiously bought up. An organization of dentists was formed by several prominent Chicago practitioners. These were J.N. Crouse, Truman W. Brophy and Edgar Swain, and they comprised the Board of Directors of the American Dental Protective Association. Dentists paid dues, and with this money legal action was undertaken. By 1895, after this Association had been in existence for seven years, it had won
every suit which had been brought against any of its members. Dr. John N. Crouse was the leading defender of the dental profession against these unjust payments by dentists under the guise of privileges granted by U.S. patent. His pugnacious persistency, loyalty and ability gained him a great reputation for the freedom he won for dentistry so long ago. Dr. Crouse died in April of 1914. By 1939 the Dental Protective Association decided it no longer needed funds for its original purpose and created the John N. Crouse endowment fund to be used for fellowships and scholarships in dental schools and a memorial lecture at the annual meeting of the Illinois State Dental Society.

William H. Taggart

This man, though he was born and buried in Freeport, Illinois was eminent largely because of what he did in Chicago. William Herbert Taggart first saw the light of day March 23, 1855. In his boyhood he showed marked interest and ability in mechanics. He was always working with tools and visited nearby machine shops, where he was welcomed by the mechanics who took an interest in instructing him and encouraging him. When he was 12 he won the prize at the County Fair Association at Freeport for the best mechanical piece built by any boy under 16; he had produced a complete steam engine patterned after a large one at a local reaper factory.

Later he apprenticed in a machine shop in Freeport, and in 1872 traveled to Chicago to gain more experience in mechanics. The following year saw the Panic of 1873 and he roamed the streets of Chicago with the unemployed. He answered a newspaper ad seeking a boy to polish plates; to his surprise these were dental "plates" but he took the job since it provided board and lodging. The first night after work, while sleeping in the dental office, a patient suffering with a severe toothache came seeking the dentist who was not there. This was Taggart's first operation of casting — casting his nerve against luck. He was successful in this operation much to the surprise of himself and his employer who learned about it in the morning.

With this accidental introduction to dentistry, young Taggart was greatly encouraged. He learned much more in this dental office in Chicago, but after three months decided to return to Freeport and make a circuit of four nearby towns as an itinerant, spending a week in each place. But desiring more knowledge about dentistry, he attended the
Philadelphia Dental College from which he received his D.D.S. in 1877. Dr. Taggart returned to Freeport and soon enjoyed a good dental practice and married. While there he joined the Illinois State Dental Society of which he became President in 1890. Following sixteen years of success in this city in northwestern Illinois he moved to Chicago, making a special study of the porcelain art. This was in 1892 and in 1893 while the Columbian Exposition was underway. In his Chicago practice he soon acquired a reputation for excellent porcelain crown and bridge work as well as continuous gum work. He joined the local dental societies and was elected the first President after the consolidation of the Chicago Dental and the Chicago Odontographic Societies. Here he gave frequent clinics, expounding new ideas and showing original work.

He constantly sought better and easier methods to improve dentistry with less discomfort to the patient and less stress and strain on the dentist. These successes were realized by William Taggart through sheer ingenuity. He began working on the cast gold inlay in 1898, and each improvement led him toward his final goal of accurately casting a gold inlay by uncomplicated means.

After years of thought and energy, working nights while others slept, and on Sundays while others worshipped, he felt justified in giving the results of his intensive and extensive labors to the profession. This he did in a paper presented before the New York Odontological Society on January 15, 1907 entitled “A New and Accurate Method of Casting Gold Inlays.” This was nine months before he was able to launch his casting machine on the market. It was said by many in retrospect that here Dr. Taggart made his great mistake. He should have waited until he had a thousand machines ready for sale and then announced his method. For commercial gain this would have been true, but as a benefactor of his profession, his generous attitude in this whole matter was applauded. On that historic evening Taggart described a disappearing wax pattern which could be carved in the mouth. After carving, it was embedded in a special plaster investment; the wax was burned out completely, leaving no residue. Then gold was melted with a pinpoint blowpipe flame and forced into the void of the mold by means of a compressed air attachment.

Although many portions of Taggart’s procedure had been used before and anticipated in dental experiments prior to his announcement, it was Taggart’s ingenuity which succeeded in making “... a casting accurate enough to fit anything tightly enough to act as a dental filling.” Taggart believed his procedure was a novel one, and sought to obtain a patent in order to recover his expenses. Dentists and manufacturers, however, began using the procedure immediately after his original announcement.

After vainly trying to sell his own fairly expensive casting machines, Dr. Taggart attempted to induce dentists to pay a modest sum for permission to use his method. He eventually became involved in full-scale litigation as to whether or not his patents were legal. He lost his legal battle only because it was shown that an obscure Iowa dentist had used a somewhat similar process in 1896, but without the
sophisticated equipment which Taggart had developed to perfection.

After he lost his patent fight, Dr. Taggart withdrew in bitterness from the dental profession. He died after a severe illness on April 17, 1933 and is buried in Oakland Cemetery in Freeport; no special commendation marks his grave.

A grateful profession, however, had a large bronze plaque cast commemorating Dr. Taggart and placed it among the dental exhibits at Chicago’s Century of Progress exhibition in 1933. It is now on view at the Northwestern University Dental School and epitomizes Taggart’s contributions to dentistry.

C.N. Johnson

An editor of renown was Charles Nelson Johnson. He was born in Ontario, Canada on March 16, 1860, studied dentistry and received his L.D.S. degree from the Royal College of Dental Surgery in 1881 as a gold medalist. After a short period of practice in Ontario, he came to Chicago to attend the Chicago College of Dental Surgery, graduating in 1885. He was later appointed Dean of Students and Professor of Operative Dentistry at the same school. Dr. Johnson was elected in succession President of the Chicago Dental Society, the Illinois Dental Society, and the American Dental Association. He was also one of the Founders of the American College of Dentists as well as its President in 1925-27.

However, above all else, C.N. Johnson was a distinguished editor of several publications: the Dental Review from 1902 to 1918; the Bur and Desmos at the same time; and later the Journal of the American Dental Association. His distinguished editorship of the JADA earned for him honorary L.L.D. degrees from two universities. C.N. Johnson died July 13, 1938 in Chicago at age 78.

G. V. and Arthur Black

In order to elaborate on the lesser known dentists of early Chicago, it is necessary only to barely mention Greene Vardiman Black, for he stood head and shoulders above all the rest!

G.V. Black’s son Arthur Black was certainly eminent in his own right, but many historians have cited him primarily as the son of a famous father. Arthur Davenport Black was born, as was his father, not in Chicago, but in Jacksonville in 1870, but moved with his family to Chicago and was a Northwestern man thereafter. His D.D.S. was earned in 1890 and his M.D. in 1901. His long list of achievements ranked him high among the distinguished. Probably his greatest contribution to his profession was the compiling and indexing of all the dental literature in English up to that time, a formidable task but one which was of inestimable importance to dental scholarship. His
precise and methodical attributes in this and other organizational work gained him his independent prominence, especially as a bibliographer and educator.

B.J. Cigrand

Bernard J. Cigrand was born October 1, 1866 in Waubeka, Wisconsin. He graduated from University Dental College (now Northwestern Dental School) and Lake Forest University. Dr. Cigrand had been President for several years of the American College of Dental Surgery before it joined Northwestern. In 1892 he had published his book, *The Rise, Fall and Revival of Dental Prosthetics* which promptly went into a second edition in 1893. "B.J." was also editor of the *JADA*. He joined the faculty of the Illinois School of Dentistry in 1899, took over as Acting Dean in 1903-1904, and then was elected Dean for two years of this school which later became the College of Dentistry of the University of Illinois.

Cigrand's work in the community was also important to Chicago. He was President of the Chicago Public Library, and was responsible for many patriotic writings. However he will forever be known as the Father of Flag Day, celebrated each year on June 14 by Presidential proclamation, as well as the moving force behind the adoption of the "Pledge of Allegiance to the Flag". He died in May, 1932.

F. B. Moorehead

Every school had its outstanding leader: Northwestern had its Black; Loyola (as the Chicago College of Dental Surgery) had its Brophy; and the University of Illinois had Moorehead. Frederick Brown Moorehead was born in Wisconsin, October 14, 1875 and went to schools in Iowa and Ohio, but graduated from the Chicago College of Dental Surgery in 1899 and from Rush Medical College in 1905 earning both dental and medical degrees.

He contributed greatly to the clinical literature and became Professor of Oral Surgery at the College of Dentistry, University of Illinois. The dental school was to move into a newer building, but lightning struck the top of the roof and the upper story was destroyed by fire. As G.W. Dittmar, also one of our men of prominence remarked, this proved to be a blessing in disguise since it resulted in the building of a new roof all of steel and glass, allowing the sun to make the dental infirmary one of the best lighted and heated in the whole country. Lightning struck again a few years later in 1912 — but this was financial lightning — and the school closed, forcing it to sell all its equipment to the Chicago College down the street. This, too, was a blessing because Frederick Moorehead, with G. Walter Dittmar and Donald M. Gallie persuaded the University of Illinois to build a completely reorganized College of Dentistry with new equipment and a new faculty. Moorehead became Dean and the school grew in stature as the only Chicago-based dental school that was in part state-supported. Soon after, such outstanding leaders as Edgar Coolidge in endodontics, Louis W. Schultz in oral surgery, Frederick Noyes in
orthodontics (and who later became Dean), and Isaac Schour in histology (who also became Dean) joined the staff to add prominence to Illinois.

Lucy B. Hobbs

Lucy Beaman Hobbs was the first woman in the world to graduate from a dental college. This occurred on February 21, 1866 when she completed the course of study at the Ohio College of Dental Surgery, and she was the first woman elected to membership in an organized dental society. She opened an office soon thereafter in Chicago. Here she married James M. Taylor, a Civil War veteran — working for the Northwestern Railway. He was so impressed with his wife's profession that he began the study of dentistry in Chicago under her preceptorship. Because of Chicago's cold climate, Dr. Hobbs sold her practice to Dr. Edmund Noyes in November 1867, and the Taylors moved to Lawrence, Kansas where her husband became her partner and they practiced together until his death in 1886; she continued until she died in 1910 at 77. Of the sixty years in practice, she was in Chicago for less than two years. Yet she was chosen to serve on the Woman's Advisory Council of the World's Columbian Dental Congress in Chicago in 1893.

William C. Barrett

William Cary Barrett was an author, teacher and a great enthusiast for dentistry. He hailed from New York State and achieved prominence in Buffalo where he built the dental teaching facilities at the University of Buffalo and was appointed first Dean. Earlier, however, in 1889 he was elected Professor of Morbid Anatomy and Pathology in the Chicago College of Dental Surgery, then the dental department of Lake Forest University. Even though he maintained his residence in Buffalo, he visited Chicago regularly to deliver his lectures and give instruction associated with his Chair. Dr. Barrett was prominent in many dental areas including participation in the Second International Dental Congress held in Chicago and served as one of three envoys to the FDI to persuade that group to hold the Fourth International Dental Congress in St. Louis in 1904. In recognition of all these achievements and especially for teaching in Chicago, the Lake Forest University conferred upon him an honorary L.L.D. in 1899.

Edward C. Kirk

Another dentist who at least passed through Chicago on his way to prominence in dental education and journalism was Edward Cameron Kirk. He was born on December 9, 1856 in Sterling, Illinois,
a town one hundred miles west of Chicago. However, he was in Chicago at various times, but gained fame as Editor of Dental Cosmos and later as Secretary-General of the FDI. Also an educator, he became Dean of the University of Pennsylvania Dental School. His reputation should neither be enhanced nor marred by the remark attributed to him while looking in on one of his classes at his dental school: A young instructor had just caught a dental student who had been cheating at an exam and was seen sitting on his crib notes. The instructor asked the Dean what he should do. Dr. Kirk replied in a loud voice: “If that student can’t absorb his learning except through his ass, he doesn’t deserve to be in dentistry. Flunk him!”

H. Trendley Dean

Henry Trendley Dean was really a man who covered the whole country geographically. With the epidemiological research he conducted in the U.S. Public Health Service, he established for certain that natural water fluoridation had a marked effect on reducing dental caries in children. Some of these studies were conducted in the Chicago area, but later Dr. Dean retired to Evanston just north of Chicago and while there, he functioned in the ADA as an adviser. He lectured in some of the dental schools of the Chicago area and the author had the pleasure of appointing him Professorial Lecturer in the Zoller Clinic of the University of Chicago.

Harold Noyes

The third and last of the Noyes family in dental education was Harold Noyes, who grew up in Chicago as did his grandfather Edmund and father Frederick. But in his own right, Harold achieved a reputation in orthodontics and teaching, as well as research related to medicine, since he also had a medical degree. His abilities as an educator and administrator were fully demonstrated later in Portland, where he became Dean of the University of Oregon College of Dentistry.

This paper has cited, and thereby honored, many dentists in different decades of Chicago’s history, but there were also men of eminence who were not dentists though they contributed greatly to the advancement of dentistry during this period. Some of these were physicians like Harry Sicher (at Loyola) in Anatomy and Edward Hattin (at Northwestern) in Histology and Research. Others held primarily the Ph.D. degree, such as Eugene Skinner (Northwestern) in Dental Materials and Arno B. Luckhardt, who was also an M.D., who served in the University of Chicago in Pharmacology and also at the ADA on the Council on Dental Therapeutics.

To all of these individuals, some of greater, some of lesser prominence, the dental profession owes a debt of gratitude for having helped advance it to the outstanding position it occupies today among the health professions.
REFERENCES


DR. ORLAND is Professor of Dental Surgery and former Director of the Zoller Memorial Dental Clinic of the University of Chicago. For ten years he served as Editor of the Journal of Dental Research. Currently he is President-elect of the American Academy of the History of Dentistry as well as President of the Historical Society of Forest Park, where he resides. His address is 519 Jackson Boulevard, Forest Park, Illinois, 60130.

(This paper, in modified form, was presented at the 24th annual meeting of the American Academy of the History of Dentistry, held at Chicago, Illinois, October 24, 1975. In the original presentation there was an evaluation rendered as to the degree of eminence of the foregoing distinguished dentists. In the highest category were placed the names of G. V. Black, T. W. Brophy, C. N. Johnson and W. W. Allport. In a second category, also listed in order of their importance, were T. L. Gilmer, W. H. Taggart, A. D. Black, C. E. Bentley, F. B. Moorehead, F. B. Noyes, W. H. G. Logan and G. H. Cushing. The rest were cited in a large third category and a few names were placed in a fourth special category since these stayed only briefly in Chicago, achieving greatness elsewhere.)
Social Concerns of America's Black Dentists Justify A Reason for Bicentennial Participation: A Specialized Bibliography

—CLIFTON O. DUMMETT, D.D.S.
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Every racial and ethnic group which comprises the population of the United States has good reason to take note of its own contributions since the founding of America and the establishment of the United States as an independent nation. These manifold contributions are reason enough to celebrate with a pride born of gratitude for the diligent perseverance of earlier generations and with confident expectations of continued advancements.

At a time when this nation is planning and preparing to observe its bicentennial anniversary, it is essential that every citizen join in the spirit of the occasion and resolve to continue working for those principles of truth and concern which have made this country a leader in the world of nations.

The health professions represent one of many specialized services that enhance the quality of life in this nation. Dentistry, an important member of the health team dedicated to treating the physical, mental and emotional needs of the people, has made significant scientific and technological advancements that have not only benefited the inhabitants of this land, but have placed the United States as the foremost leader in dentistry throughout the world. Black dentists, though small in number, have nevertheless played an important role in American dentistry's achievements and, to some extent, this participation has been documented in the literature.

Although there are some Blacks who are equivocal about reasons to celebrate the bicentennial, it is feasible to record a selected number of journalistic contributions by Black dentists to underline their involvement and to enlighten all dentists and other health personnel.

The purpose of this paper is to present the literary contributions of Black dentists to dental journalism as published in the official publication of the National Dental Association which is the only dental organization comprised predominantly of Black dentists throughout the United States. These contributions have particular importance to the growth and development of the National Dental Association as a purveyor of scientific and technical journalism as well as giving evidence of the increased awareness by Black dentists of their position and responsibility to participate in all facets of American dentistry.

The National Dental Association began its Bulletin under the founding editor, Stephen J. Lewis of Manassas, Va., 33 years ago. At
that time and earlier, racial discrimination practiced by the white dental organizations prevented acceptance of the Black dentist as a member, and limited his access to dental journalism as an author. It is to the credit of Dr. Lewis that he recognized the need to motivate his N.D.A. colleagues to literary pursuits inasmuch as the majority of Black dentists were primarily concerned with the day-to-day practice of dentistry and had little interest in developing writing skills.

This survey is limited, therefore, to the National Dental Association's publication and covers the period 1953-1975 when the Bulletin grew from an "in-house" magazine containing brief articles dealing mainly with personal items, news and announcements, dental practice experiences, etc., into a national publication that could take its place among the journals of other professional organizations.

The Quarterly of the National Dental Association became the updated title of the Association's official organ, and its pages also included some research articles and presentations by non-Black scientists, dentists and other professional workers. Most of the presentations were based upon keynote addresses by nationally known leaders to the annual Association conventions. The following bibliography of articles, published in "The Quarterly" during the past 22 years, chronicle professional and scientific events in the Black dental community. These are tangible contemporary evidence of the growth and development of the Black dentist as well as his active participation in efforts to make American dentistry the most outstanding in the world.

CLASSIFICATIONS

The articles have been conveniently classified into 23 categories. There are those that fit into the eight dental specialties recognized by the American Dental Association, namely: Endodontics, Oral Pathology, Oral Surgery, Orthodontics, Pedodontics, Periodontics, Prosthodontics and Public Health Dentistry. Additionally, there are 15 other specially designated categories into which the other journalistic contributions have been classified.

ENDODONTICS


ORAL PATHOLOGY

Cancer - Challenge to Dentistry. G. W. Wade, Apr. 1962, p. 78.

**ORAL SURGERY**


Median Palatine Cyst. N. R. Calhoun and S. Jackson, July 1957, p. 79.


Multiple Cysts of Mandible. N. R. Calhoun, Jan. 1963, p. 47.


The Treatment of Systemic Emergencies in a Dental Office. N. R. Calhoun, Jan. 1968, p. 41.


**ORTHODONTICS**


Electrical Response of the Periodontium to Orthodontic Forces. B. F. Hawkins, Jan. 1975, p. 44.

**PEDODONTICS**


PERIODONTICS

PROSTHODONTICS
Denture Esthetics for Patients with Gingival Pigmentation. B. K. Stuart, April 1967, p. 5.

PUBLIC HEALTH
Health Education in the Field of Public Health. L. S. Morgan, Ph.D., Jan. 1954, p. 54.
Organization of Community Agencies for Public Health Programs. W. A. Mason, M.D., Jan. 56, p. 49.
The Importance of Statistics for Community Planning. R. R. Puffer, Dr. P.H., Apr. 1956, p. 70.
Dental Division West Tennessee Region of Health Department. W. E. McKissack, Apr. 1957, p. 60.
Communications in Public Health. M. S. Ferguson, Apr. 1964, p. 81.
Government and the Health Professions. P. R. Lee, July 1969, p. 120.

ADMINISTRATION, PROFESSIONAL ORGANIZATIONS,
SOCIAL ISSUES

The President’s Address. C. L. Thomas, Oct. 1953, p. 5.
The President’s Address. J. E. Carter, Oct. 54, p. 5.
The President’s Address. J. E. Bowman, Oct. 1955, p. 5.
Address by Administrator, Housing and Home Finance Agency. R. C. Weaver, Ph.D., Oct. 1961, p. 5.
AUXILIARIES (DENTAL HYGIENE, ASSISTING, LABORATORY TECHNOLOGY)

What Can You Do About Cut-Rate Labs? A. Griffin, July 1958, p. 120.

COMMUNITY HEALTH (MEDICINE AND DENTISTRY)
The Role of Sociology in Gerontology. S. H. Smith, Ph.D., Apr. 1966, p. 76.
Interprofessional Communications for Improved Patient Care. L. Houghton, M.S.W., July 1967, p. 8.
Promoting Community Health - A Social Work View. E. Morgan, M.S.W., Apr. 1969, p. 82.
The Unreached in Dental Health Services. A. Merritt, Apr. 1972, p. 56.
Shortage Area Student Program. H. B. Martin, July 1975, p. 92.
DENTAL EDUCATION
An Administrator Looks at Dental Education. H. D. West, Ph.D., Oct. 1958, p. 5.
Newer Phases Graduate Medical Education. S. Peterson, July 1962, p. 115.
Survey of Minority Programs in Dental Education. H. Webb, Jr., July 1975, p. 97.

HISTORY OF DENTISTRY

HOSPITAL DENTISTRY
The Red Cross Hospital of Louisville, Kentucky. J. A. Gay, Jan. 1958, p. 49.
Laclede Dental Clinic of St. Louis, Missouri. L. P. O'Hara, April 1955, p. 79.
The Dental Clinic of Provident Hospital. W. D. Giles, April 1955, p. 81.
The Burrell Memorial Hospital. L. E. Paxton, Apr. 1955, p. 82.
The Dental Service of Freedmen's Hospital. J. A. Turner, Jan. 1956, p. 43.
The Dental Service, V.A. Hospital, Tuskegee, Alabama. N. R. Calhoun, Jan. 1956, p. 46.
Dental Services at Tuskegee. C. O. Dummett, Apr. 1962, p. 83.
Role of Hospital Dental Departments. D. A. Collins, July 1965, p. 118.
Harlem Hospital Center Department of Oral Surgery. A. C. Williams, Jan. 1969, p. 53.
Hospitals and Health Centers in Community Health. E. S. Stauffer, M.D., Jan. 1972, p. 28.
INTERNATIONAL DENTISTRY
Involvement in International Health Programs: A Case Study. H. R. Primus, Jr., Jan. 1971, p. 34.

OPERATIVE AND RESTORATIVE DENTISTRY

ORAL MEDICINE AND DENTAL THERAPEUTICS
The Effect of Mouthwashes. F. W. Kraus, Apr. 1958, p. 70.
The Responsibility of the Dentist in Diagnosis and Treatment Planning. K. M. Massey, July 1959, p. 103.
Medicine and Dentistry. L. J. Green, Apr. 1963, p. 80.

POLITICAL ACTION

PRACTICE MANAGEMENT AND BUSINESS ADMINISTRATION

PREVENTIVE DENTISTRY
The Relation of Refined Carbohydrate Intake to Dental Caries. C. B. Sheary, Apr. 1956, p. 88.
The Influence of Sodium Fluoride in the Control of Dental Caries. C. B. Sheary, July 1955, p. 113.
Teaching Dental Health in the Classroom. A. O. Ford, July 1958, p. 102.

RADIOLOGY
The Roentgen Diagnosis of Periapical Lesions of Infectious Origin. C. R. Tuckson, Jr., July 1956, p. 117.

RESEARCH
CONCLUSION

A bibliography of papers published in the official journal of the National Dental Association, an organization of Black dentists in the United States, presents a total of 265 articles.

The articles have been classified into 23 categories, 8 groups representative of the official dental specialties, and 15 additional special categories.

The bibliography evidences the journalistic contributions to dental education, practice and public health by Black dentists, and chronicle many of the professional and scientific events in the Black dental community. Some of the papers cited were presented by white dentists before the meetings of the N.D.A. or in the pages of the Quarterly. This merely emphasizes the fact that Black dentists are vitally interested in problems which affect their profession. All of these contributions are reason, however, for celebration at the time of the nation’s bicentennial.

DR. DUMMETT is Professor and Chairman, Department of Community Dentistry and Public Health, University of Southern California, Los Angeles, California 90007, and formerly Editor of the American Association of Dental Editors. MRS. DUMMETT was Administrative Assistant to the Editor of the American Association of Dental Editors.
Dentistry, which gave to mankind one of its greatest boons, anesthesia and freedom from pain of surgical procedures, has unfortunately been long associated in the public mind with causing pain. The average patient's dread of a visit to the dentist was enhanced by using the dental office as the setting for innumerable jokes, cartoons and humorous bits and pieces in the literature all exaggerating the discomfort of the dental experience and holding up the frightened patient as a fitting object of humor. Professor Gardner Foley expanded on this theme in his excellent article “Dentistry and the Nineteenth Century American Humorists.” (Bulletin of the History of Dentistry, July 1968.)

Two interesting newspaper items which appeared in the same month about seventy years ago show two contrasting aspects of the same problem of pain in the dental office. The first, a little poem appearing in the Buffalo (N.Y.) Evening News for September 20, 1907, made sport of a child's fears, but inadvertently showed that the patient's reaction took its toll on the dentist - justifying a greater fee!

THE SYMPATHETIC DENTIST.

Me en' pa, we went down town,
    Ther dentist fer ter see.
He wrapped me up within a gown
    En' set me on his knee.
En' then he squeezed the pincers tight—
    Yer outer herd ther squeelin'!
I swung my arms both left an' right—
    Shoved him nigh to ther seelin'.
Then, cuz I hit him in ther eer,
    He giv' a sudden jerk.
"Boys' fists," sez he, "I never fear—
    I got to do my work."
En' wurk he did, with all his might,
    Me yellin' all the time;
Pa tried his best to keep me qui't
    By offerin' me a dime.
En' when at last the job was done,
    Pa came, en' held my hand.
He said he thought that I was brave.
    En' acted like a man.
Ther dentist sed he'd 'pologize
    Becuz he made me hollar,
"But," sez he, to my surprise,
    "Thet job is wwrth a dollar!"
En’ when pa (fool-like) paid ther moke
He hed ther nerve ter say
He thought thet it was such a joke
Ter heer me yell thet way!

—BURDSAL COX

The second piece which appeared in the Buffalo (N.Y.) Express for September 2, 1907, gives a picture of an extreme and totally unexpected reaction to the administration of an anesthetic agent. Unfortunately, this case resulted in severe injury to the patient along with lesser injuries to the staff of the dental office, all no laughing matter. And, to compound the disaster, the hapless dentist found himself in jail! Although there is no further record of the case in the newspaper, it is interesting to speculate what an argument for malpractice could have been made of this incident by a skillful attorney.

NO LAUGHING GAS, THIS

Patient under its Influence wrecks a dental Office—
Sobered by Fracture of the Skull.

New York Sun special to The Express.

Washington, D.C., Sept. 1.—George W. Bowers, an engineer, went to the Washington Dental Parlors this afternoon to have an aching tooth extracted and a few minutes later he was carried to the emergency hospital with a fractured skull and the affected molar still firm in his mouth. In the meantime, he had wrecked the dental parlor and caused a commotion which required a squad of policemen to quell.

Bowers insisted on taking gas against the advice of Dr. R. B. Leonard. When it was administered, Bowers started to break up the furniture and to attack the dentist. Two assistants and a negro porter came to his rescue, but Bowers had them all down and out in quicker time than it would have required to extract the tooth.

Finally, in self-defense, Dr. William H. Winter seized a hammer and struck Bowers upon the head, fracturing his skull. This floored the man, and, strangely enough, brought him back to consciousness. He explained that, in his delirium, he thought the doctors were attacking his wife. When he reached the hospital he had forgotten all about his toothache. He will recover from the fractured skull.

Dr. Winter was held in $1,000 bail to await the result of Bowers’s injuries.
Oral Surgery in
The Confederate Army

—HEYL G. TEBO, A.B., M.A., D.D.S.
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In 1859 organized dentistry was in the very early stages of
development. One subject that attracted the attention of the American
Dental Convention, which was initiated that year, was the necessity of
appointing dentists for service in the Army and Navy. The importance
of this idea had been advocated by Dr. Edward Maynard for the
previous 15 years in Washington. Among others, Jefferson Davis,
when he was Secretary of War, acknowledged that the proposition had
great value, as did Mr. Dubbin, the Secretary of the Navy. No official
action was taken, however, as the times were not favorable. A bill
affecting the Corps of Surgeons of the Army was before Congress and
it was thought best not to propose anything that might defeat the bill.1

Although Oral Surgery did not exist as a specialized field of den-
tistry at the time of the War Between the States, we have nevertheless
considered for inclusion in this paper, all those procedures that are to-
day included in this area of practice.

DENTAL MANPOWER IN THE CONFEDERACY AT THE
OUTBREAK OF THE CIVIL WAR

In 1860, there were about 1,000 dentists in the Southern States2.
There was no dental school in the South, and only about 10% of these
dentists had received a formal dental education. Southern dentists were
almost entirely dependent on the North for their materials. It was with
this small portion of the available dental profession that the South
went to war, ultimately placing some 600,000 men in the field. A study
of the available statistics revealed that the average Confederate soldier
was wounded about six times — and each time seriously enough to
receive treatment — and it is inevitable that a large per cent of these
wounds affected the face and jaws. Many of these patients received the
care of persons specialized in the oral field. Rather early in the conflict
this need was visualized by Dr. S. P. Moore, the Surgeon General of
the Confederate States Army, who made it possible for the detail of
dentists, both from the military service and civilian life, to take care of
these patients. Dentists had been conscripted without regard to their
profession and the question of exemption of a dentist from military
service was brought before the Confederate courts, where it was decid-
ed that, under the existing laws, the dentist was exempt. The
Confederate Congress than changed the law, so as to exclude the den-
tists and make them liable for line military service. Surgeon General
Moore immediately applied to the Bureau of Conscription for a change
in this procedure. Under the date of November 4, 1864, the Medical
Director of the C. S. Hospitals in Virginia, issued a circular pointing
out that in the future the operations of dentistry required in the hospitals in Virginia would be performed by officers, soldiers, or conscripts who were dentists by profession. Each soldier admitted to the hospital was to be given a dental examination, and any necessary operations to be performed would be carried out with the concurrence of the attending medical officer. The dentists were to provide their own instruments, but materials were provided by the hospitals. (Fig. 1)

Rank, pay, and perquisites of the dentists depended upon their position in the Army before their assignment to duty as dentists. In addition to their extra duty, pay for extraordinary skill and industry was authorized. Monthly reports of dental operations were to be furnished to the Surgeon General.

The novel experiment of assigning dentists to hospitals was very favorably received, and so convinced the Bureau of Conscription that, even though every possible man was urgently needed at the front, no obstacle was interposed to their appointment. Credit should be given to Surgeon General Moore for his official recognition of the importance of the dental profession in military surgery and his encouragement of their use in the hospitals.

**DENTISTRY IN THE CONFEDERATE HOSPITAL**

When the dentist was assigned to the hospital, a room with good lighting, hot and cold water, soap and towels, and a servant or soldier attendant were to be provided. The operating chairs were made to the dentist's design by the local hospital carpenter, and a tin basin placed on a bench served as a cuspidor. In cold weather, a good fire was kept burning in the room; that is, when the hospital had sufficient wood.
Many of the hospitals were located a considerable distance from the city, and the dentist had to provide and carry his own instruments and materials, and he was authorized to use an ambulance for transportation. This provision gave rise to conflict in that some of the surgeons who had to walk to their posts of duty became jealous of the privileges allowed the dentists. However, these problems were taken care of on a local basis and the dentists had the use of ambulances up to the last days of the war.

At the start of the war, the United States Government declared medical and surgical instruments to be contraband of war, and the Confederacy was thrown upon its own resources to provide necessary materia medica. Contracts were negotiated in Europe and cargoes brought through the blockade. Laboratoried were established for the supply of chloroform, ether, and some other drugs; but many remedies, such as quinine, could not be furnished. The fields and forests of the South were combed for plants that could be used, and a booklet was published in 1863 by Surgeon F. P. Porcher. This manual, *The Indigenous Remedies for Field Service and Sick in the Hospitals*, was used along with a standard supply table. Full directions were given for the preparation on a local level of the medicines from the local plants.

**THE NATURE OF ORAL AND FACIAL SURGERY PRACTICED**

The Crimean War of 1854-55 had a definite effect on military medical practice in America during the 1860’s. By the 1860’s, the findings of the Crimean War had been published and read throughout the world. The *Fourth Decennial Revision of the Pharmacopoeia of the United States of America*, published in 1863, carried advertisements of Macleod’s *Surgery of the Crimean War* and Guthrie’s *Surgery of War*. One of the observations made in the Crimea was that wounds of the face healed rapidly and compound fractures of the bones of the face did not have the serious results of similar fractures of the extremities.

*The Manual of Military Surgery*, prepared for use of the Confederate Army by Chisholm, published in Richmond in 1863, reflected this viewpoint in the following observations:

*Gun Shot Wounds of the Face:* Wounds of the face from gun shot, grape, or small fragments of shell, are usually more distressing from the deformity they occasion, than dangerous to life. The absence of vital organs, the natural divisions among the bones, and their comparatively soft structures rendering them less liable to extensive splitting: the copious vascular reticulation and supply rendering necrosis so much less likely and repair so much more easily than in other bones: the limited amount of space occupied by the osseous structure between their respective periosteal investments, and the opportunities from the number of cavities and passages connected with this region for the escape of discharges — leads to this result. On the other hand, the vascularity of this region leads to danger, both of primary and especially secondary, hemorrhage...

*Treatment:* In the treatment of gun shot wounds of the face where bones are splintered and torn, the surgeon should always retain
and replace as many of the broken portions as possible. It is often surprising how small connexions with neighboring soft parts will suffice to maintain vitality and lead to restoring union in this region. In case a ball has to be removed, when practicable, it should always be extracted through the mouth. Great care should be used, both by position and attention to dressing, to prevent the swallowing of the secretions from wounds of these parts, as it may lead to great constitutional irritation and fever of a low typhoid and fatal character. Should second hemorrhage supervene from the deep branches in this region, it will be necessary to ligate the main trunk.

It should be remembered that the prevalent view in military surgery of that day was that compound fractures should be treated by amputation of the part whenever possible.

The use of splints for the approximation of fractures of facial bones had long been suggested, but the common thought among surgeons was that this was entirely too complicated a process for field use. When it is noted that external splints made of pasteboard, softened with vinegar and water, had been the usual material, it is easy to see how much better the interdental splint made from gutta percha would be in the hands of one used to working in the mouth. Moreover, the vulcanized rubber intraoral splint would be far superior to any other method used to that time.

Dr. E. N. Covey, Medical Inspector of the Confederate Army, wrote an extensive article in a southern medical journal, in which he discusses the interdental splint that had been developed by J. B. Bean, D.D.S., of Atlanta, Georgia. Dr. Bean, as a civilian, had treated some 100 cases in Atlanta with success, and a ward was opened in one of the hospitals in Macon, Georgia, for the collection of cases to be treated by this type of appliance. The contribution of Dr. Bean was the use of an individually made splint, based on a plaster cast of the teeth. A wax model of the splint was then prepared on the cast using an articulator, flaked, separated, and a vulcanized rubber splint prepared. The completed splint was inserted and held in place by means of bandages. This splint was a great advance in that it more nearly held the fragments in approximation and also allowed the patient to take nourishment. The description of cases treated by this method indicated that a soldier wounded on July 21, 1864, was found to have complete union of the bone by November 8, 1864.

**TYPES OF WOUNDS ENCOUNTERED**

Most of the wounds that occurred during the Civil War were the result of projectiles from the rifled musket. The common 58 caliber Springfield musket fired a projectile weighing 550 grains and, with a standard load of 60 grains of black powder, this projectile left the gun with a speed of approximately 960 feet per second. The smooth bore 69 caliber musket also was in use, especially during the early years of the war, and this gun fired a round projectile or buckshot at a widely variable lower speed. Because of the nature of the barrel material, these projectiles were made of very soft lead. In contrast, a typical modern jacketed military projectile, caliber 30, weighs 220 grains with a load of
43 grains of smokeless powder, giving a velocity of 2,300 feet per second. (Fig. 2) The soft lead projectiles tended to separate into several large fragments when they struck bone and remained in the tissues. This was especially true in regard to the bones of the face and many cases are described in pension records of the ball remaining in the tissues for years following the injury. The modern smaller, harder projectile tends to penetrate much more readily and to free itself from the tissues with a through-and-through type of wound. The higher velocity often gives a larger wound of exit which is not usually found with the very soft projectile. The location and removal of the ball was considered an important factor in the treatment of the gunshot wound and every effort was made to reach the projectile. Contusions from fragments of artillery shells were also numerous. These were produced by relatively large fragments traveling at a low velocity. While modern warfare is marked by extremely lacerating types of wounds from shrapnel, the earlier types tended to produce contusions rather than lacerations.

METHODS OF TREATMENT

Wounds were frequently treated with water dressings. This stemmed from the idea that the water would keep the blood vessels contracted and therefore inflammation could not follow. Some mention is made of washing wounds with a 5 to 10% solution of creosote. Stick nitrate of silver and diluted nitric acid were also used. The use of turpentine in fresh or contaminated wounds was thought to hasten repair. Dr. Chisholm observed that "...the iron styptic will control the most annoying hemorrhage." The persulphate of iron in powder and the perchloride in solution were employed in both secondary and primary hemorrhages. Other observers felt that these salts gave more bad results than good, as these drugs were often available in the field and untrained medical personnel tended to use them on every occasion.
It was further noted that the use of styptics should be restricted to a minimum, and this was felt to be especially applicable to wounds of the face.

Liquid diets were often based on beef stock. Various types of jelly stocks were used, being made from calves' feet. Arrowroot, rice, and barley were used in liquid diet items. Various types of lemonade were made, both natural and artificial components being used. As cooking equipment was often in short supply, most of the foods were stews, cooked in large pots. The ladies of the areas around the hospitals often donated various delicacies. In the later stages of the war, the food situation grew more and more critical until the available ration for weeks at a time consisted of cornbread and sorghum syrup of poor quality for both patients and staff of the hospitals.

SEVERAL TYPICAL CASE REPORTS

Case 49: (Covey) Sergeant J. L. B., Co. D, 7th Texas. Vul. sclop: (Gun shot wound) compound comminuted fracture of superior and inferior maxilla. Wounded September 3, 1864. Admitted to Blind School Hospital (Macon, Georgia) September 4, 1864. Minie ball entered the right cheek near the center... striking about the second upper molar. The three upper and one or two lower molars of that side being carried away, and the bone fractured between the lower molars and bicuspid, ranging downward and across the hard palate, producing considerable fracture of that bone, with laceration of mucous membrane and striking the molars of the other side near the line of their antagonism. The lower maxilla completely severed beyond the bicuspid, and large fragments detached and lying in the wound when patient entered hospital. September 6 - Patient compelled to take nourishment through a flexible tube and funnel; tongue much swollen, anterior fragment much displaced. September 20 - Removed fragments of bone; no sign of union. September 24 - Applied interdental splint, mental compress and occipitofrontal bandage. October 3 - Fragments in position - union taking place. October 4 - Splint easy and comfortable. Furloughed for sixty days. December 8 - Reported back to hospital; bone united; antagonism of the teeth perfect; no deformity; jaw not yet strong enough for mastication. (Fig. 3)

Use of chain saw in resection of portion of maxilla (from Chisholm's Manual of Military Surgery for Use of Surgeons in the Confederate Army).

Wounded August 31st, 1864, at Jonesboro, Georgia. Minie ball entered left cheek one half inch from angle of jaw... producing comminuted fracture of middle portion of body... Fragments of bone, etc., were removed on the field, and when the patient reached private quarters in Macon, Georgia, on September 3rd, the wound was in good condition, hemorrhage having subsided. September 5 - Swelling somewhat subsided; no signs of hemorrhage... made wax- impressions of upper teeth and of each fragment separately of lower jaw. September 10 - Applied interdental splint... the teeth forced into their places, and the whole confined, by means of the mental compress and the occipito-frontal bandage. September 11 - Teeth are well adjusted in the splint and are in perfect position; patient quite easy, and able to imbibe liquid food with facility. September 20 - Fragments in perfect position and not at all displaced, on the removal of the splint. November 1 - The General called, and I find the fragments perfectly united and the patient able to use the teeth, these being quite firm; no deformity exists, and speech is but little impaired...” (Figs. 4 & 5)

It should be noted that the patients whose case histories were just cited were treated under very adverse conditions. Atlanta had just fallen and Union forces under Sherman were moving through the heartland of the South, only a few miles from the Macon hospital.

Confederate regulations called for a detailed monthly report of each operation performed, in which the date, patient’s name, rank, regiment, company, and the operations performed, were required to be...
given. A summary was attached in which they were consolidated after the following order: Number of patients operated on - teeth extracted - fillings inserted - teeth cleaned of tartar - fractures adjusted - other operations - total number of operations performed. These reports were to be forwarded to the Surgeon General by the 5th of the following month. Very few reports of this type are found in existing files as most were probably lost in the fire when Richmond was evacuated on the night of April 2, 1865.

Throughout the history of warfare, military surgery has been one of the fields that has made progress with each conflict. The mass of material has presented the surgeon with a ready-made practice, and the more ingenious and progressive practitioners often made great improvements in treatment under these conditions.

This observation was equally true during the War Between the States. During this period, there was the abundance of clinical material, as well as the presence of new materials and techniques that allowed the development of more advanced methods of treatment.

REFERENCES

ADDITIONAL SOURCE MATERIAL

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The Careers and Personalities of Horace H. Hayden and Chapin A. Harris:

REMARKS DELIVERED UPON RECEIVING THE 1975 HAYDEN-HARRIS AWARD OF THE AMERICAN ACADEMY OF THE HISTORY OF DENTISTRY

—MILTON B. ASBELL, D.D.S.
Cherry Hill, New Jersey

Editor’s note: Each year the American Academy of the History of Dentistry presents the Hayden-Harris Award, named after the great pioneers in dentistry, to that individual who has been voted to have made outstanding contributions to the field of dental history. The 1975 award was made to the Secretary-Treasurer of the Academy, Dr. Milton B. Asbell. The presentation was made by Professor Gardner P.H. Foley, a Past-President of the Academy and himself the recipient of the coveted Hayden-Harris Award in 1971. Professor Foley’s remarks follow:

I have known Milton Asbell for forty years. I served with him in the founding of this Academy in 1950 and since then have been closely associated with him in the affairs of the Academy. Now I shall be rewarded for all that work of the Association by being granted the great pleasure of presenting to Dr. Asbell the Hayden-Harris Award of 1975.

The occasion surely invites some personal data about the recipient. Milton was born in 1913 and is now a steadily aging 62. He was awarded the D.D.S. degree by the Baltimore College of Dental Surgery of the University of Maryland in 1938; and the M.S. (in Dentistry) degree by the University of Pennsylvania’s Graduate School of Medicine in 1954. Because of his readiness and his capacity for rendering efficient service Dr. Asbell has been elected to office by six dental organizations. He is a Fellow of the American College of Dentists, of the International College of Dentists, and of the Philadelphia College of Physicians. He holds honorary membership in dental societies of France, Italy and Colombia. His co-religionists have bestowed on him many recognitions of his merit as a supporter of their activities. A strong participant in the community affairs of Camden, he was elected to the presidency of the local Kiwanis Club and to the Lieutenant-Governorship of the New Jersey District.

Granted his prominent status as a general practitioner and then as an orthodontist and in the several other areas of participation and contribution that I have cited, the dental profession especially recognizes the worth of Dr. Asbell for his contributions to its literature. Through his four books and over 100 articles that have appeared in a wide variety of dental journals, the man we are...
honoring in this presentation has accomplished a distinctly valuable impact on the members of his profession.

As the elected recipient of the Hayden-Harris Award, Milton Asbell was evaluated particularly for his exceptional services to this Academy as a founder, as an officer who has served faithfully and providentially through many difficult years, and as a stalwart advocate, by both word and example, of the worth of the Academy’s chief reasons for existence: the teaching and the writing of dental history. The veteran members of the Academy have been able to measure and appreciate knowledgeably the variety and quantity of his many contributions to the efficacious promotion of the interests of this Academy. The strength of his determination to fulfill a mission, his steady enthusiasm in aiding his many correspondents, and his exceptionally generous contributions of time and funds to his research have gained for him a rare reputation among his colleagues in this country and abroad.

By this Award to Dr. Asbell the Academy will have honored all three surviving founders of the five who met in Baltimore and Philadelphia to prepare a plan of organization for submission to those founding members who had been invited to attend the 1950 meeting in Washington.

I am deeply grateful for this recognition and it is a great honor to be singled out for commendation by my colleagues in the American Academy of the History of Dentistry; an honor doubly prized because so distinguished and admired a friend has made the presentation.

I would like to use this occasion to speak of the two benefactors of American Dentistry, Horace H. Hayden and Chapin A. Harris.

Horace H. Hayden was a son of New England, tracing his ancestors to the earliest settlers who gained fame and fortune in the Colonies. As a youth he exhibited a remarkable liking for natural history as well as the study of ancient languages. He also taught school and studied the science of architecture.

As happens so often in life, a chance meeting was to change the course not only of his life, but of American dentistry as well. The story is told of his visiting John Greenwood for dental treatment. Apparently intrigued and impressed with this unusual technology, he inquired how one may become proficient in it. He was advised to read the best books on the subject, which he did. Whether he actually became a student of Greenwood cannot, however, be confirmed. Nevertheless, we do know that his initial efforts in dentistry soon were followed by his practicing in the towns and cities of New York.

What prompted his traveling to Baltimore is not known, but the record shows that during the summer of 1800 he was employed as an assistant to Thomas Hamilton then practicing dentistry in that city. He was soon to become established on his own and practiced in such Maryland towns as Annapolis and Frederick.

Hayden rose rapidly in public confidence. He became associated with the most celebrated physicians of the city. His opinions were listened to with respect and soon he gave status to the practice of dental surgery. As early as 1804, he was contributing to the medical literature with such articles as “Ulcerated Tonsils” and “Anatomical and Pathological Observations on Teething of Infants”. Thus began a career in dental journalism which was to continue his entire life.
Firmly established, he turned his attention to the growth and development of his calling. The granting of a license to practice dentistry by the Medical and Chirurgical Faculty of Maryland in 1810 carried with it a membership in the medical society. Since he now experienced the association of men in a professional setting, it may have been the cause for him to bring together the men of the dental profession in a similar association. Thus began a frustrating search for interested dentists in the various cities along the eastern seaboard, and it was not until 1840 that through his efforts the American Society of Dental Surgeons was formed.

Hayden, as did many other dentists, participated in preceptorial training of practitioners. However, as early as 1819, he lectured on dental surgery to medical students at the University of Maryland but this was discontinued due to internal dissension among the faculty. This initial contact, however, with medical education and the conferring upon him of the honorary M.D. degree in 1837, may have led him to undertake the establishment of dental education as part of a medical curriculum. However, medical faculties found it incompatible for dentistry to be taught as a medical discipline; dentistry needed separate facilities which were not available at medical institutions. Thus it was that dental education became independent insofar as it was practical to arrange a dental curriculum that would provide the study of the biological sciences together with dental technological training.

Chapin A. Harris, born in up-state New York in 1806, was descended from English stock. He received his early training in medicine and dental surgery from his brother John after moving to Ohio. It was there that he began as a practitioner of medicine, surgery and dentistry, settling for a few years in several localities, but later traveling through the South as an itinerant, locating for a while in Fredericksburg, Virginia, in the full time practice of dentistry. By 1835 he was located permanently in Baltimore.

He loved art and literature, being friend and correspondent of many eminent literary men. A diligent reader and collector, he was known to have one of the finest libraries in Baltimore. From his establishment in Baltimore until his death, he enriched the literature of dentistry, not only with his prodigious output of scientific articles in the periodic literature but with the publication of his book, The Dental Art in 1839 which was subsequently retitled Principles and Practice of Dental Surgery. This book appeared for the next 74 years in thirteen editions — no other book on dentistry, past or present, could match this record. It truly had been the Bible of Dentistry during the 19th Century. Another of his works, perhaps lesser known, is a Dictionary of Dental Science published in 1849, the first of its kind.

He joined others in establishing a separate journal for dentistry. He was one of two editors of the first volume of the American Journal of Dental Science, Editor-in-Chief, of the next ten volumes and the sole editor for the remaining ten years of publication. His editorial work was highly praised. To Harris belongs the credit of placing dental literature and autonomous dental education upon a permanent basis.

It is well known throughout the scientific world that Horace H. Hayden and Chapin A. Harris were the founders of the first dental
college in the world — the Baltimore College of Dental Surgery. Its faculty, reflecting the dual nature of the biological and dental art and science, consisted of two dentists and two physicians. Hayden at 70 years of age became dentistry’s first Professor of Dental Physiology (as well as President) and Harris, the first Professor of Practical Dentistry (as well as Dean). By their action, they established not only institutional dental education, but elevated dentistry to a professional level.

The personalities of these two men somewhat mirror their contributions to dentistry. Hayden was a man of strong intellectual pursuits, with a proficiency in languages, a special talent for scientific disciplines and an adherence to conscientious beliefs. He was quiet and unassuming, a seeker after the truth whose sole object was to serve. Harris, on the other hand, was not only a man of science but also of the practical affairs of the world. He created order and system from the fund of dental knowledge with his publications; in like manner, he systematized and organized the affairs of the practice of dentistry. It is most interesting to observe that their respective positions on the faculty of their dental school reflected this characterization: Hayden lectured on the scientific and theoretical, while Harris lectured on the practical and factual. If there should arise any question whether one was more outstanding than the other, or that one was more dedicated than the other, or, that either should claim the priority of our interest, let us recall that such an opinion was asked of the famous Goethe, namely, whether he or Schiller was the greater poet. Said Goethe: ‘What use to discuss the matter? The people ought to be glad that two such men as we are in the world.’ So, may we say that American Dentistry ought to be glad that two such men as they were in the world.

It is thus in the annals of dental history that we honor them both. Our Academy has therefore created the Hayden-Harris Award in their memory. I deem it a singular honor and rare privilege that I should be singled out to receive this coveted award. I join the ranks of a group of the most distinguished historians of dentistry. For this I am grateful. May I thank the Academy.

(The presentation of the Award and Dr. Asbell’s acceptance speech were made at the 24th Annual Meeting of the American Academy of the History of Dentistry in Chicago, Illinois on October 24, 1975.)
Resection of Inferior Dental Nerve

—PROF. JAMES E. GARRETSON
Philadelphia, Pennsylvania

Editor's Note: As the 19th century was approaching its mid-point, the profession of dentistry was coming of age. Dental schools had been established in Baltimore, Cincinnati and several other cities; the American Journal of Dental Science, which introduced dental literature to the world now had a number of rival journals competing for the dentist's attention; organizations of dentists were springing up following the establishment of the American Society of Dental Surgeons in 1840. And as dentists became more confident of themselves and of their abilities they began to extend the horizons of dental practice.

One of the earliest to practice what was later to be recognized as oral surgery was Dr. Simon P. Hullihen who deservedly earned for himself the title of "Father of Oral Surgery" with his pioneering operations. But Hullihen did not practice this branch of surgery exclusively.

By the 1870's the specialty of Oral Surgery was firmly established by an outstanding clinician and educator, Dr. James E. Garretson. The medical profession, jealous of its prerogatives and wary lest dentists trespass on its turf doubted that such a thing as "oral surgery" even existed. The Philadelphia Medical Times on November 1, 1873 questioned whether oral surgery was sufficiently distinct and of sufficient magnitude to be worthy of rank as a specialty. So the Dental Cosmos in an attempt to enlighten its medical colleagues ran an editorial "What is Oral Surgery" in which it stated that "... no surgeon ... will deny that [lesions of the mouth] are among the most serious and fatal of the lesions of the body, and that their treatment demands a degree of knowledge and skill which renders this department the most difficult in the range of a general surgical practice. A vast amount of suffering and disfigurement, and deaths not a few, are fairly chargeable to the malpractice, or want of practice, of those who, however learned or skillful in other directions, are incompetent to treat dental and associative lesions, because of having made no special study of the subject."

James Garretson was determined that dental lesions should be competently handled and singlehandedly carried on an educational campaign among dentists to acquaint them with the techniques to be used in surgically treating the mouth and jaws.

He was born in Wilmington, Delaware in 1828, and after an irregular period of education and working as a cobbler, began, in 1850 the study of dentistry as a preceptorial student in the office of a
Wilmington dentist. Convinced that he needed more training he enrolled in the Philadelphia College of Dental Surgery, receiving his D.D.S. in 1856. He followed this with the study of medicine and got his M.D. in 1859. He began his teaching career at the Philadelphia School of Anatomy and in 1869 was appointed Oral Surgeon to the hospital of the University of Pennsylvania, thus achieving for oral surgery the first official recognition of its status as a distinct specialty of dentistry. Six years later he was appointed to the faculty of the Philadelphia Dental College where his clinical demonstrations were regarded as outstanding technical achievements and the reports of them were reprinted widely in dental journals for the edification of dental practitioners who were unable to watch Garretson operate. The following selection comes from the Dental Cosmos for February 1879; it is a more-or-less verbatim transcription of Dr. Garretson's comments to his students as he operated, and the sureness of his hand and the boldness of his stroke come through clearly in his speech. It is little wonder then that pioneering operations of this type earned for him the appellation "Father of the Specialty of Oral Surgery."

Our first case to-day is that of a patient in my private practice who comes to me from New York, accompanied by his physician, with the intention of having the nerve removed from the lower jaw. The disease, as you will conclude, is that of neuralgia. The cause of this neuralgia, as inferred both by the patient's medical adviser and myself, exists in an irritant associated with the maxillary canal; such a diagnosis being led to by the history of the trouble.

As already in our course we have employed the time of four lectures in studying this subject of neuralgia, propose to-day confining my remarks entirely to the case before us.

The gentleman who, for our benefit, is kind enough to allow of the proposed operation being done in your presence, has been a sufferer from facial neuralgia for the past six years. During this period his almost continuous paroxysms of pain have denied him all social intercourse; indeed, as he tells me, he has not found himself able to go to church in all this time over half a dozen times. To move his jaws is to excite pain; consequently, as you will conclude, he has grown into a state of taciturnity.

The trouble began by the exposure of a tooth-pulp. Following pulpitis was periodontitis. Succeeding this last is the tic-douloureux. The pain, while found over the tract of the trigeminus at large, presents itself as having its seat in the lower jaw. In this seat it is that the paroxysms always begin. Along the line of this bone is to be recognized a continuous tenderness. In this situation is to be seen always evidence of undue vascular excitement.

The conclusion arrived at in the case we consider is, that in the maxillary canal exists some source of irritation to the nerve upon which the neuralgia depends. What the exact lesion may turn out to be we will not commit ourselves by attempting to define; the nerve itself may be diseased; an inflammatory exudate may press upon and worry it; there may possibly turn out to be a foreign growth developing within the canal.

With the assistance of the gentleman's physician and my able clinical helpmates, Doctors Cryer and Dorr, I propose to cut down upon the inferior maxillary nerve and remove it. The particular
operation to be practiced is one designed by myself, and I venture
to assert that it is one which requires only to be known to
supersede every other yet employed. The merits of this operation
are simplicity as to performance, full and free exposure of the
nerve, freedom from hemorrhage, avoidance of observable scar,
and absence of trouble in the after-treatment.

Having the patient seated in the dental chair, with the body
well thrown back,—a position that answers the purposes of the
operator very well,—we proceed to place him under the influence
of the anaesthetic. . . . He is now thoroughly under the influence
of the ether we have given to him. . . . The first step in the opera-
tion is to uncover the external face of the body of the maxilla. To
do this I draw up the tissues from below the jaw until they rest
upon the bone. Next I sink the point of the knife through the soft
structure until it strikes the bone. Observe, if you please, that the
heel of the blade is in front of the facial artery, and consequently
that, as I make this long cut forward, I run no risk of cutting that
vessel. The cut completed I now introduce this retractor, and by its
aid pull the artery backward. Next two other retractors are used,
separating and holding apart the lips of the wound. . . . A
succeeding step is the removal
of a strip of periosteum cor-
responding with the breadth
of the maxillary canal. To ac-
complish this I use the com-
mon rhaspatory, which, as
you see, is here associated
with the handle of the scalpel
. . . Now I am ready for a
succeeding step, which is the
removal of the roof of the
canal. To accomplish this I
use a circular saw revolved by
the engine. First, I find a
starting-place by freely expos-
ing the anterior mental
foramen. Now I may go
backward as far as I please.
(The saw-cuts, as well as the
general exposure, are un-
derstood through the accom-
panying diagram.)

In this particular instance I am sorry to have to say that the
gluehine lacks power to allow of a rapid performance of the opera-
tion; the cord is not tight enough and the bone is uncommonly
dense. An oversight is not, however, always a bad thing; the pre-
sent one suggests the showing of a different manner of getting
away this roof. The manner is this. (The removal of the roof of
bone was completed by using a delicate chisel and mallet.)

Observe now how complete the exposure. Upon this bent
probe I lift out of the canal the vessels it contains. This is the
nerve; you who are near will remark that it is quite shriveled. The
dental artery — this is it — is really nothing but a cord. Observe
what I here lift up from the posterior part of the canal. There
evidently has been an inflammatory effusion, and this shreddy
tangle is the result. I assert, gentlemen, that never before, on the
living subject, has any man here present seen a more complete ex-
posure of these vessels. I do not hesitate to say that I am proud of
the conceiving of this manner of operating. It will not be long
before this will be the only manner of uncovering this nerve prac-
ticed. You who are familiar with the common modes employed will
be sure to agree with me.

You have heard all of you of nerve-stretching for the cure of
neuralgia. How satisfactorily can we practice it here! See, I cut the
nerve at the anterior foramen. Now I hold the end between my
fingers; I may pull and stretch at my pleasure. Certainly stretching
is an indication in the present case. It is the intention to make the
second division of the nerve at the posterior foramen. This
foramen, you will remember, is situated on the inner face of the
ramus, just below the sigmoid notch. Here is a knife I show you
that is to be likened to a hoe excavator. I introduce this instrument
into the canal, and feeling for the formen I cut off the nerve just
below it within the canal. Here I hold up before you the ablated
nerve. You will see by its length that this last cut has been made at
the point proposed.

If in doing this operation it is thought well to cut the artery,
there is not the slightest trouble in throwing ligatures about the cut
ends. In this case I have not cut the vessel. It is because I have not
cut it that the operation is unattended by hemorrhage. I now
proceed to smooth off and round the edges of bone, and par-
ticularly do assure myself that no particles remain lodged about
the wound. Without this care a union by first intention is not to be
hoped for.

To finish the operation, I bring together below the jaw the
edges of the wound, and fix the parts by a few stitches of the in-
terrupted suture. . . . Looking now upon the patient's face, you
cannot say (as sight of a wound is concerned) that he has ever been
touched by a knife. I think, gentlemen, you will not dispute my
right to be gratified with such manner of resecting the inferior
maxillary nerve.

* * * * *

The patient remained in the city from Saturday until Wednes-
day evening, when, the wound being healed, he left for his home.
No single twinge of pain was felt by him while in town. Since his
departure he has not been heard from.
Dentistry on the American Frontier

—WILLIAM S. DEELEY
Atlanta, Georgia

Unfortunately, there are very few sources relating the profession of dentistry to the American frontier. The information filters down to us in bits and pieces, mostly from old letters, personal memoirs, and an occasionally well-researched state dental history. It is from these sources that one must extrapolate to obtain a picture of the profession on the American frontier.

What motivated these dental practitioners to brave the wilds of the American frontier? The factors can be boiled down to wealth, health, and a demand for their services... in that order. The California Gold Rush of 1849 and the discovery of gold in Colorado in 1859 greatly accelerated the emigration of dental practitioners. These dentists came to the gold fields to strike claims of their own, and when their claims didn't "pan out," they settled down into a dental practice to stave off starvation. Witness this account of mining-camp dentistry in Leadville, Colorado:

The practice of Dr. Henry C. Rose, perhaps the best remembered of the early Leadville dentists, typified mining-camp dentistry. Rose arrived in Leadville early in 1879 and began his practice at the only available location — the street corner at Chestnut and Harrison — where he continued practicing for several months before he was able to find a regular office. Since most of the population worked in the mines, his "office hours" were in the evening between six and ten o'clock; and he worked by kerosene lamp light. Even after he was established in one of the typical roughboard shacks, Rose was forced to rely upon the most primitive type of equipment and supplies for several years since shipping costs into the town were prohibitive. An order of ham and eggs cost approximately twenty dollars at that time in Leadville, and Dr. Rose's dental charges were undoubtedly equally as high.³

Many practitioners moved to the West for reasons of health. Consumption (tuberculosis) was a popular cause for seeking the drier climes of the Southwest, although asthma and other respiratory ailments were also thought to benefit from the dry atmosphere. The outstanding example of this type of emigré was Dr. J. H. Holliday. "Doc" Holliday, immortalized in history and deified in the pulp magazines for his participation in the shoot-out at the O. K. Corral, moved from Atlanta, Georgia to Texas — under the advisement of his physician — to delay his eventual death from consumption.²

Lastly, dentists moved to the West in response to demand for their services, but this was the least-motivating factor of the three. The first dental college in the United States didn't open its doors until 1840, and while new schools which were being founded and while preceptorships...
were producing more and more dentists, the demand in the East was still not very great. The demand in the West, however, was virtually nonexistent, because there simply were not enough people!

Although there are reports of a dental practitioner in the area of Texas as early as 1806, it is interesting to note that even this Dr. Lartigue’s practice was not exclusively a dental one. This was a phenomenon of the frontier. Due to the lack of trained personnel, most pioneers did double duty. The needs of the frontiersman insofar as dental services were concerned, were simple; if he had an "acher," he had it removed. In the early days, the extraction of the offending tooth might be performed by a blacksmith, barber, druggist, or physician.

But the physician bore the brunt of dental duties in the early days of settlement. Physicians emigrated to the West more readily than the dentists, because the demand for their services was higher. But many physicians found themselves performing double and triple duty in their new practices, tending to the medical and dental needs of man and ministering to animals as well. In terms of the population’s demand, first came the physician; then the relatively untrained dental practitioner, the “toothdrawer;” and finally the true dentist.

The demand shaped the types of dental practice seen in the West. They can be categorized as settled and itinerant. The itinerant dental practice was by far the more common. Residential practices required an urban environment with a good drawing population, something the West would lack for several decades.

Like the circuit-riding preacher of colonial days, the frontier dentist would ride a “circuit,” either by horse or buggy, depending on the terrain to be covered. Most dentists would select one town out of their circuit as home base, usually one of the southernmost towns, where they might winter in a modicum of comfort.

If the town had a newspaper, the dental practitioner would advertise his arrival in the town and his expected length of practice in that town. In the smaller towns, handbills and posters seemed to do the job adequately. Still other dentists staged dances as a means of getting the townspeople together and advertising their services. Advertising was a necessary means of communication on the frontier.

Having notified the people of his presence, the itinerant dentist would usually rent a two-room suite in the town hotel, with one room serving as an operatory, and the other as a sleeping room. If the town was a "boom-town" or a railhead, the dentist would count himself lucky to get a single room for his practice.

This was typical of a "residential circuit," where the practitioner permanently resided in one portion of his appointed rounds. In the early 1800’s, a practitioner from the edge of the frontier, Louisiana, for example, might ride into the Texas territory and spend his summer riding a circuit, to return to his home before the first snowfall.

What kind of equipment did these "tumbleweed" dentists possess and how did they operate? The larger equipment — the chair, the fancy unit, and the lamp — quickly fell by the wayside. In the first days on the frontier, the dentistry was predominantly the practice of extraction, which needed no elaborate equipment. As the West became more settled, other types of dentistry were practiced, and more sophisticated
equipment was required. Still, the itinerant dentist had little room for equipment which couldn't be packed into a saddlebag or a suitcase.

The early practitioners usually carried a complete kit of instruments, ranging from forceps and elevators to amalgam carvers and gold foil condensers. They also carried an elaborate line of dental materials: dental alloy, mercury, gold foil, cements, plasters, vulcanite, artificial teeth, and facings for bridgework. The itinerant practitioner usually worked many miles away from the nearest railhead, and supplies from the Eastern manufacturers were generally slow in coming. Thus necessity drove these dentists to carry their supplies with them.

At the turn of the century, dentists in the West, like Will Frackleton, the original “Sagebrush Dentist,” carried considerably more equipment in their rickety buckboards. A foot-powered dental engine, a lathe, and a kerosene-fired vulcanizer expanded the capabilities of these itinerant practitioners.

The demand for goldwork complicated the life of the itinerant dentist, for a simple method of casting had not yet been discovered, and much crown-and-bridgework was hammered out on the blacksmith's anvil. The gold frequently came from five and ten dollar goldpieces, which were handy and relatively pure.

Dental practitioners would place their patients in the nearest available chair, such as a kitchen chair, a hotel chair, or even a blocked-up rocking chair, if necessary. Most dentists operated by natural light or, if necessary, by kerosene lamps. If a dentist found himself setting up an office on a more permanent basis, he would frequently make a deal with the local barber to rent a chair, since freighting a dental chair from the East was astronomically expensive and would take months to arrive. The barbershop chair seemed to serve the needs of the average practitioner quite adequately.

The improvements in local anesthetics were slow to reach the Western practitioners, and the remoteness of some frontier settlements made it nearly impossible for practitioners to obtain better pain-killing drugs. Necessity was the mother of invention, and many dentists anesthetized their patients with heavy doses of whiskey, cocaine, and other depressants. On the whole, whiskey seemed to be the most popular anesthetic.

How did the frontier affect the quality of the dentistry put out by these practitioners? Did being away from the watchful eyes of organized dentistry and state dental practice acts lead to poor, even unethical, dentistry? For the majority of the Western practitioners, the answer is no. These men labored under very trying conditions — lack of equipment, lack of dental supplies, lack of proper anesthetics — and under the circumstances, they performed their tasks adequately, if not admirably.

The policing action of the state dental societies and the newly-formed states themselves shortly put an end to many unethical dental operations. But there was a vast amount of territory to be policed by these new organizations and they simply didn’t have the manpower to check out each story of unethical practice which came to light. Indeed, there were a few dentists who didn’t want to be bothered with taking
the new State Board examinations. An excellent example of this feeling is a letter from W. J. Watkins to his brothers:

Denver, Colo.
12/8/1898

Dear Brothers:

... I got here the right day for my business transaction. If I had been here one day sooner I would have had to stand an examination which I could not possibly pass. One of the board showed me some of the examination questions and they were cokers. I paid the secretary and took his receipt (which is unlawful on his part) and will have to stand an examination in time. I can practice until that time. He, the sec., is doing crooked work therefore I feel safe... $100.00 to $500.00 fine or six months to 1 yr. in jail or both for practicing in this state without a license. I have the pinch on this dental examining board. (They think I don't know it) and I am feeling very comfortable. Love to everybody and my dog Joe.

Your affect. brother
W. J. Watkins

Occasionally, Dr. Frackleton slipped one by the ethical Wyoming physicians, who felt it their duty to bring their straying dental brethren back into the flock:

(Poker) Nell arrived punctually next day with something held tightly hidden away beneath her smart little cape.

"You sure put it over high, wide and handsome last night and dealt 'em a hand from all over the deck," she smiled. "Now let's get down to what I want done."

She extended her hand from under the cape. In it were two diamond rings, containing stones that weighed possibly a half-karat each. They were an excellent match, and as I looked at them in astonishment she asked eagerly:

"Will you set these in my front teeth?"

"In 'em or between 'em?" I temporized.

"In 'em, if you can make them stay put... Oh, I can afford it. I took the boys to the cleaners these last few nights."

I examined the rings thoughtfully. Nell misinterpreted my silence.

"A dentist back in Kansas City gave me the high hat on a job like that once. Said it wasn't ethical, professional, or something. You're not going to throw me down too?"

I shook my head, "No, I'm not old enough yet to tell women what to wear or how to wear it... But this won't be an easy matter. It may hurt a lot."

(Soon) the ladies of Casper got their eyeful and the town doctor was horrified. This doctor was young and used to drop in at the hotel for a friendly chat, but he never could get used to our advertising methods, and his visit usually ended in a sermon on professional standards. He said we were most unethical, and I guess we were, but I never argued the matter.

Most of these young doctors originated at Harvard and came West, well primed with ethics and enthusiasm, to a population accustomed to getting along without doctors. The old ladies had their pet herb medicines and attended to bringing babies into the world. They didn't relish any youngster fussing around their domain, despite an impressive diploma.
Yet it is but fitting that we give tribute to these men, who braved the rigors of the frontier, for whatever reason, and remained to minister to their fellow men. We can only marvel at their pluck and ingenuity.

REFERENCES
7. Frackleton and Seely, *op. cit.*, pages 100-103. (Condensation is the author's own.)

(This paper was the winner of the First Prize in the 1975 Bremner Essay Award Competition conducted annually by the American Academy of the History of Dentistry among students of dental schools in the United States and Canada. Mr. Deeley is a student at Emory University School of Dentistry. His address is 2199-9 Briarcliff Road, N.E., Atlanta, Georgia, 30329.)
Notes and Queries

J. BEN ROBINSON RECOGNITION PROGRAM

On April 9, 1976 a special program was held at the Medical Center Auditorium of West Virginia University, Morgantown, West Virginia, honoring one of the greatest men American dentistry has produced. The American Academy of the History of Dentistry is especially important to this person, for it was under his guidance and inspiring leadership that this organization was launched, and he was named its first President.

The program was sponsored by the West Virginia University School of Dentistry, the Alumni Associations of both that school and the West Virginia Section of the Baltimore College of Dental Surgery Alumni Association and they jointly presented to the West Virginia school a bust of Dr. J. Ben Robinson which will be permanently displayed at the entrance to the clinics of the School of Dentistry in recognition of the crucial role Dr. Robinson played in the establishment of the school.

Dr. J. Ben Robinson was born at Craigmoor in Harrison County, West Virginia, April 16, 1883. After receiving his early education in the county's rural schools and Fairmont Normal School, he taught elementary school from 1902-1905. Then after a stint as a high-school mathematics teacher, he began his formal education in dentistry at the Baltimore College of Dental Surgery, and received his D.D.S. *Summa Cum Laude* from there in 1914. He has since received honorary Doctor of Science Degrees from Temple University in 1943 and Marshall College in 1952.

Dr. Robinson was named Dean of the Baltimore College of Dental Surgery in 1924 after having held a variety of teaching positions for seven years. One of his favorites was Dental History and Dental Ethics which he taught from 1931 to 1953. In 1953 he retired as Dean and became Dean Emeritus, but this retirement was short-lived because shortly thereafter he was appointed Dean of the new West Virginia University School of Dentistry. He accepted the challenge of helping plan a new dental school for his native state, and when basic construction had been completed in 1958 and two classes admitted, Dr. Robinson once again retired.

For more than half a century Dr. Robinson has played a significant role in organized dentistry, having served as President of the American Dental Association, the American Association of Dental

![Dr. J. Ben Robinson (right) being presented with the first Hayden-Harris Award of the American Academy of the History of Dentistry in 1967 by Past-president Gardner P.H. Foley.](image)
Schools, the American College of Dentists, the American Academy of the History of Dentistry and the Maryland State Dental Association.

His contributions to the literature have been extensive, and he has contributed several chapters to dental textbooks. In the field of dental history he has been an avid researcher and has developed an exhaustive study of the extent and character of dental practice as it existed in the 13 original colonies. He thoroughly investigated the life of Benjamin Fendall who was the first American-born dentist and the only known colonial dentist to have received pay from the Federal government for professional service rendered to troops during the Revolutionary War.

Because of his contributions to his profession he has been honored by his peers on many occasions. He received the Alpha Omega Fraternity Medal in 1941, the Alfred C. Fones Medal from the Connecticut State Dental Society in 1942, the John R. Callahan Medal from the Ohio State Dental Society in 1944. In 1946 the United States Congress honored him with a medal for his work on behalf of Selective Service. The Maryland State Dental Association named him to represent that state as its most distinguished member in a special Mid-Century Issue of the Journal of the American Dental Association in 1950 and the American College of Dentists presented him with the William J. Gies Editorial Award in 1956. He was named "Dentist of the Century" by the Maryland State association in 1959 and the American Academy of the History of Dentistry was proud to honor him as the first recipient of the Hayden-Harris Award in 1967.

In 1970, on the occasion of the fiftieth anniversary of the American College of Dentists, that body presented him with a special Award for Excellence in Dentistry, the only one of its kind ever presented by the College.

The Board of Trustees of the American Dental Association in 1972 recognized Dr. J. Ben Robinson by awarding to him the second Distinguished Service Award. The citation accompanying the Award reads: "In his 89th year, Dr. J. Ben Robinson exemplifies almost nine decades of service with excellence in five careers: in education as a teacher and administrator; in research; in public service; as an author; and as a contributor to learned and scientific societies. It is not possible to catalog in this report his many achievements nor the recognition that has come to him because of them."

The principal speaker at the dedicatory ceremony was Dr. Kenneth V. Randolph, Dean of the College of Dentistry, Baylor University, Dallas, Texas and the Vice-president of the American Academy of the History of Dentistry. Also representing the Academy at the festivities were two other members: Dr. H. Berton McCauley and Professor Gardner P.H. Foley.

WANT-ADS: COLLECTORS OF DENTAL MEMORABILIA

Editor's note: The Academy has a number of collectors of old dental equipment and other artefacts. In response to requests, this section will carry notices of items wanted either for sale or purchase. There is no charge to members of the Academy for the insertion of these ads.
For all others the charge will be determined by the length of the item; details are available from the Business Manager.

Would like to hear from all who collect dental memorabilia or who have set up antique dental offices. Am interested in comparing and establishing fair values. Also interested in buying or trading old equipment, instruments, etc.

Richard A. Glenner, D.D.S.
3414 W. Peterson Ave.
Chicago, Ill. 60659
Phone: 312-588-8333

Would like to add to my collection of antique dental instruments, books, etc. Also have duplicates to sell. Am interested in corresponding with other collectors of antique dental memorabilia.

Erich A. Witzel, D.D.S.
16 Church Street
Montclair, New Jersey 07042
Phone: 201-744-9077

Wanted—dental switch board (Ritter or Electrodent); four-legged dental chair (Morrison or Wilkerson); American Doll House cabinet; Ransom & Randolph cabinets. Will buy or trade.

Samuel S. Wexler, D.D.S.
11102 South Artesian Ave.
Chicago, Ill. 60655
Phone: 312-238-2234

HOMAGE PAID TO DR. WILLIAM T. G. MORTON

A program of great significance to dentistry took place last fall in the little town of Charlton, Massachusetts. There, on the 16th of October, 1975, under the sponsorship of the Massachusetts Dental Society together with the Charlton Historical Society, a memorial plaque was affixed to the boyhood home of Dr. William Thomas Green Morton, the dentist who gave the world’s first successful demonstration of ether anesthesia on October 16, 1846.

The program, which began at the Dexter Memorial Town Hall in the city of Charlton, was part of that community’s bicentennial program. It started with a Hollywood movie which dramatized the life
and discovery of Dr. Morton. This was followed by reading of essays by Massachusetts students concerning Dr. Morton, and the awarding of a prize for the best essay. Among the dignitaries attending that portion of the program were Dr. Robert Shira, President of the American Dental Association and Dean of the Tufts University School of Dental Medicine; Dr. Franco Dinale, President of the Massachusetts Society of Anesthesiology; Dr. Gerald Shklar, Professor of Oral Pathology, Harvard School of Dental Medicine and a member of the American Academy of the History of Dentistry; Dr. Robert Ouellette, an anesthesiologist; and Dr. H. Martin Deranian, Past-president of the American Academy of the History of Dentistry.

Senator Edward M. Kennedy speaking at dedication in front of Dr. William T. G. Morton’s home.

At 3:00 p.m. the meeting was reconvened at the house on Cemetery Road, outside Charlton, which had been Morton’s home from 1827 to 1836. There a plaque was affixed to the house commemorating the outstanding contribution made by this great benefactor of mankind, and this was accompanied by a dedicatory address by Dr. Deranian, as well as remarks by Dr. Shira and several members of the Charlton Historical Society. Enhancing the afternoon was an address by United States Senator Edward M. Kennedy of Massachusetts concerning this illustrious dentist from his state, who gave his epochal demonstration on that exact date 129 years ago.

REMARKS BY DR. H. MARTIN DERANIAN, PAST-PRESIDENT OF THE AMERICAN ACADEMY OF THE HISTORY OF DENTISTRY AND ASSISTANT CLINICAL PROFESSOR OF ORAL HEALTH SERVICE, TUFTS UNIVERSITY SCHOOL OF DENTAL MEDICINE.

William Thomas Green Morton was born in Charlton, Massachusetts on August 8, 1819 in a farmhouse which still stands about two miles from this site. The nearest school house, a dilapidated structure, was more than a mile away across the field, and inaccessible in winter. His father, who had been denied one, determined that his
son would receive a proper education, and this struggle for better schooling dominated the boy’s early life.

When William was 8 years old he recalled: “We moved to the little village of Charlton where I had the tolerable opportunity for attending school during the winter.” Thus in 1827, the Morton family moved to a stately home which William later described as “a beautiful estate.”

William’s boyhood was spent largely in performing various tasks about the farm. He helped to make maple syrup during the springtime. In the summer he sheared sheep, and during the autumn he gathered in the harvest. Only in the winter could he indulge in sport; he became a highly proficient skater and horseman, as well as a hunter.

His wife once commented that his companions nicknamed him ‘doctor’ because he prescribed pills for them made from elder tree and bread. Once he forced a concoction down his young sister’s throat, nearly choking her.

Here William Morton lived a happy contented life, one upon which he would often look back with grateful remembrance. He was bold, adventurous, healthy and athletic, and as all boys are, prone to mischief, but never with any tendency to malice.

At the age of 13, he entered Oxford Academy and lived with the family of a Dr. Pierce, a physician and old friend of his mother. This spurred him on in his ambition to study medicine, and his father urged him, too, saying “To be a doctor was to be somebody, and to have a respected place in the community.”

At the nearby cross-roads his father had opened a village store. Here William worked, but still found time to read a lot and explore the surrounding hills and woods.

After a summer at home he was sent to Northfield Academy. However, he was a sensitive boy and was so homesick there that his father took him out of that school and placed him nearer home, at the Leicester Academy. He spent nearly two years there, and was described by his classmates as tireless in his efforts to acquire knowledge on all subjects. He was very happy there, and would have remained to finish his education but for a sudden reversal in his father’s fortunes.

Up until then it had been boom time in America. His father had broken away from the land, ran the village store, and launched out into other business ventures. However, the boom ended abruptly, and in the ensuing financial crisis, his father lost all his money and had to take his son out of school. Dr. Morton later said, “I was there (at Leicester Academy) when the news of the failure of my father - utterly unexpected by his family - reached me and ended my school education. My father lost all his property, our family were scattered and for several years had no home together.”
So ended his 9 year stay at this beautiful home in 1836, when he was 17 years of age. Already one third of his life was gone and he would never again know the peace and tranquility which these surroundings inspired. Gone, too, was his dream of being a physician.

Nathan Rice, who published his biography of Morton, Trials of a Public Benefactor, in 1859, wrote:

The character of the scenes in which we are brought up impress themselves upon our souls. As is the place, so is the man.

Morton grew up "... amid these wholesome surroundings gaining the strength of mind and body which was to serve him in good stead through the severe strains of the later years." Here he learned perseverance, the quest for truth and justice, and an inclination toward the healing arts.

All of these traits came to fruition on the morning of October 16, 1846, hardly ten years after he left this house. On that day he gave to the world the priceless gift of freedom from pain during surgery. In return he became heir to poverty, persecution, heartbreak, and intense suffering. He said: "It were better for me, infinitely better for me and
my wife and children, better for me and them in all respects, if I had buried the secret of the victory over pain in my breast forever."

Senator Walker addressing the 32nd congress prophesied:

His most enduring reward will be in the undying gratitude of posterity, and a supreme happiness flowing from gratitude to God, for being made the medium of such a boon to his creatures.

We can never fittingly repay him for his contribution to mankind. But we can pause in our busy schedules and remember and pay homage to this magnificent son of Charlton.

H. MARTIN DERANIAN, D.D.S. is the Past President of the American Academy of the History of Dentistry. Currently, he is Assistant Clinical Professor of Oral Health Service at Tufts U. School of Dental Medicine. Dr. Deranian has lectured extensively and written on dental history.

DR. RUSSELL ALEXANDER DIXON: AN OBITUARY
(1898-1976)

Boston, Massachusetts

Others are chronicling the deeds and achievements of this great educator and administrator. I wish briefly to extol the far-reaching influence that Dean Dixon had on my life. Howard University College of Dentistry, the Health Professions generally, the Dental Profession in particular, and Society in general.

It was through the encouragement of Dr. Raymond Hayes, supported by Dean Dixon, that I decided to dedicate my life to education and research with Dental Education augmented by part time practice as my primary focus. Both of these men served as excellent role models and advisors over the years. Dean Dixon provided the opportunity to pursue graduate and specialty education by making the necessary arrangements with the University of Illinois and by arranging all necessary financial support.

It was Dean Dixon’s unswerving belief that clinical care of patients should be comprehensive and based upon the highest level of undergirding and competency in the basic sciences. He was especially anxious that clinical teachers seek graduate training in the basic sciences in addition to training in a specialty. He voiced these beliefs in
the mid-thirties and eventually saw them realized by selecting and financially supporting talented young dental graduates over the next 30 years. Because of Dean Dixon’s vision and support it was my privilege and honor to become the first black dentist to receive the Ph.D. degree. This has favorably affected my life and life style even to this day.

The history of Howard University College of Dentistry has permanently benefitted by the remarkable contributions Dean Dixon made during the 35 years that he served as Dean. The school progressed from a pitifully small, unaccredited, and almost unknown status in 1931 to a large, fully accredited, nationally and internationally known and respected resource to dental education and practice when he retired in 1966.

The specific achievements of Dean Dixon are reported in another article. Nevertheless, his ability and success as a fund-raiser for graduate education of the faculty and his rare gift for recognizing, recruiting and motivating young talented doctors to dedicate their lives to dental education and research deserve special mention. It is through the lives and accomplishments of these individuals and the lives and service of their students for countless generations to come that the life and philosophy of Dean Dixon will live on in perpetuity and increasing by geometric proportions as “each one teaches and serves many.”

Dean Dixon’s influence on the Health Professions generally and society at large can be selectively symbolized by his service as a member of the Board of Regents of the National Library of Medicine, member of the Board of Overseers of Harvard University and by his prodigious contributions to his church.

We have all benefitted greatly by the inspirational life of this giant among educators. I fully agree with the Honorable Judge Archibald Carey of Chicago who proclaimed at Dean Dixon’s funeral that “A PRINCE HAS FALLEN!”

DR. HENRY, a member of the American Academy of the History of Dentistry, is Dean Emeritus of Howard University College of Dentistry and is currently Chairman and Professor, Department of Oral Diagnosis and Radiology, Harvard School of Dental Medicine, Boston, Massachusetts.)

A HISTORIAN LOOKS AT THE SAD STATE OF TEETH IN THE AMERICAN COLONIES

Maids of America, who gave you bad teeth?
Answer—Hot souplings and frozen apples.
—Poor Richard’s Almanac

Professor Kalm of Sweden, who traveled through the New World in the early years of the eighteenth century, from 1748 to 1751, observed in his book Travels in North America both the “…precocity and premature old age of Americans.” He noticed that although young Americans frequently had “…sprightly and ready answers to
questions that are proposed to them, so that they seem to have as much understanding as old men... they do not attain to such an age as the Europeans.”

What particularly puzzled him was the early decay of teeth in the colonies. Although now considered to be the “paradise” of dentists, America was afflicted with chronic toothache early in her history. “Girls, not above twenty years old, have frequently lost half their teeth,” noted the eminent Swedish traveler. What caused this widespread dental woe, he pondered? It couldn’t be the climate since the Indians seemed to have so much better teeth “... keeping them in fine white condition as long as they live.” Perhaps the American habit of daily tea drinking might cause the caries? But he ruled this conjecture out; the colonists had poor teeth before tea had even been introduced on a wide scale into the colonies. Moreover, some tea drinkers had good teeth while some abstainers had multiple carious lesions and infections. Fruits and sweetmeats were also ruled out by the inquiring professor for similar reasons. Finally, he concluded that the reason American teeth decayed was because Americans were in the habit of eating soft and warm food. Obviously, he felt, such fare would preclude the vigorous use of the teeth.

James Parton, the noted historian, mulled over this question too, and ventured the following hypothesis for the alleged poor state of early American choppers and grinders: “In the hurry of settling a new country, too, the art of cookery is lost, and the frying-pan bears sway for three generations, causing at length universal indigestion, and raising dentistry to the rank of one of the fine arts.”

—ABRAHAM BLINDERMAN, Ph.D.
Levittown, New York

The 24th annual meeting of the American Academy of the History of Dentistry was held conjointly with the Working Group on Dental History of the Fédération Dentaire Internationale on October 24, 1975 in Chicago, Illinois. The Working Group is a subsidiary of the Committee on Education of the F.D.I. and is headed by Dr. Ivo Vinski of London, England. Last minute changes in his plans prevented Dr. Vinski from attending the meeting, but the following message was read to the group by Dr. J.A. Donaldson, the Editor of the British Dental Journal.

Mr. President, Ladies and Gentleman:
My gratitude goes to Archie Donaldson for his kindness in agreeing to read my message to you.
Owing to unforeseen circumstances, I am regretfully unable to be with you today. It is a great disappointment to me and I am very sorry.
For someone who is as interested in dentistry and its history as I am, there is hardly a place more attractive than Chicago. More than one hundred years ago its dentists made it the cradle of modern dentistry.
Chicago is not only the seat of the American Dental Associa-
tion, the biggest in the world, but the masters of its dental schools have made it the Mecca of dentistry. Who hasn't heard of Doctors Black, father and son, Noyes, Brophy and Logan to mention but a few. There are not many places where there are as many dental memorabilia to see as in Chicago.

I am sure that the organizers of this meeting have done all they could to make it a memorable one and have assembled a great number of items to make the exhibition, which you will see around you, of great interest.

Once more, may I say how sorry I am not to be with you and in my absence send you my best wishes for a very instructive and pleasant day.

Ivo Vinski, Leader
Working Group on Dental History
Committee on Education
Fédération Dentaire Internationale
Fascinating is the only word to describe this book, a history based on the Charles King Collection of Anesthetic Devices of the Association of Anesthetists of Great Britain and Ireland. Dr. Bryn Thomas has compiled from the specimens available a comprehensive, although not "all-inclusive", chronological survey of the development of anesthetic devices dealing with inhalation, from 1846 to 1940. Although the body of the book deals with the devices themselves—their conception, modification and remodification—concise historical introductions are also provided adding perspective and continuity. Dr. Thomas does not lose sight of the fact that behind each new development, as well as failure, was a man, either well known such as Morgan, Colton, Snow or Priestley, or lesser known such as Hirsch, Phillips or Schimmelbusch. Dr. Thomas extracts from out of the pages of obscurity the very people who helped make anesthesia an art.

The book is divided into seven sections dealing with apparatus for the production of the anesthetics themselves, such as ether, chloroform and nitrous oxide, as well as administration devices such as face masks, endotracheal intubation and vaporizers. The largest section deals with nitrous oxide and although many of the contributions throughout the book are made by physicians and "anesthesia experts," it is in this section that the many contributions made by the dental profession are duly noted. In this section we are taken from Priestley's discovery of nitrous oxide through the 1840's and Horace Wells' unsuccessful public demonstration in Boston. The enthusiasm for this most important "vapour therapy" was carried on by Gardner Colton and Thomas Evans, whose demonstrations in New York (1862) and London (1868)
respectively, led to the ultimate acceptance of nitrous oxide as a useful induction agent. Pioneering efforts in the manufacture of metal cylinders containing compressed oxygen and nitrous oxide were made by Heidbrink, Hillischer, Teter and S.S. White, all of whom were dentists. They utilized methods advocated by Frederick Hewitt in 1893 to further refine a nitrous oxide-oxygen anesthesia apparatus. The author leads us through the maze of devices, inhalers, bags, stopcocks, valves, gauges, and on and on, until we arrive at the more modern McKesson and Walton nitrous oxide-oxygen machines of the 1920’s and 30’s. The section ends with the appearance of the Connell Ball Bearing Flowmeter of 1937, a forerunner to similar devices accompanying today’s modern anesthesia machines.

The book itself is quite attractive. The bold printing on fine clay paper makes for fairly easy reading. Its 200 illustrations, photographs and drawings with more than 58 in the nitrous oxide chapter alone, affords one a most fluid and enjoyable trip through this rather voluminous collection of anesthetic devices. Each section ends with an extensive bibliography thoroughly covering the aspects of anesthesia discussed. All in all, it is a totally engrossing and delightful experience.

—Reviewed by Jerry Herschfeld, D.D.S.
Lindenwold, New Jersey

The History of Dentistry in the Republic of Texas, 1836 - 1845. By Ernest Beerstecher Jr., B.S., M.A., Ph.D. 106 pages. Published in 1975 by the Dental Branch of The University of Texas at Houston for its students, faculty, staff, alumni and friends as a contribution to the objectives of this institution in the areas of education and research.

Texas as a Republic had its trials, hardships and struggles and these were shared by the early dentists. They came to the Republic looking for adventure and a new home. Some found conditions too severe and returned to the eastern states where conditions were more stable. A few remained to make a life, build a dental practice and help Texas become a state.

The greatest influence in dentistry came from France. A Frenchman named Don Pedro Lartigue was the first dentist in Texas and the first to be licensed, that occurring while it was still a Spanish Colony in 1806, at San Antonio.

Even after Texas became a Republic in 1836 there were no laws regulating dentistry and conditions were chaotic. Dentistry was performed by apprentice trained surgeon dentists, physicians, preachers, barbers, blacksmiths and charlatans. They all advertised their qualifications and recommendations, if dentistry were their main vocation.

Vituperation developed early in the 19th Century on the part of dentists against the physicians, because the trained dentist resented physicians extracting teeth without training.

The pioneers of the Republic had little or no appreciation for dentistry except for the relief of pain. Only a few people, mostly women, sought dental care for cosmetic reasons.
Of course there were no college trained dentists in the Republic, for by 1845 there were only 22 in the entire nation.

Practice management meant surviving as a dentist and that was difficult. Dentists came and went, ever on the move to find a place they could make a living, and often dentistry was only an avocation. Dentists were itinerant, encompassing several towns in their rounds, and they traveled by horse and buggy.

It taxes the imagination to picture the dental office of that day. It may have had a chair of some sort, a spittoon, possibly a cookstove, a small cabinet of dental tools made by the dentist or blacksmith. However, there was always a workbench, to fabricate gold plate prosthesis, for the dentist was a craftsman.

It is difficult to fathom the economic conditions during the time of the Republic, following the great American depression of the 1830's. Gold and silver coins were very scarce and paper money of the Republic was worth about half of its face value. Consequently, dental supplies were hard to obtain. Ivory was used by some, from which they carved teeth. Gold plate and wire had to come from Philadelphia. Local drugstores carried some supplies that dentists could use.

A biographical directory of the seventeen dental practitioners of the Republic is given by Dr. Beerstecher, listing them alphabetically. The research he put into this book is astronomical; he gleaned bits from newspapers of that day, as well as from books and life sketches, obituaries, family records and government records.

References are listed by chapters, there being 266 in the 9 chapters. A tremendous amount of work went into this splendid, though small, volume of dental history.


Ciertas Practicas Odontologicas de los Aborigenes del Nuevo Mundo.

Dr. Febres-Cordero, a distinguished historian of Latin American odontology has just published this small book which was originally presented as a paper before the Second Venezuelan Congress of the History of Medicine on October 7, 1974.

Entitled in English “Certain Odontological Practices of the Aborigines of the New World,” the book is divided into two parts. The first part deals with a variety of interesting topics such as Plastic Surgery of the Lips, Bleeding of the Tongue, Staining of the Teeth as well as Intentional Exodontia for Ritual Purposes, all of them related to the habits and customs of the New World’s early inhabitants. These topics, even though they were not properly the practice of dentistry, were nevertheless related to the teeth and their associated structures. The first part also deals with the use of teeth as amulets, trophies and items of personal adornment. It also attempts to explain the practice of dental mutilations which apparently served as status symbols or as
identifying personal attributes.

The second part of the book is devoted to the practice of dentistry itself, and encompasses not only primitive dentistry but also the use of sophisticated dental prostheses as well as dental implants. Thus, the aborigines were interested not only in simple operative techniques but in other aspects of dentistry which are today the subjects of dental specialties.

A large number of excellent photographs and line drawings illustrate this book of Dr. Cordero’s, who, along with other Latin American dental historians such as Caceres y Cifuentes in Guatemala, Fastlicht in Mexico and Aguirre and Vasquez in Peru have contributed greatly to our knowledge of early American dentistry. They have not only shed light on the dental practices of these aborigines who lived south of the Rio Grande, but have increased our knowledge of what their prosthetic appliances and instruments were, as these were found in ruins and excavations. From all of these we have been able to deduce their advanced surgical techniques.

Dr. Febres Cordero is a member of the American Academy of the History of Dentistry, and the Academy wishes to acknowledge the publication of this book in Spanish as a positive contribution to dental history and congratulates him on its publication.

—Reviewed by Cesar A. Mena, D.D.S.

Miami, Florida


There are interesting tid-bits scattered throughout this book. The fact that they are scattered is precisely the major pitfall and this work has the character of a gallimaufry. Its research value suffers because there is no index, no bibliography, no footnoting, nor appendix. The author also makes the mistake of repeating details for the sake of making the book appear complete. An example of this is the way all of Persian medicine is covered in three sentences:

In ancient Persia medicine was practiced by the worshippers of Mazda only.

Treatment consisted of purification, prayer and rituals.

They lacked knowledge of anatomy and their concepts of anatomy and their knowledge of diseases were largely religious and magical.

The author, who is unfortunately now deceased, would have done much better to concentrate on the major concepts and the thumbnail biographies which he was able to write so well. In fact, although the book gets off to a slow start, it reaches a galloping pace beginning with his section on eighteenth century medicine. In addition, it is unclear to exactly which audience he addresses himself; at times he seems to be writing for the general public and at times for the serious student of the history of medicine.

One part of the book is devoted to Middle-eastern medical history, and covers the Assyrian and Arabian physicians. (As an aside, when the author referred to Albucasis as Abul Cassis he started me on
some independent research, which is always a good sign. Weinberger reported the more complete appellation of Abu’l-Qasim’ Khal ibn Abbas Al-Zahrawi, etc... It turns out that Abu or Abul means “son of”, hence, “son of Cassis” is the actual name.)

A number of dentally pertinent points are included in the book. The author alludes to Egyptian toothists, Captain James Cook’s victory over scurvy, and Edward Jenner’s apprenticeship to John Hunter. Included in the discussion concerning toothache treatment in ancient times are such things as ipsolateral cauterization of the leg; gargling with newborn foal’s urine to which a grass known as jeddeh had been added in order to cure decay of a root. Burnt goat’s horn and horn of a male deer were cited as abrasive tooth powders. A unique cure for snoring is quoted: placing the tooth of a male stallion under the offender’s pillow.

Many of Dr. DeBaz’s folk remedies are new to me and do not appear in Leo Kanner’s classic text Folk Lore of the Teeth, and thus our store of knowledge has been added to, in small measure.

—Reviewed by Michael D. Kurtz, B.A.
Hollis, New York


Several studies in the recent past have thrown light on the state of the oral and dental health which existed in ancient Egypt, as well as the lamentable lack of any advanced practice of dentistry commensurate with the remarkable achievements of those people in the field of civil engineering. Two of the books on this subject were reviewed in recent issues of the Bulletin. (The House of Life: Magic and Medical Science in Ancient Egypt by Paul Ghalioungui, June 1974 and X-Raying the Pharaohs by Harris and Weeks, June 1975.) These works provided a survey of the nature of medical practice of the time — what little dentistry being practiced being a specialty of general medical practice. The latter book showed that royalty was not spared the ravages of oral disease any more than was the pauper, and the extensive radiographic studies of the Pharaohs showed that these ravages were severe indeed.

With the current admirable work by Dr. Quenouille, which was written as a doctoral dissertation in fulfillment of the requirements of the French degree of Doctor of Dental Surgery, our knowledge of the state of oral health among the mass of the ancient Egyptian population has been immeasurably expanded and solidified.

Dr. Quenouille, who is an active member of the American Academy of the History of Dentistry, spent a number of years in Egypt studying many hundreds of skulls of disinterred ancient inhabitants of that land, and supplemented this with examination of skulls in numerous European museums.

He begins his dissertation with a lucid discussion of life in early
Egypt, of hieroglyphology, of embalming techniques and entombment customs. He follows this with a collection of statistical data of all the material he has studied, allowing him to form definite supportable conclusions concerning the size of teeth and jaws, the prevalence of impactions, the existence of abscesses and other pathology.

He comes to some interesting conclusions: caries was much less prevalent in the ancient population than in the modern and this he attributes to a diet lacking in refined carbohydrates. To back up his contention, he goes into a lengthy study of the food habits of the ancient Egyptians, buttressing his arguments with many fascinating photographs depicting food preparation in those days, such as butchering and fishing. He does conclude, however, that the severe attrition evidenced by most specimens was due to the large amounts of sand which became mixed with the food.

His findings regarding periodontal disease are supported by an impressive number of photos of calculus-encrusted teeth side by side with radiographs of these same jaws, showing the large amount of bone destruction.

In fact, it should be said now that the quality of the photographs which accompany the text is so outstanding as to make the work almost one of art. They are magnificent glossy color photos, all individually tipped-in and they constitute what is probably the best extant illustrative collection of ancient skulls and jaws, foods, tomb paintings and other aspects of ancient Egyptian life.

The author has appended an extensive bibliography which provides an excellent source for further study of this fascinating branch of Egyptology.

Dr. Quenouille should indeed be proud of his book, for he has made an outstanding contribution to our knowledge of ancient dental health and has greatly enriched the field of dental history. It is a work which deserves translation into English.


One of the most fascinating books to appear in a long time is this one written by a noted hematologist who is also an accomplished Hebraic scholar and interpreter of the writings of the rabbinic authorities of a millennium ago. Dr. Rosner's article on references to dentistry in the Bible and Talmud which appeared in the Bulletin of the History of Dentistry (June 1975) added greatly to our knowledge of dental practices in the middle east a thousand years ago.

In this book, Dr. Rosner examines the attitudes towards sex and sexual conduct as reflected in the writings of the greatest physician of the late Middle Ages, Moses Maimonides, known affectionately by the early Jews as Rambam (Rabbi Moses Ben Maimon-Moses, the son of Maimon-Maimonides being the Greek version of the name.) Born in Cordova, Spain in 1135, Moses and his family fled to Morocco in 1158 as a result of persecution by fanatical Moslems. The family resettled in Egypt in 1165, with Moses pursuing a variety of trades until in 1166
he turned to the practice of medicine. Where he received his training is unknown, but his reputation grew to such an extent that after only 8 years, at the age of 39, he was appointed Court Physician to the Regent of Egypt who was ruling in the absence of Saladin the Great who was at that time fighting in the Crusades in Palestine. Maimonides fame and reputation as a physician soon grew to the extent that he was known world-wide and it is reported that Richard the Lion Hearted invited him to England as his personal physician, which offer Maimonides declined.

Maimonides died at the age of 69 and was buried in Tiberias, Palestine at his own request. The Christian, Moslem and Jewish worlds mourned him, for he had mastered nearly everything known in the fields of theology, mathematics, law, philosophy, astronomy, ethics and, of course, medicine. As much as he was able to, he treated disease by scientific method and observation not by guesswork and superstition, and was even characterized by Sir William Osler as "The Prince of Physicians."

Nevertheless, in his attitudes towards sexual activity Maimonides reflected the puritanical thinking of the orthodox Jew of the Middle Ages. And this is evident in the many irrational conclusions concerning the effect of excessive sexual activity: "Effusion of semen represents the strength of the body and its life, and the light of the eyes. Whenever it (semen) is emitted to excess, the body becomes consumed, its strength terminates, and its life perishes . . . He who immerses himself in sexual intercourse will be assailed by (premature) aging . . . his strength will wane, his eyes will weaken, and a bad odor will emit from his mouth and his armpits . . . His teeth will fall out and many maladies other than these will afflict him."

Maimonides nevertheless gives innumerable recipes for increasing sexual vigor, but this was a result of a command from the new playboy Sultan, son of Saladin, who was desirous of increasing his sexual potency. However, even here, the doctor cautions his master that he should curb his appetite.

The book is replete with additional evidence that anything which could possibly lead to lustful thoughts should be frowned upon, and to support this contention he quotes many examples from the Talmud, the great book of Jewish law. But that this often went to ridiculous extremes is evidenced by this passage:

An unmarried man is forbidden to take hold of his privy parts, lest this should cause unchaste thoughts. He should not even insert his hand below the navel, for the same reason. When he urinates, he should not hold his organ, but if he is married, he may do so. Whether he is married or not, he should never put his hand to his organ, except when relieving himself.

This book is a compendium of medico-religious thinking of a period in history known as the Golden Age of Arabic Medicine and as such gives us a good insight into the medical practices of that period, and included are many references to dental practices as well. It is copiously annotated and indexed and is valuable for casual browsing as well as serious study.
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BOOK REVIEWS
In the last 150 years dentistry, like all branches of medicine, has experienced enormous advances which have eclipsed all that had been accomplished by the earlier dental practitioners. A developing awareness of these strides prompted an interest in the history of dentistry and in 1950 Dr. J. Ben Robinson, then Dean of the Baltimore College of Dental Surgery, sought to find out how many other dentists were interested in the good to be obtained from a study of the profession’s background. A heavy response to his inquiry convinced him that there was indeed a nucleus of prospective members for a dental history society, and so he invited four other dental historians to associate with him in founding the proposed organization: Dr. Milton B. Asbell of Camden, N.J.; Dr. Harold L. Faggart of Philadelphia; Prof. Gardner P.H. Foley of Baltimore; and Dr. William N. Hodgkin of Warrenton, Virginia.

On October 16, 1951 twenty-one enthusiastic supporters convened at the Mayflower Hotel in Washington, D.C. for the charter meeting. Dr. Robinson presided and stated the reasons why such an organization was needed: to increase an interest among dentists in dental history; to encourage dental schools to develop historical collections and offer adequate instruction in dental history; to help leaders in dentistry solve their research problems by broadening their knowledge of what had gone before in dental research; and to create an authoritative body which could be a source of information and verification on all questions relating to the history of the profession.

The new organization chose as its officers the following: President - Dr. J. Ben Robinson; President-elect - Dr. Arthur H. Merritt; Secretary-Treasurer - Dr. Harold L. Faggart; and Editor-Professor Gardner Foley.

The next annual meeting in St. Louis in 1952 saw the ratification of the Constitution and By-laws, thus putting the organization on a sound legal basis. The speakers at this first scientific meeting were L. Laszlo Schwartz, George B. Denton and Nell Snow Talbot.

The first issue of the Bulletin of the History of Dentistry appeared in March, 1953. It was edited by Dr. Denton, and consisted of 2 mimeographed pages. Dr. Denton continued the editorship for the next ten years until his untimely death, at which point Dr. Donald Washburn, the Director of the Bureau of Library and Indexing Services of the American Dental Association became the Editor. He relinquished the post in 1968 when it was assumed by the present editor, Dr. Malvin E. Ring. The Newsletter which had been launched by Dr. Washburn in 1967 has been continued by Dr. Ring.

The annual Bremner Essay Award Competition for students in dental schools in the United States and Canada was instituted in 1959, and the first winner was Rolla R. Burk, Jr., a 1960 graduate of the University of Maryland. This contest was funded from a grant to the
Academy made by one of the charter members, Dr. M.D.K. Bremner who was the author of The Story of Dentistry.

The Hayden-Harris Award was first presented in 1967, and was given to that individual who was deemed to have made an outstanding contribution to dental history. The first recipient was the founding president, Dr. J. Ben Robinson.

The organization has grown to the point where today it is the largest organization in the world devoted to dental history. It has about 25 honorary members and about 300 active members in countries throughout the world. Its Bulletin is the principal publication in the world devoted to dental history and the only one in the English language. It is subscribed to by virtually every major dental school in the world.

THE 25th ANNIVERSARY MEETING THIS YEAR WILL BE HELD ON FRIDAY, NOVEMBER 12, 1976 AT THE MGM GRAND HOTEL IN LAS VEGAS, NEVADA. THE PROGRAM, WHICH IS AN OUTSTANDING ONE, FOLLOWS:

Morning Session
8:00 a.m. Registration, Rialto Room #3, MGM Grand Hotel.
9:00 a.m. President's Greeting: Robert C. Sproull, D.D.S.
10:00 a.m. Coffee Break.
10:15 a.m. "Doc Holliday in Philadelphia": Ernest Beerstecher, D.D.S., Ph.D.
11:15 a.m. "Dental Museums of the World": Frank Orland, D.D.S., Ph.D.
11:30 a.m. LUNCHEON and Presentation of Awards.

Afternoon Session
1:00 p.m. Business Meeting.
2:00 p.m. "Dentistry at the National Museum of History and Technology of the Smithsonian Institution": Audrey B. Davis, Ph.D.
2:45 p.m. "The Rubber Denture Murder Case: The True Story of the Vulcanite Litigation": Malvin E. Ring, D.D.S.
3:30 p.m. Impromptu contributions, discussions and exhibits by members and guests.

WE CANNOT TOO STRONGLY URGE EVERY MEMBER TO MAKE EVERY ATTEMPT TO ATTEND WHAT PROMISES TO BE THE GREATEST MEETING IN THE ACADEMY'S TWENTY-FIVE YEAR HISTORY. AND OF COURSE, THE WIVES ARE PARTICULARLY WELCOMED.

—MALVIN E. RING, D.D.S.
Dubois de Chémant's Lettre à M. Andouillé: A Translation With Introduction, Notes and a Bibliography

—ELLEN B. WELLS, M.L.S.
Ithaca, New York

Nicholas Dubois de Chémant is credited with the invention of porcelain dentures, although it needs to be emphasized that he succeeded by building on others’ work. He was successful in obtaining a French patent (and later an English one) but had to fight off counter claims by Duchateau (a chemist with whom he had in fact worked) and Dubois-Foucou, the royal dentist. Accounts of Dubois de Chémant’s career in dental prosthetics are to be found in Campbell, Cohen, and Guerini (see References, at end).

In 1788, de Chémant issued what is apparently his first publication on the dentures. In 1789, he presented his claims to having invented them to the Académie des Sciences and the Société Royale de Médecine. However, as we see from his Lettre à M. Andouille, his claims were contested. Nevertheless, in 1791, he obtained his English and French patents.

In this rather heated Lettre, de Chémant objected to the procedures adopted by the Académie de Chirurgie in its investigation of his and Dubois-Foucou’s claims. Most of his objections were on procedural grounds, but de Chémant also accused Dubois-Foucou of less-than-honorable maneuvers for advantage.

While alterations of punctuation have been made to shorten de Chémant’s long sentences, I have tried otherwise to adhere to the text closely in the translation. Where possible, brief identification of names mentioned are provided in the footnotes at the end. The footnotes denoted by Roman numerals in the text are de Chémant’s.

The Lettre, probably published early in 1790, seems to be quite scarce. The Bibliothèque Nationale of Paris has a copy. It is not listed in David’s bibliography, nor in the article by Menzies Campbell. The Cornell copy bears the bookplate of Denis I. Duveen, whose collection of Lavoisier materials Cornell purchased in 1962.

It is bound in the 9th volume of a collection of 14 pamphlet volumes, with the spines labeled “Affaires du temps. 1789-90” These pamphlets came from Lavoisier’s collection and were probably bound and preserved by his widow, from whose descendants came part of Duveen’s collection.

Letter to M. Andouillé, Counsellor of State,
First surgeon to the King, & President of the Académie Royale de Chirurgie &c.

Sir,

The nation having decided that all men are equal under the law, I request in the tribunal which you preside over so worthily the execution of this natural principle consecrated by the most wise of constitutions.
My claims are just. I hope that when the Académie has heard them, those members most opposed to my success will yield to the voice of truth and of justice.

M. Dubois-Foucou has denounced me through the journals, in the court of the common public, as a man who offers a material the use of which is dangerous, and who advances assertions which are false and capable of leading this very public in error. These, Sir, are the very words which M. Dubois-Foucou has used in his quest to have me lose my honor and my reputation.

I have responded to this accusation, I have revealed the cause of it, and I have refuted the objections which my opponent has put forth. But my response has not gained any approval, because it has not been possible for me to obtain that of the Académie de Chirurgie, on account of the aristocracy of the group which rules at this time. This has made it necessary for me to have recourse to other learned associations which are all impressed in emulation of each other, and do me justice, and give me their approval. I had opposed them moreover as my adversary, and I let

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1. See the *Journal de Paris*, of 26 April 1788 [de Chémant means his letter dated 26 April in the 18 May issue—E.W.]
the public itself be the judge between us, and to decide the degree of confidence which the statements of M. Dubois-Foucou merited. The latter believed he could put forth his report with the impartial approvals of the Faculté [de Médecine] and Société Royale de Médecine. I was not content to demonstrate how this report was based on false principles. I submitted my discovery to a new examination by the Académie, which appointed as commissioners MM. d'Arce t and Sabatier, who according to the knowledge they had of the report of M. Dubois-Foucou, and a more thorough and impartial examination, have accorded to me a most authoritative approval.

M. Dubois-Foucou doesn't appreciate the matters which are in his own interest, and daring moreover to fight in the face of these very approvals, with which I have been convinced that he will render inwardly justice. He has hidden himself under the mask of an anonymous student of surgery, as much to respond as to try to fight. If it is possible, the Académie de Chirurgie will give me the approval which I seek.

You have named, Sir, four commissioners, MM. Brador, Deschamps, Beaupreau, and Chopart, to ascertain by experiments, and to see the people who are using my new artificial teeth and dentures. The report has been made to the Académie, and I don't doubt that it will be in my favor. But I have learned that M. Dubois-Foucou has been called to your Assembly, that he has been free to put forth his objections. Permit me to observe to you, Sir, that there is a rule in true justice, required in the pronouncement between two interests, of according each one the privilege of being heard, moreover that his adversary is present for a response. I might be told perhaps that the commissioners were present for my defense, but the commissioners are my judges, not my defenders. Moreover, one could give them objections relative to my suit in particular which they could not respond to, in spite of their enlightenment, not knowing the secret of my process.

One might also object to me, perhaps, that not being a member of the Académie, I have no right to enter. I would acknowledge that not having this honor I could not take part in a meeting as an Académician, I would hardly pretend to it. But being an interested party, I should appear there for my defense, for my own interest. It is at your meetings, Sir, when they relate to personal interests, as in Courts of Law, where the interested party has the right to be present at hearings, to speak for his defence, to refute the accusations, often erroneous, and aroused by the emotion of his adversary, as in the present case; and moreover the parties are hardly members of the societies which judge them.

There is more: is there a member of these same courts opposed in interest with a third who is a total stranger to them? Is there only the least connection of parentage and friendship? He excuses himself; he refrains from appearing in person at the Assemblies; he would believe that no one could accuse his judgement that would be brought, of partiality as the fruit of the influence of an interested judge. Could it be otherwise, Sir, in your assemblies? Could you say less at this moment on my honor, my very fortune? Has not M. Dubois-Foucou not announced himself publicly as my enemy? Isn’t he really my adversary? Should it not be judged between us? And however it lies among my judges, he fights against me; he actually intrigues. Yes, he intrigues, I dare to say it.

II. I add here the dissertation which I made at that time to respond to the report and assertions of M. Dubois-Foucou, it may serve as instruction in this proceeding with regard to me. [By dissertation, de Chémant means his 1789 publication of Dissertation sur les avantages des dents et rateliers—E.W.]
Where then, is the consideration upon which an honest man prides himself? Where is that of a public man who must account for his actions; and ensure that his eyes are quite open to a simple fact? A similar move would put to public opinion, as this tribunal which M. Dubois-Foucou has sought to predispose against me. It will finish by unmasking the man and the efforts which have been made.

Although M. Dubois-Foucou has not expressed amazement that I appear to attack his consideration, his conduct with regard to me on more than one occasion gives me the right. Independently of this last complaint which I make against him, independently of the teeth of my manufacture which he uses, and uses them all the time, and which are evidence against his reports; independently of many dentures which he had me make for people who honor him with their confidence, proof that he found my products better than his, with which he could astonish those same persons, which no one would dare believe; independently of other specific proofs which would be too long to list, I am brought to the low deceit which he used against M. Sué, at the time of his first report to the Académie. You may well remember, Sir, and Messrs. the members, who composed the august body that day, the protest of M. Sué, are without doubt not forgotten against the signature which had been forged of him. (I use this term which is no less vile than the action itself). This was in favor of the first report, according to the truth, justice, and consequently the opinion of M. Sué, which M. Dubois-Foucou had read to the old person, after communicating with me and to which there remained solely, he said, a few little additions and corrections to make.

M. Sué did not believe, the next day, that he could conceive a doubt concerning the manners of a colleague; a man of honor ignores such low means and he is loath to suspect them in another. He signed blindly. Imagine his astonishment when at the reading at the Academy he heard a report diametrically opposed to that in whose favor he thought he had signed. He complained of it loudly. If M. Sué is present at the next meeting, if those who make up the Assembly assist there, will they render homage to truth? What will they say if charge them? After all, Sir, I leave it to you to judge if was justified in what I say, if my accusations are lies or truths.

I had been buried in the silence of these less than honorable proceedings for M. Dubois-Foucou. I promised myself to leave them in a profound oblivion. Why, with an unequaled tenacity, does he compel me to leave the boundaries of moderation to which limited myself? Why sow these anonymous writings in the journals? Finally, why is he driven to these extents by a base jealousy, in a respectable society from which he uses solicitations and all sorts of fallacies, and even to falsity, to rob me of a patent which justice could not refuse me?

I might as well say that M. Dubois-Foucou has directed his entreaties to some members of the Académie. I can say this because of the effect they have produced. For, those of his party have sought to make new partisans for him, and they have used above all a means that their state suggested, perhaps by friendship, but surely not by justice, which alone, however, should be to state their opinion.

Yes, it has come to my attention that some of these gentlemen are saying openly, ‘Let us destroy the fortune, reputation and honor of one of our colleagues, a member of this Académie, let us destroy by our approval of the reports that he made, and by that elevate his adversary on the ruins, who is not even a member of this society.’

Could these be sensible men, these judges, able to form their opinion on such grounds? Where is that delicate impartiality which should
Plate from de Chémant's Dissertation sur les dents artificielles en général, London, 1797. It was engraved and mezzotinted by Chr. De Barde. The springs referred to by de Chémant in the Lettre are to be seen in Figs. 8 and 11. (Courtesy National Library of Medicine, Bethesda, Md. 20014).
motivate them? But there is more. Sir, I will destroy their reasoning by similar reasoning, and turn against them the base of their opinion.

Two members of this academy, two people whose reputation could not be compared, have made reports on the same matter, totally opposed. One, M. Sabbatier [sic], the oldest member of the Académie de Chirurgie, named Commissioner by the Académie des Sciences, of which he is also a member, to examine my new substance, after the most impartial observations, being guided neither by personal interest nor any special consideration, believed he could approve my process according to his report which had been confirmed by approval of the society which had placed its confidence in him for a test of this nature.

The other, M. Dubois-Foucou, named Commissioner by the Académie de Chirurgie, not only being personally interested, had prescribed my new teeth and dentures. But, influenced by a special desire not to do me justice, he claimed in his report that my chemical composition is not really a new discovery, but actually the revival of an ancient process that he had been forced to abandon, as being not only inadequate, but as subject to very injurious inconveniences, and on these diverse points of view he seeks to ask the Académie to forbid them.

This is, Sir, as I have the honor to say it, the moment to turn the argument around. Would you destroy the honor and the reputation and the sensibility of M. Sabbatier by forbidding his report, or that of M. Dubois-Foucou? All things being equal on this point, which side should have the balance? On the side of justice, or of the interested partiality? The honor which you affirm and which guides this respectable society, does not permit a doubt, and is sure to guarantee to me a judgement which you are going to pronounce.

I will end by an observation on the reports of MM. the commissioners read at the last meeting. One, that of M. Deschamps, totally in my favor, is signed only by three commissioners. M. Chopart removed his signature. He had not wished, he said, to attest to that which he had not seen; but he would hold only to that which he had examined. Why did he not do so? Why, charged with duties based on the confidence of the Académie and his colleagues, has he neglected to respond with his views? Why would he, above all, not wish to take the trouble and has he not reported his opinion to his colleagues? The Académie, the judges dignified by its confidence, will not be that of M. Chopart.

The opinion of M. Chopart has moreover differed from that of the other commissioners in one essential point: it is relative to my method of taking measurements, to my moulds, to the means I use and to the manner with which I attach them. He had presented to me his advice on this subject during the visits I made to him, and on the occasion of the invitation which I made to him to see my springs in people who had my dentures, when asked him to come to my home to see my moulds. He refused my claims, assuring me that such an examination would be useless; his intention could not be discussed.

M. Chopart wishes me to say why he put the restrictions, when the Académie has not set them? Perhaps he believes this description useless. Why does he wish thus that the director of the Mémoires of the

III. One might be surprised that I have this information, understanding that by a most-abused custom that surely will be abolished in the century of enlightenment and reform, the Académie holds its meetings behind closed doors, and keeps a most deep secret of what goes on. But without naming the authors of my enlightenment, anticipate that I view them in the same manner as the Commissioners. They will not really suspect me neither to be informed by the one who thought to take the three teeth that one of the Commissioners had left at the office.
Académie might describe my processes when he has not found them entered in the minutes, which are materials of his work. Moreover, the duty of a commissioner is to report all which is submitted to his examination, as much the principal object as well as its accessories. Since my artificial dentures are the principal object, the manner in which I prepare them and put them to use is certainly an accessory that M. Chopart could not pass on silently.

Moreover, it seems to me that his particular opinion could not have much weight against me at this moment, because: 1) he has not seen, nor wishes to see (the evidence); thus his judgement could carry nothing but uncertainties as bases; 2) he will be alone in his opinion, which certainly could not prevail on the three other commissioners who took the pains to make inquiries, to see and examine for themselves.

Thus, I hope that the Académie, after these observations which I am communicating to each one of its members, would surely not call M. Dubois-Foucou, nor permit him to set forth his objections, without my being present, and will admit me to defend myself and respond to him, that it will deign to examine and judiciously weigh things, as is its rule, to render justice to my discoveries, to return the impressions which have been given to him against my process and my very person because you will retract yourself without doubt, Sir, since they have tried to impose on all, notably on the color of my teeth for which you have yourself admitted an error. Until that moment when by irreproachable testimonies you have exposed the falsity of the accusations on this subject, I am, with profound respect,

your very humble and very obedient servant,

Dubois de Chémant

Paris, 24 February 1790.

FOOTNOTES

[For key to abbreviations to sources, see References, at end]

1. Jean Baptiste Antoine Andouillé (born 1718) was a member of the Académie de Chirurgie. See Index (11).
2. Jean-Joseph Dubois-Foucou (died 1831?). French royal dentist. See Guerini (344, passim.)
3. Jean d’Arcet (or Darcet) (1725-1801) had a strong interest in the practical application of chemistry to everyday life. He worked on porcelain manufacture in the 1760’s and from 1744 was a director of the Sévres factory. He was a member of the Académie des Sciences, and a professor of chemistry at the Collège de France. See Index (136), Bayle (II:500-501), DSB (III:560-561) and Partington (I:104).
4. Raphael Bienvenu Sabatier (1732-1811) was a professor and demonstrator in surgery at the École de chirurgie and Collège de France, member of the Académie des Sciences and Académie de Chirurgie. See Index (450-451), Bayle (II:557-559).
5. I have been unable to identify Brador.
6. Joseph-Francois Louis Deschamps (1740-1824) was chief surgeon at the Hospital de la Charité, member of the Académie des Sciences and Académie de Médecine. See Index (151), Bayle (II:644).
8. Francois Chopart (1750-1795), chief surgeon at the Hôpital de la Charité, wrote his thesis on head wounds. He held chairs in physiology and pathology at the Académie de Chirurgie. See Bayle (II:676-677), Nouvelle biog. (X:col. 374).

9. Jean-Joseph Suë (1710-1792), was a chief surgeon at the Hôpital de la Charité and member of the Académie de Chirurgie. He was royal censor for surgical books. See Bayle (II:379-380), Nouvelle biog. (XXXXIV:col.620).

REFERENCES WITH KEY TO ABBREVIATIONS

Index
Bibl. nat.
Bayle
Brit. Mus.
Campbell
Cohen
David
DSB
Guerini
Nouvelle biog.
NUC
Wellcome


CHRONOLOGICAL CHECKLIST OF WORKS BY AND RELATING TO DUBOIS DE CHÉMANT

[For key to abbreviations of sources, see References]

Dubois de Chémant, Nicolas. Avis important aux personnes qui veulent réparer la perte de leurs dents. [Paris? 178-?] Cited as “un imprimé” by Dubois Foucou in Journal de Paris, 18 mai 1788.


____. Dissertation sur les dents artificielles en général . . . Londres, Baylis, 1797. David: NUC.


____. Exposé de nouveaux procédés pour la confection des dents dites de composition. Paris, 1808. David; NUC.


____. Dissertation sur les avantages des dents incorruptibles . . . suivi d'un jugement qui a condamné M. Dubois-Foucou, dentiste du roi et consorts, dans leur demande en nullité de brevet d'invention qui avait accordé à l'invention. Paris, 1824. Bibl. nat.; David; NUC.


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A Review of the Use of Fluorides in the Prevention of Oral Disease

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It is a great pleasure to participate in this International Symposium on Dental Education and Oral Hygiene. Thanks to a relationship with the University of Rome, via the Italian-American Cooperative Science Program Agreement of 1967, we at the University of Alabama in Birmingham have a deep appreciation of the great scientific tradition of your country. I appreciate being with you because I am no longer an active investigator in this field. I hesitated to accept your gracious invitation. After some reflection, I agreed, hoping that early contributions and a continuing interest in the subject might bring the perspective of the historian and the critic.

THE BEGINNING OF THE FLUORIDE STORY

We meet in Rome, where the fluoride story began. Here in 1802 Morozzo initiated studies of a fossilized elephant discovered in the vicinity. As part of this effort, he requested a chemist colleague, Morichini, to analyze the teeth. The latter reported that both the enamel and the dentin contained fluorine. Subsequently, Morichini extended his experiments to include human enamel and reported that it, too, contained fluorine.

Within a five-year period, these discoveries were confirmed by some of the most distinguished chemists of the time, including Gay Lussac and Berzelius.

Subsequently, Berzelius made another important observation, namely, that fluoride was present in limited amounts in water, with the greatest concentrations occurring in springs located in volcanic terrain.

It was inevitable that a knowledgeable individual, in this instance Magitot, would associate the presence of fluoride with dental caries. Almost a century ago, he conducted experiments on the relative solubility of tooth substances and noted that enamel was more resistant than cementum and dentin to the actions of acid. In discussing the phenomenon, he suggested that the resistance of the enamel to decalcification could be explained by "the minute quantity of fluoride of calcium it contains." Shortly thereafter, English and German dental practitioners were prescribing fluoride pastilles for the control of dental caries.

One of the first to study the interactions of soluble fluoride and calcified tissues was Carnot. In the final decade of the last century, he exposed bone samples to dilute fluoride solutions for a five months period. During that time, the content of the element increased from .31 parts per hundred to 4.7 parts per hundred. His studies made it very clear that fully calcified tissues can combine readily with aqueous
fluoride. It is of special interest that the highest quantities of fluoride he observed are compatible on a theoretical basis with the complete substitution of hydroxyl ion by fluoride.

A SET-BACK TO ORAL HEALTH

Because of these antecedents, one would expect the advent of the twentieth century to be accompanied by further favorable developments relating fluoride to dental health. This was not the case, largely because of the important report by Eager. While conducting physical examinations of residents of Southern Italy who were emigrating to the United States, he made detailed observations relative to a congenital deformity of the enamel called denti di chiaie, now often referred to as mottled enamel. His findings received wide publicity. By the 1930s, fluoride in drinking water had been identified as the causative agent. These discoveries resulted in an extraordinary concern with the toxicity of fluoride, and the early and favorable indications of benefit were forgotten or underestimated.

Fortunately, studies of dental fluorosis had a very favorable by-product. They revealed that teeth afflicted with the condition had a low incidence of dental caries. The findings were international in scope. Among those contributing to this aspect of our knowledge were Masaki in Japan, Erausquin in Argentina, Ainsworth in England, Day in India, and of course Piperno in Italy. In pursuing this lead, Dean demonstrated a significant reduction in decay in teeth with minimal fluorosis. A short time thereafter, a series of extensive, lengthy, and well-controlled studies were initiated in both the United States and Canada to test the value of fluoridating the public water supply at a level of approximately 1 part per million. These investigations resulted in conclusive evidence that water fluoridation is of great potential benefit in the prevention of dental caries.

FLUORIDATION—WORLDWIDE TODAY

Today, this practice is worldwide. An estimation of its value may be seen in comparing reports from the United States, New Zealand, Canada, and The Netherlands, wherein children exposed to 1 part per million fluoride from birth through 15 years had a 50 per cent reduction in the anticipated number of decayed, missing, and filled teeth. Currently, water fluoridation is used as a preventive measure in more than 30 countries and is available to 150,000,000 people. It is generally believed that waterborne fluoride is incorporated in the tooth, very probably as fluorapatite, during the period of calcification and pre-eruptive maturation. Presumably, it remains in this state for many years.

The financial benefits of water fluoridation have been documented in investigations made in paired American communities, wherein the total costs for dental services for children from age 5 through 11 have been compared. These were shown to be slightly less than $50 per child.
in Newburgh, New York, where the water was fluoridated, and in excess of $100 in Kingston, New York, where it was not. The study also reported that the average 5 year old in Newburgh required 41.5 minutes of chair time for incremental dental care, whereas his Kingston counterpart needed 71.5 minutes. Similarly, at age 10, the Newburgh child needed 18.9 minutes of incremental care per year and his Kingston counterpart 38.8 minutes.18

Although there has been a very pronounced movement of American people to the cities, the United States continues to have a large rural population. Since families in this category, approximately 25 per cent of the population, do not have communal water available, attempts have been made to reduce their caries experience by fluoridating the public school water supply. The results have been favorable. It has been reported that after 12 years of school water fluoridation at 5 parts per million, there is a 40 per cent reduction in tooth decay and a 65 per cent decrease in the number of required extractions.19 The procedure does not result in objectionable dental fluorosis. Although this is a relatively high level of fluoride supplementation, the children do not consume such water before or after school hours, on weekends, holidays, or during summer vacation. The ability of fluoride to limit tooth decay under these circumstances is generally attributed to incorporation into the calcifying enamel. It is also conceivable that exposure to 5 parts per million of fluoride could affect the physical properties of the enamel surface and plaque of erupted teeth and interfere with the metabolism of oral microorganisms.

In my opinion, fluoridation of communal water and controlled additions of fluoride to the water supply of schools are effective ways of preventing tooth decay in children and adolescents. If, for political, ethical, or personal reasons, these measures are unacceptable, dietary supplementation with fluoride tablets, addition of fluoride to salt, and fluoridation of milk are alternative mechanisms for incorporating the element in forming teeth.20

There is substantial evidence that topical applications of fluoride to the erupted tooth surface inhibits tooth decay. Much of this therapy is based on studies made alone and with colleagues more than thirty years ago. In 1939, the author demonstrated that the brief exposure of enamel to dilute solutions of fluorides greatly enhances its resistance to acid decalcification and urged that the ability of topically applied fluorides to prevent tooth decay be investigated.21 Immediately thereafter, using radioactive fluoride, F18, we showed that soluble fluoride could combine quickly and effectively with the enamel surface and that such a union was relatively permanent.22

CONTROLLED STUDIES OVER THE YEARS

By 1952, more than 20 clinical studies involving 7,000 patients testing this possibility had been undertaken. They gave evidence that, with care, such therapy could reduce tooth decay by 40 to 50 per cent
in the teeth of children 4 to 14 years of age. Today, this approach to the control of dental caries continues to be used in dental offices. It is time-consuming, expensive, and requires considerable patient cooperation. The benefits are not competitive with those received from water fluoridation.

Many alternative procedures for topical fluoride application have been and continue to be explored. There is widespread use of fluoride-containing dentifrices. Several, including those fortified with stannous fluoride and monofluorophosphate, have been evaluated sufficiently to be approved by the Council on Dental Therapeutics of the American Dental Association. In a carefully controlled two-year clinical study conducted by colleagues at Alabama, 25 per cent fewer decayed and filled tooth surfaces were observed in children brushing with a dentifrice containing monofluorophosphate than in comparable groups using other products. This finding is consistent with many other reports that the routine use of fluoride dentifrices will reduce dental caries in the broad range of 15 to 30 per cent.

There are a considerable number of studies of the effectiveness of supervised, self-applied, fluoride mouthwashes on the inhibition of dental caries, particularly in children. Some of the earlier work in this field was not too encouraging, but more recent investigations, particularly those in Sweden, are impressive. They give strong support to the conclusion that such therapy significantly reduces tooth decay and the requirement for restorative dentistry. The considerable cost benefits of the procedure are also documented.

In the last decade there have been a number of investigations using fluoride gels in mouthpieces as a caries preventive measure. The findings have been most convincing. Children who applied a fluoride gel in a custom fitted tray for 6 minutes each school day for two academic years had a reduction of 75 per cent in incremental DMF surface scores when compared with a suitable control group. Next, the children were reexamined 23 months after the cessation of treatment, and the experimental group retained an advantage of 55 per cent reduction in DMF surfaces over the control.

Currently, a similar therapeutic approach is in use to control the extraordinarily severe tooth decay that follows the use of irradiation therapy in cancer of the head and neck. Dramatic results have been reported in a group of 41 such patients. Demineralization has been prevented, decay has been arrested within a five week period, and prompt remineralization of the enamel and dentin has been observed.

Although the method involves the initial expense of a mouthpiece and requires the cooperation and commitment of the patient, it is obvious that it deserves further study to ascertain whether the substantial benefits can be maintained with weekly, rather than daily, applications. If this occurs, the procedure may supplant all others. It seems especially important to test this possibility before further exploration of the more traditional areas of fluoride research.
FLUORIDES AND RESTORATIVE MATERIALS

There is also evidence that the presence of fluorides in restorative materials limits tooth decay. This belief is justified on the basis of two studies which record the reduced reoccurrence of caries adjacent to silicate restorative materials. They also present data showing that aqueous extracts of dental silicates behave very much like topical fluoride solutions in their effects on enamel solubility and the metabolism of oral bacteria.

A similar possibility exists for incorporating fluoride in dental amalgam. It has been noted that tooth tissues in contact with such restorations have an increased fluoride content. It is relevant that silicates and amalgams are the most commonly used restorative materials and there is at least a theoretical basis for believing that their fortification with fluoride would inhibit caries at the margins of fillings.

The same general reasoning suggests that fluorides be added to the adhesive sealants that are now being used for preventing caries in pits, fissures and on the interproximal surface.

As we proceed with these clinical studies, it is imperative that we continue our fundamental investigations. At the moment, we know that fluoride reacts with tooth structure to form both fluorapatite and calcium fluoride. There is evidence that the former form is highly desirable. It is very insoluble and most resistant to decalcification initiated by the oral microorganisms present in the dental plaque. There is also evidence that topically applied fluoride can concentrate in the dental plaque and inhibit the metabolism of cariogenic bacteria. In addition, there are observations that fluorides promote the remineralization of decalcified enamel, a condition common to the carious process.

Unfortunately, most of our evidence relates to phenomena occurring on or in very close proximity to the enamel surface. We very much need additional evidence on the influence of fluoride in the subsurface environment. We know that very early in the caries process this tissue is altered, and a major objective should be to learn how the fluoride content of this area can be quickly and permanently increased. A particularly significant study of this nature was one undertaken by McCann in which he found that when in vivo enamel surfaces were treated first with dilute solutions of aluminum nitrate and then with acidulated fluoride solutions, a tenfold retention of fluoride occurred in the outer 50μ of the teeth. (McCann, H. Arch. Oral Biol., 14:521-31, 1969.) Thus it is to be expected that studies such as these, which in great measure are continuations of the foundations laid by the early pioneers and researchers in the field, may lead to entirely new and more effective uses of fluoride in the prevention of tooth decay.

REFERENCES

1. Morozzo, C. L. "Notice sur un squelette d’un gros animal trouvé aux environs de Rome" par le comte Morozzo. J. phys. 54:441, 1802.


b. Englander, H. R.; Carlos, J. P.; Senning, R. S.; and Mellberg, J. R. “Residual anticaries effect of repeated topical sodium fluoride


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Dr. Evans and the American Dentists in Paris

—ANTHONY D. BRANCH, Ph.D.
San Francisco, California

In this Bicentennial year American dentists can take special pride in the considerable role which their country has played in the development of the modern dental profession. In fact, during the crucial latter part of the nineteenth century the young American nation set the example for Europe to follow, largely due to the success of Dr. Thomas W. Evans. Dr. Evans, a Paris-based dentist to kings and emperors, was responsible for introducing the latest American techniques and appliances to European dental practice.

France was renowned, of course, among European nations as the home of the scientific practice of dentistry. The use of the word dentiste itself, in order to denote the practitioner of a special and distinct branch of medicine, was first recorded in a fourteenth century French surgical treatise. The first systematic work on all aspects of the practice of dentistry was written by that famous eighteenth century French practitioner, Pierre Fauchard.
So excellent was the reputation of French dentists in the period immediately following Fauchard’s death in 1761 that a great demand for them arose abroad. It was several Frenchmen who were largely responsible for introducing the professional practice of dentistry to America about the time of our Revolution. Joseph Jean-François Lemaire accompanied the French expeditionary force during the conflict, and then remained in the New World both as a practicing dentist and teacher. Among Lemaire’s pupils was Joseph Flagg who became a pioneer of professional dental practice in America. Another Frenchman, Jacques Gardette, began a highly successful practice in Philadelphia in 1784. Among his patients was George Washington.

Although American dentistry originally owed much to the tutelage of French practitioners, it might be said that the student soon learned his lesson too well. By the mid-nineteenth century the relationship between French and American practice had completely reversed. America was the center of the great movement to professionalize dentistry. It was the country where new technical inventions were first being utilized and, of course, the location of the world’s first true dental school and professional organization. In marked contrast, the condition of dentistry in France had only declined since the late eighteenth century.

It was the French Revolution, ironically, which had provided the most seriously damaging obstacle to the progressive development of the dental profession. In the years immediately before the Revolution, the practice of dentistry in France was regulated by the 1768 Lettres patentes of the king, for which Fauchard himself had long campaigned. This governmental regulation ceased, however, with a revolutionary decree of May 2, 1791 which accorded to everyone the free practice of all professions, arts, and skills. A second decree in 1792 suppressed all the Facultés and Collèges, such as the College of Surgery, as archaic vestiges of feudalism. Thereafter, it was sufficient only to purchase a license in order to practice medicine, to exercise surgery, or to be a dentist.

With the reign of Napoleon Bonaparte such near anarchy in all areas of medicine ceased. He proclaimed a new law in March 1803 to impede the numbers of quacks who had flocked to the practice of the medical arts under the free rein of the earlier decree of 1791. Unfortunately the new law, which in some areas was so stringent as to require even the certification of midwives as to competency, said nothing specifically about dentists. It is quite probable that this exclusion of dentistry was not just an oversight, but deliberately based on the supposition—fostered by jealous physicians and surgeons—that a dentist’s work was only partly scientific and therefore not properly in the province of legislation regulating medicine.
It was the disdainful attitude of the French medical profession, moreover, which was responsible for the fact that very few of the most able young people chose to specialize in dentistry. The relatively few French dentists who had been trained in the medical schools were often mediocre in technical skill, since most of a student's time was spent in acquiring general medical and surgical knowledge rather than specialized dental skills, which were generally denigrated. The young apprentice to an established dentist was often more skillful in technique though he did not have any formal surgical or medical training. But these practitioners' lack of general medical knowledge, was however, a detriment to effective practice particularly in the important area of diseases of the teeth and gums. Referring to a similar though less serious situation in England during the same period, one medical historian has written of these two groups: "The one knew the grammar of dental surgery but could not apply it; the other had learned how to practice but knew not the surgical laws by which the practice should be governed."

A NEW BEGINNING THROUGH AMERICAN HELP

What was needed, of course, was a union of the two qualities—medical knowledge and manual skill in dentistry—in order to produce a competent practitioner. Any fusion of the two would ideally be accompanied by the forced exit from dental practice of the numerous unscrupulous and unqualified people through stricter regulation and better education. In England, and particularly in the United States, there were strong movements in the 1850's to achieve these ends. The first special college of dental science—the Baltimore College of Dental Surgery—was founded in 1839. Professional associations to lobby for stricter governmental regulations were also being organized in both of the Anglo-Saxon nations. The dentists in France were so divided and demoralized, however, that similar developments would not occur there for almost fifty years.

One practitioner in Paris by the 1840's helped to fill the void. He was Dr. Cyrus Brewster, an American dentist, who combined medical and surgical competency with deft skill in dental operations. A qualified physician, Dr. Brewster even lectured at the Faculty of Medicine in Paris. Yet, he did not fear to specialize in dentistry in spite of the disdain shown by most of his colleagues. Although it was rare, professional competency in dentistry was evidently well appreciated by educated Parisians, and by 1848 Brewster had established one of the most renowned practices in the French capital. Among his patients were the most distinguished members of society including the new Prince-President of France, Louis Napoleon, later Emperor Napoleon III.

THE ARRIVAL OF EVANS IN PARIS

Because he was nearing retirement age, Dr. Brewster in 1847 brought over from Philadelphia a young man named Thomas W. Evans to carry on his practice. Thomas Evans possessed a fortunate
combination of extraordinary manual skill, gained as an apprentice to a
dentist in America, as well as a formal medico-surgical education. An
extremely bright and personable fellow, Evans quickly attracted the
attention of Louis Napoleon who needed considerable dental work, and
soon became the personal friend and confidant of the French leader.

After his bloodless coup d'etat against the ill-fated Second French
Republic in December 1851, Louis Napoleon was crowned Emperor
Napoleon III. By official decree Evans was appointed Surgeon-Dentist
to the Imperial household, and his rank was made equal to the other
court physicians and surgeons. It would be upon the recommendation
of the Emperor of the French, moreover, that Evans would become the
court dentist to nearly all the royal houses of Europe. Evans' patients
during the next forty-five years included such august notables as the
Prince of Wales, the Empress Augusta of Germany, and three Russian
Czars. Evans more than repaid his debt to Napoleon III for the initial
introductions to these royal figures. For when the Empire was
overthrown in September 1870, it was Dr. Evans who led the Empress
Eugenie away from the menacing Paris mobs to safety in England.

Although he practiced entirely in Europe, Evans was careful to re-
tain his connections with those American colleagues who were actively
participating in the important changes in dental practice during the
mid-nineteenth century. Evans, more than any other single individual,
was responsible for introducing into European practice the new and
major American developments. He corresponded regularly with Samuel
Stockton White, who had been a fellow student in Philadelphia. White
had founded in 1844 a dental manufacturing company which soon
became a leading world supplier of dental materials, instruments, and
commercially produced teeth. And because he was unable to obtain
materials to his liking in Europe, Evans ordered most of his supplies
from his old friend's company.

Samuel Stockton White's company also published The Dental
News Letter, one of the first periodicals to be devoted entirely to den-
tistry. This journal, whose name was changed to the Dental Cosmos in
1859, soon became the most influential dental publication in the world.
Evans served as Paris correspondent for the Dental News Letter, and
he frequently contributed articles on his original work in orthodontics
and operative dentistry as well as comments on European practice.
These articles served to keep Evans' name before his American
colleagues, and they encouraged his continual correspondence with
them. The faculty of the Baltimore College of Dental Surgery was so
impressed with his contributions that in 1850 it awarded Evans an
honorary Doctorate in Dental Surgery.

BRINGING AMERICAN TECHNIQUES TO THE FRENCH

Evans was the first practitioner in Europe to develop the use of
Vulcanite rubber as a base for artificial dentures.† Vulcanite, a sub-
stance which had been recently developed in the United States, had
great advantage because it did not decompose in the mouth as did ivory
or bone which Europeans had generally used for denture bases.
Another important American technique which Evans introduced to European practice was the use of nitrous oxide as a general anesthetic for dental surgery. As a member of the international jury for the great Paris Exposition of 1867, Evans invited Gardner Quincy Colton to bring his nitrous oxide equipment from America for exhibition. After the close of the Exposition, Evans persuaded Colton to associate himself with his office in Paris where nitrous oxide was successfully administered to more than one thousand patients during the fall and winter of 1867-1868. Later in 1868 Evans by himself would be the first to administer nitrous oxide for the extraction of teeth in England. It was the favorable results which Evans obtained in a demonstration before several groups of physicians and dentists at the Dental Hospital of London which caused gas anaesthesia to become universal in Britain.

Evans was also extraordinarily able in daily practice, and in contrast to most French dentists, strongly urged the preservation of teeth by thorough drilling and filling of cavities with a proper metal such as gold, which was widely used in America. Evans was particularly skillful at correcting irregularities of the teeth, and he perfected arches, braces, and bands to a degree comparable to general practice fifty years after his time. Because they were concerned with personal elegance and beauty, the French upper classes soon came to regard the straightening of teeth as a social necessity. Evans' success in orthodontics brought further fame to his dental practice.

The professional attitude which Evans brought to France was as important as the new American techniques which he introduced. A cardinal tenet of this professionalism was that the practitioner does not advertise even though Evans' contemporaries in Paris crowned themselves in newspaper advertisements with such words as "the prince of jaws." The windows of their offices were often filled with practical illustrations of their art. One American traveler in 1852 described these displays:

They have elegant gilt frames set with glass, in which are displayed artificial jaws with bright red gums and milky white teeth, others in every variety of loss, decay, and repair, row within row, like the anatomy of a shark's mouth, all opening and shutting in different degrees of velocity and emphasis, by some concealed mechanism . . . Above are wax heads which revolve every minute on pivots, showing alternately a ghastly, sunken-jawed toothless face, and the same lineaments freshened and filled out with a new set of grinders spotless from the maker's hands. The effect of this, under the reflection of a powerful gas-light, is easier to imagine that describe.

Evans himself derided such exhibits. He likened them to a surgeon who might expose the leg which he had amputated side by side with an artificial one which he had furnished to the natural leg's owner!

INDIRECT INFLUENCE TOWARD ORGANIZATION

In 1867 Evans was asked to write the official report for the French Imperial Commission on the dental exhibits at the Paris Exposition.
Included in his report was a pointed reference to the United States as "... the center from which the progressive movement of Dental Surgery starts." Evans' French co-practitioners doubtless did not appreciate that reminder. The Emperor's exclusive use of an American dentist caused no little resentment among them. Furthermore, the fame of Dr. Evans' practice helped to create in Paris what one French practitioner in 1860 called a "mania" for American dentists. Many charlatans found it profitable to attach to their signs the adjective "americain" which seemed to guarantee success.

The first professional dental journal to be published on a permanent basis in France was itself managed by an American dentist. This journal, *L'Art dentaire* carried an article in 1858 by a Baltimore dentist who signed himself, "Go-A-Head, D.D.S."*, and who challenged his French colleagues to make some dental progress and achievement by discovering something "which has not already been invented in America." In September 1866 *L'Art dentaire* featured an interesting article which attempted to explain the reasons for the current vogue of American dentistry in Paris. It contrasted the special colleges of dentistry which had been established in several leading cities of the United States with the complete lack of such schools in France where the *facultés de médecine* scarcely deigned to consider dentistry. France, moreover, had only one professional journal and no active professional organization whereas in America there were already many journals and associations for the exchange of ideas and techniques. Of greatest consequence, the article suggested, was the almost total lack of regulation in France.

Indeed, the growing concern over the foreign threat to French dentistry would lead to renewed attempts to professionalize dentistry. Generally these attempts before 1880 took the form of recurrent legislative proposals that the strict regulation which the highly centralized French state exercised over other practitioners of the healing arts be extended to dentists. After all, as one contemporary journal pointed out, it did not seem logical that a dentist should be the only professional person not regulated in France "where everything else is regulated."* The jealous hostility of physicians to such a development, however, would insure that a move to extend governmental regulation to dentistry would fail to pass the legislative Chamber as late as 1877.

After this last failure Charles Godon, an energetic and capable young Paris dentist, decided that his colleagues were wrong to seek governmental controls as the first step toward true professional recognition. He believed that they should instead follow the example set by dentists in the United States several decades earlier by first establishing a private association which could work gradually to create its own professional standards. Godon had no doubt that if such professional organization were successful, state regulatory action would eventually follow.

Godon organized the *Cercle de Dentistes de Paris* in 1879 to implement this idea. The first goal of the new group was to establish a school of dentistry with its own standards and a curriculum more oriented toward technique than that of the *Faculté de Médecine*. Under Godon's direction the new *École Dentaire de Paris* obtained enough
private support to begin operation in 1880. Three years of successful study and passage of a final examination qualified a student for the diplomé of the school. Although the government did not initially recognize this degree, the very success of the school and its graduates during the next few years — just as Godon had predicted — led to official sanction. By 1884 the École Dentaire began receiving subsidies from the city government of Paris. Soon the Institut Odontotechnique de France founded by a rival group of dentists also became quite successful, and the two schools pooled their influence to push for a new law on medical practice which would include recognition and regulation for dentistry.

EDUCATIONAL FOUNDATIONS LEAD TO REGULATION

Their efforts were finally rewarded in 1892 by the passage of such a regulatory law following a lengthy legislative debate. This new law provided that a dental practitioner must possess either a medical degree or one from the newly established dental schools. Having now gained the impetus of professional schools as well as official regulation and recognition, organized dentistry advanced in France during the 1890’s in a manner reminiscent of the same American professional movement in the 1850’s and 1860’s. Accredited dental schools were also established in Lyons and Bordeaux, and regional professional associations were organized in these and several other provincial centers.

French dentists were now more than willing to take lessons from abroad; the curriculum of the new dental schools was frankly modeled after that of the American schools. Charles Godon was requested to visit the United States in 1893 to observe American dental schools and submit a report of his findings to the Minister of Public Instruction. An interesting point in his report is that he differentiated between the helpful attitudes of Americans whom he consulted in the United States and those American dentists resident in France whom he accused of "selfish indifference amounting sometimes to hostility."

THE ULTIMATE INFLUENCE OF THE AMERICANS

It is true that neither Evans, who was by now almost seventy and semi-retired, nor any other American practitioner in France had given much assistance to this belated but successful drive to revitalize French dentistry. Their support would probably have not been welcomed anyhow. During the legislative debates over the new regulatory law of 1892, it was apparent that a primary motivation of those advocating the law was the desire to keep foreigners, Americans in particular, from monopolizing French dental practice. And as finally enacted, the law prevented dentists with foreign diplomas from practicing in France without first obtaining a French degree. But this provision did not apply to those already practicing, otherwise Evans himself would have been barred from further practice. It was to counter these strong feelings against foreigners that Evans and several younger American
dentists organized the American Dental Club of Paris in 1890.

If American dentists in Paris, and Evans in particular, were not popular with their French co-practitioners, they were certainly well-liked by their Continental clientele. There was much truth in the humorous report of Maud Andrews, special correspondent for the *Atlanta Constitution* who wrote from Paris in 1899:

... The feature of transoceanic Americanism which makes the deepest impression upon the newcomer is the high social position to which American dentists, here and at other European capitals, seem to have attained...

Any young American who longs for higher things, who sighs for the glamor of courts and the smiles of the fair ladies who adorn them, has only to come here as a dentist... He may not only be presented at foreign courts through having repaired the dental ravages made by time upon princes and potentates, but he may even mix up a bit of statecraft... 

Evans' success had begun a tradition which did not die with him. In spite of the continuing legal restrictions, Americans and American-trained practitioners are still preeminent among the dentists to the international social elite which makes its home in Paris.

Doubtless, many of their French colleagues in the last decade of the nineteenth century still resented the success of Evans and other American dentists in France. They were even more miffed to discover upon Evans' death in 1897 that the bulk of the huge fortune he had amassed in Europe did not go to the various French institutions which, he had reportedly hinted, would be the beneficiaries. Instead, the majority of his estate went to establish the Thomas W. Evans Museum and Dental Institute in Philadelphia, which institution would later become the dental school of the University of Pennsylvania.

More recently French scholars have been willing to allow that it was this successful example of Dr. Evans and the Americans in the first place which spurred French dentistry to modernize. This is borne out by a recent institutional history of the two major Paris dental schools which suggests:

More than any other factor, it was the dentists from the United States, and particularly Dr. Evans, who pushed the French dentists to struggle anew for a better organization of their profession.

For such a statement to come from the perenially proud French is no small tribute to the importance of that American influence!

REFERENCES


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Oddments in Dental History:
The Dental Exhibit at the
Centennial, 1876.

—MALVIN E. RING, D.D.S., M.L.S.
Batavia, New York

One hundred years ago the nation was in the midst of celebrating its first century of independence. The form of the observance was quite different from that in which the country today is commemorating its Bicentennial. Today the emphasis has been on the historical, on a recapitulation of the struggles the nation faced to achieve independence and the marvelous strides it then made to expand and develop. We are being made aware today of the contributions of the various ethnic, national and cultural groups which made up the peoples of these United States. But in 1876 the Industrial Revolution was in full sway, and the country was flexing its mechanical muscles. The major scene of the Centennial observance was then, as now, Philadelphia, and it took the form of a grand industrial exposition to which people from all over the nation streamed to see the great new mechanical marvels which were to make this nation a formidable industrial power. Almost every branch of the arts and industries was represented, with medals and citations being awarded by the Centennial Committees for notable achievements in these various fields. Dentistry had made outstanding advances during this nation’s first century and was proud to show off what it had achieved in the way of contributing to the people’s welfare. The following account appeared exactly one-hundred years ago this month in the October, 1876 issue of the Dental Advertiser, a journal published in Buffalo, New York. It gives us a very good insight into what strides had been made and what the profession deemed important and worthy of exhibition. Of interest is the fact that none of the exhibits was the work of a dental organization, but rather represented the efforts of individual dentists proud to display their skills and innovations or else of manufacturing firms anxious to garner medals to enhance their reputations. Some of the names are familiar to anyone knowledgeable in dental history. Most of them, however, are obscured by the mists of time.

THE DENTAL EXHIBIT AT THE CENTENNIAL

The great Industrial Exhibition, now open at Philadelphia, affords a wonderful display of the proficiency of different nations in the arts and sciences. It is bewildering from its vastness, and the visitor becomes weary of sight-seeing, and returns to his home, often without a passing glance at even half the wonders and beauties waiting for his inspection. The exhibition there made of the art of dentistry, affords to those interested in it, an instructive token of its progress and present status, and it is scarcely credible
that so short a time as fifty years has been sufficient to raise it from being in great part the business of vagabonds and itinerants, to the proud position it now occupies.

A mention of the names of exhibitors and a short description of their displays may not prove uninteresting to those of the profession who find themselves unable to attend the Exhibition in person. It is needless to say that in this branch, more perhaps than in any other, the United States of America overshadows all other nations. The exhibit would be meager indeed if contributions from our country were removed.

The largest and most complete display made by any manufacturer of dental material, is that of Samuel S. White, of Philadelphia, whose exhibition includes, in addition to a full assortment of teeth, gold foil and the usual instruments, several novelties; among which the new S. S. White chair and engine occupy a prominent position, the latter being also shown as driven by a water motor, and by electricity. In a word, there is scarcely anything which can be named as included in a dental outfit which cannot be found in his collection.

Messrs. Codman & Shurtleff, of Boston, Mass., who are large manufacturers both of surgical and dental instruments and appliances, have a truly valuable and fine looking display of their specialties. Their stock of forceps, excavators and pluggers have an excellent finish, and are well worthy of more than a passing glance. They show floss silk holders and foil carriers of their design, struck up from thin steel, very light but sufficiently strong for use; mouth mirrors, inhalers for nitrous oxide, ether and chloroform, chairs, brackets and spittoons, and a very neat and compact form of operating case. The reputation of this firm stands deservedly high for the excellence of their manufactures. Their exhibit is in charge of an attendant, who is always ready to allow to those who wish, a close examination of the contents of the cases.

H. D. Justi, of Philadelphia, has an elegant case, presenting a full assortment of teeth of his manufacture and the materials of which they are composed. The mode of arrangement of the teeth in the cases is very striking, and displays them to great advantage. Several new moulds are to be noticed among the number, betokening the efforts constantly put forth by this gentleman to excel in his department.

Messrs. Johnson & Lund, of Philadelphia, have two cases in which they show artificial teeth, corundum wheels, gold foil, tooth powder, amalgam, and dental instruments.

Gold is usually a very attractive metal to any of the human race, whether belonging to the dental profession or not, and it is unusually attractive in appearance in the case which contains samples of the manufactures of Wm. Valleau, Jr., and Geo. J. Pack, of New York City. Gold and silver leaf, and the various preparations of gold which they furnish for dental use are shown, arranged with great taste, and displaying some unique effects. A miniature log cabin made of gold cylinders, and a statuette formed of Pack's pellets, deserve special mention. We are unable to say whether the statuette in question is intended as an effigy of the manufacturer of the material of which it is composed, or of the late G. Washington, Esq. It resembles either, in some respects.
Messrs. Charles Abbey & Son, of Philadelphia, exhibit a case of gold foil, and the medals they have obtained at different fairs in which they have taken a part.

D. W. Neal, of Camden, N. J., shows a case of artificial teeth.

Dr. W. G. A. Bonwill, of Philadelphia, has on exhibition his electro-magnetic plunger for filling teeth, an instrument which is attracting considerable notice, and has some very warm advocates. He has previously been awarded the Cresson gold medal, a prize only for inventions or discoveries deemed of especial merit, which has been awarded but six times in twenty-nine years.

Horatio G. Kern, of Philadelphia, exhibits a case containing a full line of forceps and instruments of his manufacture.

Dr. S. Wardle has on exhibition some very fine specimens of carved block work, which are well worthy of attention, under a sign bearing the inscription, "Not attempted a hundred years ago."

Dr. Thomas Wardle, of Philadelphia, presents a case containing a number of models illustrative of the resources of the dentist in the correction of irregularities of the teeth. There are some very fine studies among the cases presented.

Probably the best opportunity of contrasting the past and the present of dental science, is afforded in the case of Dr. John Allen, of New York. An upper and lower set of teeth once worn by General Washington, contributed by the Baltimore College of Dental Surgery, and a lower set also worn by the general, contributed by Mr. Isaac Greenwood, of New York, and a set said to have been worn by Aaron Burr, can there be contrasted with the doctor’s latest achievements in continuous gum work. The contrast is very interesting and instructive.

Dr. E. Parmly Brown, of New York, the inventor of the depressed rubber dam, exhibits in addition to that article, three cabinets of his own design, some fine specimens of gold fillings, and some other articles which we believe were invented by the doctor, which are well worthy of a more extended notice than our space will allow.

Dr. Quincy A. Scott, of Pittsburg, Penn., shows his atmospheric disc for retaining plates in the mouth.

Dr. Thomas B. Gunning, of New York, has an assortment of appliances for reducing fractures of the jaw, correcting irregularities, etc.

Dr. Charles A. White, of Philadelphia, has a celluloid apparatus of his own design, flasks, etc., on exhibition.

Dr. Volney Smith, Newark, N. J., exhibits in the English department whole and partial sets of teeth mounted on the Coralline base.

Italy is represented by "Leopoldo Gramignana, Chirurgico Dentista," with a small case of artificial dentures.

Dr. Noel Winderling, of Milan, presents a very fine Dental Museum, containing models illustrative of the development of the teeth, the diseases of the teeth and jaws, cleft palate, etc.

The object of the collection is to present at one view, the whole history of the teeth and their adjacent parts, whether in a physiological or pathological state. The material here brought together could scarcely have been found without great labor and persistence, and the case would be a valuable acquisition to a dental school.
In the Buenos Ayres department may be found a case containing artificial teeth, mounted by "Dr. Rodolfo Newbery, Dentista Americano."

Dr. F. A. Berghamer, of Vienna, Austria, presents a case similar to the above.

In the Russian department are three small exhibits by different dentists.

All the foregoing exhibits are to be found in the main building, but scattered through the departments belonging to the different nationalities to which they belong. There are two other cases, which will be found in the woman's pavilion, their contents being the handiwork of lady dentists.

Mrs. Dr. F. C. Treadwell, of Philadelphia, has a case containing specimens of gold and other fillings. We understand she has been in practice since 1854.

Annie D. Ramborger, D.D.S., a regular graduate of dentistry, exhibits specimens of gold fillings and gold plate work.

It will be seen from the foregoing resume that the dental exhibit, taken as a whole, is an interesting one, when we take into account the fact the great reluctance to figuring in exhibitions of this sort which exists with many, indeed a majority of the more intelligent among the profession. A fuller representation of Manufactures from foreign parts would have greatly enhanced its value, affording as it would, opportunity for comparison with our home productions. As it is, however, not a single foreign manufacturer of dental goods has ventured to put his wares in competition with those furnished by this country.
The Evolution of Metal Castings for Dentistry

—HARRY C. HAGMAN, C.D.T.
Minneapolis, Minnesota

Never will it be known to whom belongs the honor of having applied the first metallic restoration for dental inlays.

One of the oldest methods was to pack the cavity with sponge gold, remove it carefully, then saturate it with gold solder and reset it with cement.

The method of making porcelain inlays played an important part in helping develop gold, silver and alloy restorations. As in the former technique, platinum or gold was burnished into the cavity or into a die. Then gold of various alloys, or pure gold, was filled in the matrix, built to contour with cusps and margins, and then finished and polished.

CASTING METHODS

There are four physical principles employed in dental castings: gravity; pressure by air or gas; centrifugal force; and vacuum. The metals may be tin, aluminum, gold, silver, platinum, chrome alloys and various combinations of these. The major problems encountered have been the elimination of the wax from the mold, the forcing of the metal into the mold, and the consequent shrinkage or expansion of the metal once it had been cast.

THE GRAVITY METHOD

Dr. Edward Hudson of Philadelphia, in 1820, was believed to be the first to cast a tin base for a denture. The wax pattern was invested in a mixture of marble dust or pumice and plaster. The mold was heated, the wax was dissipated and the mold was then allowed to cool.

For this method, low fusing alloys were employed as they melted at about 500°F., and a simple ladle or large spoon was used to pour the tin into the mold.

In 1855, Dr. A. A. Blandy of Baltimore developed a method he called "Chleoplasty", the pouring method. His metal was an alloy of silver, bismuth and tin. Dr. Blandy's method of gravity casting soon interested many doctors, among them Kingsley, Bean, Weston, Hawes and Watts.
Dr. George Watts’ formula and flask (Fig. 1) was found to be the most practical for casting tin and silver denture bases, and thereafter dentures were referred to as Watts metal lower denture. These flasks were widely advertised in dental journals of the 1870’s and sold for $1.50. The increased weight of the casting, over 30 dwts., was no deterrent to the patient’s comfort as it provided stability and suction, was cool, did not tarnish, was non-irritating (thereby insuring tissue compatibility,) and was not affected by the fluids of the mouth.

Dr. George Reese cast palates of an alloy of gold, silver and tin, but the gold content was low, so it melted around 600 to 700 degrees F. The equipment consisted of an investment of 2/3 plaster and 1/3 marble dust or pumice. This combination resulted in a porous investment.

Other flasks which were in two parts were devised by Lewis, Ransom and Randolph and Weston. They had either one, two or three holes in the flasks for the entrance and exit of the molten metal.

Dr. R. C. Brophy of Chicago developed a method of casting aluminum by jarring or vibrating the molten metal into the mold but this required a large quantity of metal in order to achieve sufficient weight to allow for gravity to influence its flow into the mold.

THE CUTTLEFISH METHOD

Gravity casting of gold pontics, cusps and bars into two pieces of cuttlefish bone was common in the dental laboratory in the 1900’s. This technique had its origin in the jewelry art of casting rings and other objects.

In constructing a pontic, the hygienic shaped pattern was carved from modeling compound which contained graphite for easy carving. The cuttlefish bone, which had been halved in the factory, was purchased in large quantities and it was the author’s duty, as an apprentice in 1910 at the Boos Laboratories, to flatten the halves by rubbing them on sandpaper so that they would contact each other closely.

The cuttlefish was ground away sufficiently to accomodate the carved pattern which had been imbedded in one half of the bone while the tail of the pattern was imbedded in the other half. Then the two
pieces were notched on the outside so that when the pattern was removed the whole could be reassembled accurately. Then a groove or sluiceway was cut from the pattern to the top to form a V-shaped entrance in which to pour the molten gold. The gold was melted in a covered clay crucible by a blow pipe or Buffalo furnace. (Fig. 2)

PRESSURE CASTING BY STEAM, AIR OR GAS

This method was recognized as having the greatest range of application and power. The advantages are that the power is unlimited and it forces the molten metal in all directions.

One of the oldest methods of pressure casting was used by a Mr. Biber of Pforzheim, Germany. He invested the inlay's wax pattern in a large ring with a sprue to the top of the ring and then eliminated the wax. The ring had a large loose fitting cover about 1" depth which was filled with wet asbestos or moldine.

The metal was melted on the surface of the mold and the cover quickly applied to the top of the mold. The hot mold and the molten gold in contact with the wet asbestos created steam which drove the molten metal into the mold. If moldine were used, pressure upon the moldine forced the molten metal into the mold. (Fig. 3)

The casting of aluminum has been credited to a Dr. J. B. Bean of Baltimore in 1866 and it was improved upon by Dr. W. H. Atkinson in 1881, but the exact method used was not recorded. It was most likely accomplished by steam pressure.

Dr. C. C. Carrol of Ravenna, Ohio, introduced a method of pressure casting by using rubber balls or a plunger, but this was not too successful.

Dr. Solbrig of Paris, France, in the 1900's described the first mechanical device for casting inlays by steam. It consisted of a large extended pliers which had an extension platform or beak on which a mold enclosed in a ring would seat. On the other end was a shallow cup a trifle larger than the size of the ring containing the mold. The cup was filled with wet asbestos, the burned out mold was placed on the platform and the gold melted with blowpipe directly on the mold. When the gold was sufficiently fluid, the pliers were closed, and the steam generated by the hot gold against the wet asbestos drove the gold into the mold. (Fig. 4)
A milestone in the development of restorative dentistry was the introduction of the pressure casting machine and an improvement in the method of using a disappearing wax-pattern by Dr. William H. Taggart. His technique revolutionized the entire approach to the crown and bridge prostheses of today. On January 15, 1907 Dr. Taggart described his method before a meeting of the New York Odontological Society. He had labored for years to perfect his invention and wanted his colleagues in the profession to share his successes in producing cast inlays that fit as none had before them. His only demand was that he be recompensed for the time he had put in developing his method, and this he planned to achieve through sale of his casting machines. But an anxious profession wouldn’t wait for his machines to be available and dentists began constructing their own. In desperation Taggart attempted to secure licenses for use of his method but lost his case in court when it was shown that an obscure Iowa dentist had demonstrated a somewhat similar process before his local dental society in 1896! Embittered, Taggart withdrew from the profession and from that time till his death had nothing further to do with dentistry. The story of Taggart’s struggles and the full report of his invention appeared in the December, 1974 issue of the Bulletin of the History of Dentistry.

Taggart’s method was essentially that used today. He embedded the wax pattern in an investment contained in a metal ring and heated the ring over a flame to evaporate the wax. Then by using a nitrous-oxide flame (which allowed greater temperatures to be achieved thereby heating the gold far beyond its melting point) he rendered the gold to a liquid state. This was immediately followed by pulling down the handle of the casting machine (Fig. 5) which simultaneously shut off the flame of the torch and forced the molten gold into the mold by compressed air being applied at a pressure of from 25 to 40 pounds per square inch. “The actual time consumed in forcing the melted metal into the air-tight mold under this heavy pressure is probably but a fraction of a second,” said Taggart, “but the success of the whole process depends upon this speed... My process, as I will show you, takes advantage of every fraction of a second of favorable conditions, and by having this heavy pressure on top, with no possible chance for gold or air to escape, the liquid gold is forced in; and by liquid gold I mean gold in a boiling state - a great number of degrees beyond its actual melting-point. While it is in this freshly molded condition the
pressure is maintained for a few moments, in order to allow the molten gold to thoroughly con-geal.”

Taggart’s invention opened the way for the introduction of other designs of pressure casting devices by practicing dentists and technicians, both because the Taggart device was quite expensive and because it used nitrous-oxide gas instead of the ordinary combination of air and commercial gas available to every dentist and dental laboratory. One of the more successful air-pressure casting devices was the Burns Dental Casting Machine which was introduced on the market in the early 1920’s. Although essentially similar to Taggart’s machine, it carried its reservoir of compressed air which was produced by a simple bicycle-type air pump. (Fig. 6)

CENTRIFUGAL CASTING – VERTICAL AND HORIZONTAL

Centrifugal force is that force which is developed by matter revolving about a rotation center, and this force is exerted toward throwing the matter off at a tangent from the rotation path. The power is proportional to the velocity and weight of the matter.

The principle has the advantage of great simplicity as an effective machine may be formed by a basket or bucket swung at arms length. Or a machine with gear wheels may be utilized to shorten the radius and increase the velocity.

In 1908, Dr. Dayton Dunbar Campbell of Kansas City, published a paper describing his “Cow-Bell” centrifugal casting method; and also Dr. J. H. Bellmayer of Ohio described the “Bucket” for the casting of aluminum.

Dr. Campbell’s method consisted of using a Hoosier Cow Bell with two holes drilled in the top edge of the oblong bell as a flask for attaching the hooks of a 24 inch chain for casting, using the right arm in swinging the mold in an arc vertically. The bell, which served as a flask, had a wax pattern which
was burned out. The aluminum was melted and poured quickly into the flask and immediately the flask was swung in a steady vertical motion increasing the speed to about 50 to 100 whirls until the metal solidified. Plenty of space was allowed so as not to endanger the caster or nearby property.

An early mechanical casting machine which utilized a vertical path was introduced about 1920 by the Dental Products Company of Chicago and called the "Den-Pro." It was cranked by hand. (Fig. 7)

The first spring loaded horizontal casting device was believed to be the Jameson, the idea for which was suggested by the medical centrifuge used for urinalysis (Fig. 8). From this, various forms were developed, namely the Hollenback, Vaughan, Monson, Perfection, Jelenko, Austenal and others. The gear type was copied from the inverted hand drill, and was developed by Ingersoll. This was clamped to the laboratory bench and cranked by hand, but the gear transference resulted in a horizontal path (Fig. 9).

THE VACUUM CASTING DEVICES

The first on record was made in Germany by a Dr. Frink in 1908, followed by the Elgin "pig" casting machine manufactured by Ransom and Randolph in the 1920's. (Fig. 10)

The latter machine consisted of an iron tank containing an exhaust pump with pressure gauge and one exit, with 2 valves. It had 2 sizes of table brackets, to accommodate either a smaller or larger mold ring. The ring had to be in absolute contact with the bracket table for suction. Before casting, the pump exhausted the air in the tank, thus creating the vacuum.

The mold was placed, sprue hole up, on the bracket table. The gold was melted directly on the mold and when fluid, the valve was
released and the vacuum suctioned the gold into the mold.

In the 1930's radical new designs were making their appearance. These utilized a host of new and sophisticated techniques, among them the Induction Furnace, the Helium Arc and the laser beam to melt various metal alloys. But these instruments were very expensive and difficult for the ordinary dentist to use, and their use today is confined to commercial laboratories.

THE PROBLEMS WITH INVESTMENTS

The material from which the casting investment is made may be divided into two classes according to the amount of gypsum it contains. A low gypsum content was used for high or medium heat techniques while the high gypsum content investment was used for quick and rapid carbonization of the wax and low heat techniques.

With low plaster content molds the wax was burned out by heating slowly so as not to cause the investment to "explode." However, the heat was slowly increased until all smoking disappeared. The high plaster content investment, on the other hand, was essential for the utilization of the boil-out or wash technique, since the large amount of gypsum allowed the investment to withstand the rapid forcing out of the wax by the boiling water. After removal from the boiling water, the mold was dried at a temperature of 700°F for about 15 minutes, but the casting was made into a cool mold. This method was pioneered by Dr. Karl W. Knapp in 1921 and later perfected by Dr. Fred Meyer of Minneapolis.

In 1912, the author, then a technician at the Boos Laboratories, where many cases were produced daily, introduced a method to eliminate the wax by placing the mold with the sprue hole up in the bottom of container of boiling water. The heat of the boiling water caused the wax to rise to the surface very quickly, and resulted in a clean mold which was placed directly in a hot oven so as to quickly dry out the mold for casting.

In 1928 the author applied for a patent on a technique for forcing out the wax by applying live steam directly to the base of the mold in a device similar to a Burns air-pressure casting machine. The mold was placed, sprue hole down, on a platen from which issued the live steam which forced the free water and wax upward and out of the investment. This was a boon in handling large castings. (Fig. 11)

It had been planned to assign the patent to Henry Boos, but the patent was not granted because the aforementioned Dr. Fred Meyer
claimed prior invention. He had invented a small hand boiler about 1\frac{1}{2} inches wide and 6 inches long with a screw top which would hold an invested wax pattern with sprue hole up in boiling water. However, Meyer's litigation itself was unsuccessful for a while because of the author's prior use of the boiling-water method in 1912. Nevertheless, to avoid unpleasantness, Mr. Boos withdrew his claim and Meyer was granted his patent.

In 1935 the author was granted a patent on a more sophisticated device which used two electrodes as the heating element to create steam. (Fig. 12) The invested ring was placed on a holder, sprue hole down, and then forced up against a platen by screw pressure. Two or more glasses of water were fed into the receptacle and immediately steam was generated and escaped through a vent with numerous apertures into the mold, forcing out the free water and the invested wax.

Casting techniques today are basically the same as those utilized by all these pioneers in the field. However, still more sophisticated and involved equipment is necessitated by the use today of metals not dreamed of by these early workers - alloys such as those of platinum, chromium, cobalt and beryllium - which require more involved investments which these metals demand because of the higher temperatures required for their casting.

MR. HAGMAN, who began his career as a laboratory technician in 1910 at the age of 14, was associated with the dental laboratory field for over 60 years. He is the author of the book Dental Origins and his address is 6122 Portland Avenue, Minneapolis, Minn. 55417. Requests for reprints should be made directly to the author.
Editor’s Note: From the time of Pierre Fauchard dentists struggled to devise a method to have upper dentures stay up! Fauchard’s method involved the use of a spring embedded in the side of the ivory or bone of which the denture was made. The dentures were pressed together and when released within the mouth, the extension of the spring kept the upper denture against the palate. However, this was at best a very uncomfortable arrangement and Fauchard himself sought to eliminate the use of the springs. He came very close to devising a method relying upon the cohesive forces of saliva and the adhesive attraction which maintains a modern denture in position on the palate. But the real reason why the denture stayed in place eluded him as evidenced by his own words:

One can adopt an entire set of teeth to the upper jaw, of much greater simplicity than those described, and which is maintained in its place by the sole support of the cheeks and the lower teeth. It must be very light indeed and serves almost solely to improve the appearance and the pronunciation; but when the individual gets used to it, he can also masticate with it. A set of teeth of this kind ought to adhere well to the gums and to be constructed in such a manner that the cheeks may afford it sufficient pressure and support together with the aid of the lower teeth... Not long since I had to renovate a set of teeth of this kind made by me more than 24 years ago, and worn by the owner to the greatest advantage. I have since made two others which have proved most useful to the persons wearing them. It is true that there are few mouths adapted for wearing these sets, so much so that, excepting the three referred to, I have never made any others.

Not only did Fauchard fail to continue attempts to make springless dentures, no other dentist ventured an attempt. Poor impression material no doubt contributed to reliance on mechanical retention and it wasn’t until the 1840’s that the profession finally did away with the loathsome springs and learned to make dentures that retained themselves in the mouth.

The one responsible for teaching the profession not only how to make dentures so that they stayed in place but why they did so was Chapin A. Harris in his monumental text *Principles and Practice of Dental Surgery*.

Although principally known as the editor of the first dental jour-
nal in the world, founder of the first national organization of dentists in the world and co-founder with Horace Hayden of the first dental school in the world, Harris’ real impact on the practitioner of dentistry came from this book. It became the most widely circulated book on dentistry of all time and went through numerous editions. It was recognized as the definitive text on all phases of dentistry and was used by students in all of the dental schools in this country (and by students in foreign lands in translated versions) until the turn of the century. Preceptorial students as well as those formally enrolled in schools followed Harris’ teachings in this book, and this, more than any other source, set the tone and style of American and ultimately world dentistry.

Harris was one of the first to understand correctly the principles behind denture retention, and he clearly and succinctly conveyed this knowledge to an eager profession in the following chapter which is reprinted from the second edition of his work. (Harris, Chapin. Principles and Practices of Dental Surgery. Philadelphia, Lindsay and Blakiston, 1845, 3rd Edition.)

OF THE ATMOSPHERIC PRESSURE AND CAPILLARY ATTRACTION METHOD OF APPLYING ARTIFICIAL TEETH

The method last described, (spring-retained dentures. Ed.) for the retention of artificial teeth in the mouth, is often found inapplicable and inefficient, especially in the upper jaw, and it is in such cases that the atmospheric pressure principle is especially valuable. It cannot, however, be advantageously applied for a less number than a whole upper set, because a sufficient surface of plate cannot be obtained for the atmosphere to act on, to afford the necessary support, and, for a like reason, the narrowness of the inferior alveolar ridge, will sometimes prevent the insertion of artificial teeth in the lower jaw upon this principle. In fact it is generally supposed to be wholly impracticable to use it in their application to the inferior maxillary, and the author was, for a long time, of this opinion, but he has succeeded so perfectly, that he now rarely finds it necessary to employ spiral springs in the insertion of double sets. He has quite recently applied six double sets upon this principle, which are worn without the slightest inconvenience.

The practicability of confining teeth in the mouth by this means, was formerly very much questioned, and, even at the present day, it is doubted by many. The principle, on which the plan is founded, may be simply illustrated, by taking two small blocks of smooth, flat marble, and exhausting the air from between them,—the pressure of the atmosphere on their external surfaces, will enable a person to raise the under block, by lifting the upper. In a similar manner, a gold plate, or any other substance impervious to the atmosphere, and perfectly adapted to the gums, may be made to adhere to them.

The firmness of the adhesion of the plate, or base to which the teeth are attached, to the gums, depends on the size or depth of the alveolar ridge. If this is full and prominent, it will adhere with great tenacity, but if it is so shallow as to admit of its being moved horizontally, its retention will often be attended with difficulty. It is also important that the teeth should be so arranged and antagonized, that they shall strike all the way around those in the
other jaw, at the same instant. This is a matter that should never be overlooked, for if they meet on one side, before they come together on the other, the part of the plate or base not pressed on, will be detached, and by admitting the air between it and the gums, it will cause it to drop.

The application of artificial teeth, on this principle, has been practised for a long time; but the plates formerly used, were ivory, instead of gold, and could not be fitted with sufficient accuracy to the mouth to exclude the air; so that, in fact, it could hardly be said, that they were retained by its pressure. The retention of the ivory plate is not effected by the pressure of the air, but is the result of adhesive attraction, and this is generally so slight, that it is constantly liable to drop. Moreover, it is so awkward and clumsy, that the teeth cannot be worn with any degree of satisfaction; and the ivory absorbs the fluids of the mouth so readily, that, after having been worn for a few weeks, it becomes exceedingly offensive.

I have seen many sets of teeth fixed on plates, or rather blocks, of ivory, and many that were composed altogether of this substance; and, in one instance, prepared a set myself; but the objections above stated were so palpably manifest, that I determined never again to attempt the insertion of artificial teeth upon this principle. Having, however, been called upon, about ten years ago, by a lady whom I highly esteemed, for a set of upper teeth, and, finding that they could not be confined in the mouth by any other means, I was reluctantly induced, after having stated to her all the objections, to undertake their insertion. Instead, however, of using, as formerly, a plate carved from the ivory of the hippopotamus's tooth, I determined to employ one of gold. Accordingly had it made so as to fit all the inequalities of the gums; and after having fastened the teeth upon it, in the manner to be hereafter described, placed it in the mouth; and having exhausted the air from between it and the gums, had the satisfaction to find that it firmly adhered, and that the teeth enabled the lady, (to use her own words,) to "speak and eat with perfect ease." These teeth still continue to answer all the purposes that can be expected from artificial teeth, under the most favourable circumstances, and I have since inserted from thirty to fifty sets on the same principle, and with like success; and have also seen a number of sets inserted by Dr. Noyes, and other dentists,—and most of which answered a good purpose.

The firmness with which teeth, fastened on this principle, can be made to adhere to the gums, and the facility with which they can be removed and replaced, render them, in many respects, more desirable, than those fixed in the mouth with clasps. But, unless judgment and the proper skill be exercised in their preparation, a total failure may be expected, or, at least, they will never be worn with satisfaction and advantage.

Many, in attempting to insert artificial teeth in this way, have failed of success, and, in consequence, have condemned the principle, when, in reality, the fault was attributable to some defect in the preparation of the teeth, or of the fixtures with which they were connected. Many of the failures, are owing to their premature insertion, for, however well the plate, upon which the teeth are fixed, may fit the gums at the time of its application, it will soon lose its adaptation, if it be applied previously to the completion of the changes in the alveolar ridge, that follow the removal of the
natural teeth. When this happens, the air gets between the plate and gums, and the whole apparatus, as a natural consequence, drops; whereas, if a sufficient time is allowed for the completion of the changes, just alluded to, it will continue to adhere to the gums. Another very frequent cause of failure is, a want of proper adaptation in the first instance. Unless the plate be made to fit the gums with the most perfect accuracy, the pressure of the atmosphere cannot be expected to confine it to them.

There are but few writers on this branch of dentistry, who have even so much as adverted to this mode of applying artificial teeth. Drs. L. S. Parmly and Koecker, have each bestowed on it a passing notice. The former of these gentlemen, in alluding to the subject, thus remarks: "Where the teeth are mostly gone in both, or in either of the jaws, the method is, to form an artificial set, by first taking a mould of the risings and depressions of every point along the surface of the jaws, and then making a corresponding artificial socket for the whole. If this be accurately fitted, it will, in most cases, retain itself sufficiently firm, by its adhesion to the gums, for every purpose of speech and mastication."

It is not, as has been before stated, expedient to apply parts of sets upon this principle, nor did I for a long time believe the pressure of the atmosphere and capillary attraction would give to a lower set, because of the narrowness of the alveolar ridge of the inferior maxillary, sufficient stability to render it at all serviceable, but experience has fully demonstrated its practicability.

Dr. Koecker tells us, that he has "been completely successful in several instances, in the application of sets for the upper jaw in this manner;" and says, they "should be made either with a gold plate, mounted with natural or artificial teeth, or of one piece of hippopotamus's tooth."* Having already stated the objections that exist to the use of this substance, I cannot join with Dr. K. in its recommendation. At the time when I first substituted the gold plate for it, I had not seen his late work on artificial teeth, and consequently was not aware that this metal had ever before been used.

A Dental Debate from the Talmud

—RABBI ALLAN M. BLUSTEIN,
Fort Sam Houston, Texas

The Talmud — a vast compendium of Hebraic law and literature, completed over thirteen centuries ago in the ancient Persian Empire — alludes to some of the age-old problems which plagued the dental practitioners of yesteryear, therefore, the following text and discussion (TRACTATE ABODAH ZARAH, 28a) merit careful examination in this regard. The insertions in parentheses are the author’s.

... “Said Rabbi Zutra Ben Toviah in the name of Rab: Any sore which requires a medical opinion as to whether it is fatal or not, justifies the profanation (violation) of the Sabbath. Rabbi Shaman Ben Abba said in the name of Rabbi Jochanan: Inflammatory fever is to be regarded as an internal sore for which the Sabbath may be profaned (so as to administer treatment). The question is asked: Which sores are to be classified as internal? Rabbi Ammi replies: Those found on the lips and inward. Rabbi Eleazar then asks about the gingiva and the teeth: should they, being hard, be regarded as external (thus prohibiting treatment on the Sabbath) or do we say that since they are placed within the mouth, they are to be regarded as internal (and therefore may indeed be treated on the Sabbath). Abaye says: Let us examine the following authoritative Tannaitic statement for clarification: One who is troubled with his teeth must not rinse them with vinegar (on the Sabbath lest he be led to the act of grinding which is forbidden on that day). Therefore, it seems that only when a person is ‘troubled, he or she must not rinse the teeth in vinegar, but if the teeth hurt very much, perhaps it is then permitted to rinse them (and violate the Sabbath). (The Talmud refutes this statement by contending that the authority who uttered it probably equates “being troubled” with “hurting very much” thus concluding that regardless of whether a person’s teeth “trouble” or “hurt him very much,” he is still forbidden to treat them on the Sabbath by rinsing them with vinegar!).

Continuing the effort to prove that the gingiva and teeth may be treated on the Sabbath, the Talmud cites the following case: Rabbi Jochanan was troubled with scurvy on his gingiva and he went to a certain (heathen) lady dental practitioner who attended to him on a Thursday and a Friday. Said he: What about tomorrow (when his Sabbath lecture in the academy would prevent him from calling on her)? To which, the practitioner replied: You will no longer need the treatment then. But what if I do need it?, he asked. She then replied: Swear unto me that if I tell it to you, you will not reveal my remedy. Said he: I swear to the God of Israel that I will not reveal it. She then divulged it to him and on the following day, he referred to it in his public lecture. Ask the Sages in dismay: But did he not swear unto her? Yes, he swore, the Sages answer themselves... but the language of the oath was: To the God of Israel I will not reveal it, (implying that he could reveal it to the people). Resuming the attack, the Sages then come back
with the rejoinder: But is this not a profanation of the Divine Name (which constitutes a grievous sin, especially when dealing with a heathen)? Indeed it is they once again answer their own question, but the facts of the case are that Rabbi Jochanan made this proviso explicit to her originally (thereby absolving him of any blame for the Profanation of the Divine Name). In any event, the Sages assert: The story shows conclusively that a sore on the gingiva is regarded as an internal sore (and one may therefore violate the Sabbath to get treatment for it as Rabbi Jochanan was apparently willing to do). Said Rabbi Nahman Ben Isaac: We cannot use this case as evidence one way or another because scurvy is a unique disease since it may start in the mouth and extend to the intestines. The Sages then ask: What is the symptom of scurvy?... to which they answer: If a person (who has scurvy) places anything between his teeth, blood comes from the gingiva... said condition stemming from the chill of cold wheat-food and the heat of hot barley-food (and also from the remnant of fish-hash and flour).

Returning to the problem of the dental practitioner herself, the Sages then ask: What was this miraculous remedy she used for Rabbi Jochanan's condition? Rabbi Aha Ben Raba says it was leaven-water with olive oil and salt while Mar bar Rav Ashi says it was geese-fat smeared with a goose-quill. Disagreeing with both of them, Abaye says that he tried these as well as others but was not cured until a certain Arab told him to get seeds of an olive not one third ripe and burn them on a new spade and spread (the ashes) on the gingiva; which he did and was cured. The Sages then ask again: How could such an upstanding scholar like Rabbi Jochanan act as he did in relation to the heathen dental practitioner? Did not Rabba Bar Hanah say in the name of Rabbi Jochanan that any sore for which the Sabbath may be profaned should not be healed by a heathen (and yet he was going to one for dental treatment)? Again the Sages answer their own question: It is different with a distinguished man (such as Rabbi Jochanan, because the heathen would be afraid to commit any foul play, thus it is permitted). And yet the Sages continue to refute this by citing the case of Rabbi Abbahu (a distinguished man also) who was treated by Jacob the Heretic who had prepared a “medicine” for a sore on his leg and were it not for two scholars who had known what to do (to counteract the negative effects of the heretic’s “medicine”), the leg would have had to be amputated (thus proving that the contention of a “distinguished man” does not hold water and therefore a sore may not be healed on the Sabbath by a heathen so we are still left with the puzzle of Rabbi Jochanan’s actions). Say the Sages: There is no problem in Rabbi Jochanan’s case because he was attended by an expert physician (i.e. dental practitioner, which meant that if the treatment was administered by an expert, there is no cause for any fear and thus the Sabbath may be violated showing Rabbi Jochanan to have acted honorably in the final analysis). But if we make this distinction (i.e. of the expert practitioner), say the Sages, then we must admit that Jacob the Heretic was also an expert practitioner in his area and therefore the argument holds no water? All of which the Sages answer by concluding that the argument does indeed hold water (since there is a difference between a heathen practitioner and a heretical practitioner). The heretical prac-
titioner adopts an attitude similar to Samson’s of “let me die with the Philistines” (i.e. of being willing to jeopardize his own life for revenge against his enemies). This attitude of the heretics therefore does not refute the argument of the “expert physician” and as such, we again see that Rabbi Jochanan did nothing wrong in his relationship with the heathen dental practitioner (because the argument of the “expert” physician is strong and logical after all). Thus ends the text in the Talmud.

The foregoing selection from the Talmud has great interest for us today for two reasons. First is the fact that it gives us a glimpse of the type of dental problems which troubled the populace almost two-thousand years ago and the “remedies” which were resorted to in order to treat them. Moreover, we are told just who the practitioners were who treated these dental complaints.

The final conclusion of the text is an important one for the apprehensive dentist of today. The Talmud states very firmly and clearly that if a practitioner be expert enough then there is no cause for worry because of his treatments; patients may come to him in complete trust, confidence and serenity. The point to be made is that the dentist must strive to become the very finest professional he can (by continuing his on-going training, by reading the latest periodicals and literature in dentistry, by developing his “chair-side” manner, and by doing countless other things, all of which should be aimed at cultivating the role of the “expert practitioner”. If he does these things, he will soon find that most of his problems will diminish in inverse proportion to the building of his reputation as an “expert practitioner.” If anyone doubts that this is so, let him go for proof to the Talmudic story of Rabbi Jochanan and the dental practitioner!

COLONEL BLUSTEIN is the Jewish Chaplain at Fort Sam Houston, Texas. His address is Department of the Army, Headquarters, Fort Sam Houston, Texas 78234. Requests for reprints should be made directly to the author.
NOTES AND QUERIES
JAPAN SOCIETY OF DENTAL HISTORY

A new Japan Society of Dental History has been launched. It meets annually and the meeting for 1975 was held in Kyoto with Prof. Ono as Chairman. The general and scientific meeting for 1976 will be held in Tokyo with the President of Tokyo Dental University, Dr. Nagashige Sekine as Chairman. The Preparatory Chairman is Prof. Keijiro Takagi also of Tokyo University.

The Society is run by 16 directors under one chief director. The Society also employs two executive secretaries to handle various matters. Once a year a scientific meeting is held in a major city, the site having been selected at the previous general meeting. At the annual meeting the members report on the results of their research. Besides this general scientific meeting, meetings are held on the third Friday of each month except August and December, at which time members of the Society also report on research in progress. The Japan Society of Dental History is a component member of the Japan Society of Dental Science.

The Chief Director is Masaru Suzuki, D.D.S., President of Nihon University School of Dentistry at Matsudo. The other directors, (all are D.D.S.) are as follows:

Kenshin Imada, Chairman, Ishiyaku Publishers, Inc.
Yoshifumi Ohmae, Prof. Gifu Dental College
Takatoki Ono, Prof. Kyoto University School of Dentistry
Susumu Kikuchi, Prof. Japan Dental University
Yukitaro Sakakibara, Prof. Aichi Gakuin University
Yoshihisa Shindo, Prof. Jikei University
Takatsugu Shimofusa, Prof. Osaka University School of Dentistry
Shigeo Sugimoto, Prof. Osaka Dental University.
Shunichi Seto, Prof. Tokyo Medical and Dental University
Keijiro Takaki, Prof. Tokyo Dental University
Masahiro Tsutui, Prof. Osaka Dental University
Isamu Nakazawa, Prof. Tokyo Medical and Dental University
Kuninori Honma, Prof. Nihon Dental University
Tadashi Masaki, Tokyo
Mitsuo Yatsu, Prof. Nihon University School of Dentistry at Matsudo
Heita Yamada, Prof. Tokyo Medical and Dental University

The Executive Secretaries are Makoto Inoue, D.D.S., Tokyo, and Toshiyuki Kawagoe, D.D.S., Tokyo. The Society’s address is:

Department of Dental History
Nihon University School of Dentistry at Matsudo
2-870-1 Sakaecho Nishi, Matsudo, Chiba
JAPAN

RETIRED ROCHESTER DENTIST DONATES HISTORIC COLLECTION TO ROCHESTER MUSEUM & SCIENCE CENTER

Ralph S. Voorhees, D.D.S., who recently retired from active practice in the Rochester, New York area, has donated a group of major
items from his collection of historic dental equipment to the technology section of the Rochester Museum and Science Center, it was recently announced by Rochester Museum Director Charles F. Hayes, III. The collection includes over 50 objects, the oldest one dating back to a dental chair manufactured in 1872 by a local firm, the Archer Company. Other items include dental cabinets, lights, sinks, work trays, drills, and X-Ray units manufactured by Castle, Ritter, Yawman and Erby, and the Eastman Kodak Company, along with several prototype and patent models.

According to Richard Kilday, III, RMSC Curator of Technology the collection represents "an important addition to the technology section's "Rochester industries Group." It not only details many "first" in the dental equipment field, but it shows the evolutionary development of the equipment."

Dr. Voorhees has practiced dentistry in Rochester for over half a century. In 1971, the RMSC Board of Trustees named him Chairman of their Advisory Committee on Dentistry. He has been for many years an active member of the American Academy of the History of Dentistry.

WANTED!

I have a large collection of old dental equipment, supplies, instruments, etc. I am interested in communicating with other collectors. I will buy old books, equipment, supplies, etc.

Robert D. Rankin, D.D.S.
134 North Sangamon Avenue
Gibson City, Illinois 60936
FURTHER CORRECTIONS OF THE LIST OF FACSIMILE REPRINTS OF DENTAL CLASSICS


There seems to be some confusion regarding the various reprints and editions of The Operator for the Teeth by Charles Allen. As this is the first separate work on the teeth in English I feel the matter is of some importance.


2. Asbell's number 7 is correct, except that the place of publication, York, and the number of pages, 22, are omitted.

3. In Dr. Lofgren's list of corrections and additions to Dr. Asbell's list, published in the December 1975 Bulletin, items 6 and 7 require some corrections. Item 6 says "originally 60pp. Editions: 1-Dublin, 1686; 2-Dublin 1687; 3-London, 1687...". In fact, only the second edition, Dublin, 1686, and the London reprint of this (with the new title Curious Observations...) 1687, contain pp60. This is due to the inclusion of A Physical Discourse... of the beating of the Pulse. The first edition, York, 1685, contains pp22, Lindsay's reprint of the London edition contains pp25 since it is a reprint (not a facsimile) of the dental material without A Physical Discourse... Lofgren's item 7 states that the Dublin edition contains pp22. In fact it contains pp60. It is also stated that on p.VII of my Introduction to the facsimile reprint of the York edition that all three editions had pp60 but that the reprint of this edition has only pp22. In fact it is stated on pVIII (not pVII) that the Dublin and London editions contain pp60. It is suggested therefore that Lofgren's items 6 and 7 should be combined and read "First edition of the Operator for the Teeth, York 1685, pp22. Second edition, Dublin, 1686, pp60. Third edition, with the title Curious Observations in that difficult part of Chirurgery relating to the teeth... Dublyn [sic] Printed and are to be sold in London, 1687, pp60."

Details of the original three editions, with other bibliographical information are to be found in my introduction to the facsimile reprint noted at Asbell, number 7.

R.A. Cohen
Senior Research Fellow in Dental History
Dental History Unit,
The Dental School,
University of Birmingham,
England.
To the Editor:

Just a note to thank you for publishing my article in your journal. Could I please order 50 reprints and ten more journals. I look forward to your reply and once again . . . many, many thanks!

Sincerely yours,
Jack G. Dale, B.A., D.D.S.
Toronto, Ontario

(DR. DALE authored the article "A Century of Dental Education in Canada" which appeared in the December, 1975 issue of the Bulletin.)

To the Editor:

Just a short note to say that I have just received the Bulletin and am especially pleased with the presentation of my paper "Social Concern of America's Black Dentists." Thanks so very much indeed. I shall be able to thank you in person when I next see you.

Sincerely,
Clifton O. Dummett
Los Angeles, California

(DR. DUMMETT, whose article appeared in the April, 1976 issue, is the Associate Dean of the School of Dentistry of the University of Southern California.)

To the Editor:

I am in the midst of writing a paper on old Egyptian prosthetics and which, in spite of much new-found material is still a very problematical matter. I find in your Bulletin of the History of Dentistry, Vol. 24, No. 1, April, 1976, a review of a dissertation by our colleague Quenouille. As I need it very urgently for my work, I would

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be grateful if you could let me have it for a short time. We would order this dissertation from the University at Lyon, but after having had practical dealings with the French, I know this will take a great deal of time. Many thanks in advance.

Sincerely yours,
Prof. Dr. W. Hoffman-Axthelm
Berlin, Germany

(DR. HOFFMAN-AXTHELM is Germany’s most distinguished dental historian and the author of an outstanding book Die Geschichte der Zahnheilkunde which was reviewed in the June, 1974 issue.)

To the Editor:

I wish to thank you for continuing to send me the publications of the American Academy of the History of Dentistry. I also would like to congratulate the Academy on its very successful meeting in Chicago in 1975 which was virtually a part of the 63rd Annual World Dental Congress held in conjunction with the annual session of the American Dental Association.

I would like to inform you that Dr. Jan Erik Ahlberg succeeded me on November 1st as Executive Director of the F.D.I. However, I hope that you will continue to send me the Bulletin and Newsletter.

Yours sincerely,
Gerald H. Leatherman
London, England

To the Editor:

I have just finished reading through the latest issue of the Bulletin, which is always interesting. Congratulations! It’s a handsome publication.

I am mystified by some of the things which appeared in Dr. Dummett’s article “Social Concerns of Black Dentists...”

Dr. Dummett claims that black dentists were excluded from publication in dental journals other than that of the N.D.A. What mystified me was: how was the editor able to make the distinction between black and white correspondents? Is a cultural bias apparent in the typewritten word? Are the name and address the clues?

Sincerely,
George Goldfarb, D.D.S.
Buffalo, New York

(DR. DUMMETT responds: It was relatively easy to detect the racial identity of faculty members of Howard University and Meharry Medical College, and it was from many of these persons that instances were related in which their manuscripts were summarily rejected. It is understandable that it is very difficult for many persons today to appreciate fully the extent and impact of racial bias in all of its overt and subtle manifestations. It is important to realize that the main purpose of a professional organization is to further the competence of its members through the exchange of information, the encouragement of research, and the stimulation of professional dialogue. To facilitate these goals, professional organizations publish journals for distribution to their
members. During the formative years of American dentistry, black Americans were excluded from the white dental schools and organizations. In this manner blacks were effectively denied access to the mainstream of dentistry in the United States and were forced to develop their own counterparts.

To the Editor:

Your excellent work in producing the Bulletin continues to astonish me. Certainly you merit a fine recognition for that valuable contribution to the work being done in dental history. The publication is absolutely first-rate.

Sincerely,
Prof. Gardner P.H. Foley
Baltimore, Maryland

(PROF. FOLEY, a Past-president of the American Academy of the History of Dentistry, is the author of Foley's Footnotes, which appear regularly in the pages of the Journal of the American Dental Association and which have been compiled into a book.)

Once in a very great while a book comes along which is such a marvelous combination of research, scholarship and lucid writing as well as incredible beauty as to make one proud to add it to his library as a veritable treasure. This is the case with Dr. Fastlicht's contribution to the literature!

Dr. Fastlicht, who is a member of the American Academy of the History of Dentistry, has long been recognized as the world's leading authority on pre-Columbian dentistry.

After he was graduated from the National University of Mexico with a degree in dentistry in 1932, he was inspired by Dr. Alfonso Caso, the greatest Mexican archaeologist, to investigate the medicine and dentistry as practiced by the early Mexicans. Dr. Fastlicht's researches took him deeper into the study of these bygone cultures and his field of study ranged as far as Honduras and other parts of Central America. He has made a more thorough study than anyone else of the skulls of the ancient Incas, Aztecs and Mayas in the Department of Anthropology of the National Museum of Mexico, the richest storehouse of these treasures in the world. His researches resulted in the publication of three previous and valuable books: The Art of Tooth Mutilation (1951), Mexican Dental Bibliography (1954) and Dentistry in Pre-Hispanic Mexico (1971).

The outstanding collection of skulls which Dr. Fastlicht studied all exhibited varying degrees of tooth mutilation, such as filing, notching and pointing of the incisors, which, the author speculates, was done for religious or cultural reasons rather than as pure ornamentation.

Most remarkable, however, are the amazing range of inlays of
turquoise, jade, jadeite, hematite and other semi-precious stones set into the labial surfaces of upper and lower incisor teeth, and examples of these number in the thousands. The inlays are perfectly cut and rounded and the holes cut in the teeth so perfectly match the stones that the cements which held them have not washed out even after a thousand years! Dr. Fastlicht describes the probable method used by these ancient people to cut such perfect cavities in the teeth without the use of metal tools and has some excellent drawings and paintings of how this work was probably accomplished. Moreover, he conclusively proves through radiographs that the cavity preparations were done in vital teeth in living patients.

The second half of the book is given over to a discussion of dentistry as practiced by the pre-Columbian Indians and as described in the writings of the very earliest Spanish explorers. One of the most fascinating chapters deals with halitosis among the Aztecs, and we learn that a war between two tribes in 1473 resulted because a queen’s teeth “stank terribly.” Fastlicht discovered in early Aztec chronicles that “… Chalchiuhnetzin, of the very foul-smelling teeth, was a noble woman. Due to this defect, Moquihuixtli, the king, never took his pleasure with her.” To avenge this affront, the queen’s brother, the king of Tenochtitlan made war on his brother-in-law, who as a result lost his kingdom and even his life.

Physically, the book is a work of art. It was printed by the publishing house of Die Quintessenz of Berlin, noted for its outstanding productions. The innumerable color plates, literally dozens and dozens of them, are superb in color rendition and the line drawings are excellent, sharp and clear. The fine coated paper does this work proud, and it makes one wonder why books of this quality are not produced in our country any more.

To add to the book’s value is a fine bibliography which runs to six pages and covers just about every reference to anything ever written on early pre-Hispanic dentistry.

The dental profession is fortunate, indeed, to have a scholar such as Dr. Fastlicht within its midst, and our Academy is singularly honored by counting him among the members.

Reviewed by Malvin E. Ring, D.D.S.


In the 1940's, Dr. William J. Gies, the outstanding educator, biochemist and former president of the New York Academy of Dentistry proposed to write a history of that organization's first 25 years but gave up the idea because, in his opinion, “… the minutes and the records were too hopelessly mixed-up and skimpy to even attempt to initiate such a project.”

In 1960 Dr. Edgar S. Bacon, another past-president, undertook this “hopeless task” and compiled a history of the first 35 years of the Academy. Upon its publication he received a letter from Dr. Andrew Asch which read in part:
Permit me to add my admiration to those you must have already received for the outstanding job you have done with the Academy history. I feel qualified to pass judgement on your work for I served on the committee, just prior to yours, formed to write an Academy history. We found it too difficult an assignment and failed abysmally.

Now, after 50 years of the existence of the organization Dr. Bacon has updated his history and what has emerged is one of the most complete stories of recent American dentistry ever published!

It all began on February 24, 1921 when 18 New York City dentists met at the Columbia University Club and founded the New York Academy of Dentistry in order to "...uphold the dignity and honor of the dental profession; to exalt its standards; to extend its sphere of influence; to promote the advancement of dental science; to encourage and develop...dental literature...and to elevate the standards of dental education."

As one goes through this book he is constantly amazed at the fact that this Academy did indeed accomplish the goals it set for itself.

Some of the most eminent men in dentistry have been Fellows of the Academy, and included on its rolls are a great number of members of the American Academy of the History of Dentistry. Among these latter have been Dr. C. Willard Camalier, a past-president of the A.A.H.D., Dr. Harold Hillenbrand, Dr. Lester Cahn, Dr. Joseph Kauffman, Dr. Joseph Blinder, Dr. Ralph Voorhees, Dr. James E. Aiguier and a host of others.

What strikes one most about Dr. Bacon's history is that he not only consulted all of the multitudinous records of his Academy but that he reproduced them in this voluminous history which thus serves as a treasure-house of information for persons digging in the field of dental history. What emerges is a picture of an organization which, in spite of its lofty idealism, was still composed of human beings. For example, a report of a "Development Committee" noted that the essayists at meetings were "...accorded discourteous treatment by (many) of our Fellowship...leaving the meeting before the essayist has concluded his talk," and also recommended that "...no cocktails be served to anyone after 6:00 p.m."

But this is merely background to the ultimate successes of the Academy. It was one of the main supporters of the Journal of Dental Research, using that organ as its official publication in its early years. And even after Dr. Gies relinquished ownership of the J.D.R. to the International Association for Dental Research, The Academy continued with financial support until it founded its own eminent journal, the Annals of Dentistry.

The Academy was involved in very down-to-earth functions. It took an active part in initiating research which directly affected the American people, such as an examination launched into the safety and usefulness of proprietary dental preparations with an appeal to the Commissioner of Health of the City of New York. This asked that if the Academy's Research Council "...places in your hands the results of our laboratory experiments proving conclusively the baneful result of using these preparations, and proves that the claims made in the advertisements of the goods are false, could your department cooperate..."
with us to the extent of forbidding sale of them to the public in New
York City?" The reply was a strong affirmative, and this led ultimately
to the removal from sale of such harmful products as TAXI as well as
the changing of the formulae of "whitening toothpastes" to avoid the
dangers caused by the inclusion of chloroform.

This is a book which should be in every collection devoted to the
history of the public health movement, for the section on the
Academy's efforts to bring fluoridation to New York City is one of the
best studies on this subject. In addition, anyone who is even remotely
interested in modern dental history will benefit from Dr. Bacon's work
for he will get an idea what a handful of zealous and dedicated dentists
in one city could do to maximize the service of the profession to the
community it serves.

From a technical point of view the appendices included are for-
midable, ranging from a complete list of all the meetings ever held and
the essayists and their topics to a listing of all past officers, a list of all
members with their addresses and a copious and useful index. Dr.
Bacon is to be congratulated on his superb accomplishment, and when
the time comes to write the history of the American Academy of the
History of Dentistry we hope that someone as willing, able and
dedicated as Dr. Bacon will be here to do it.

(The book may be ordered at the published price of $21.50 which
includes tax and mailing charges from: The New York Academy of
Dentistry, c/o Dr. Homer C. Vaughan, 608 Fifth Avenue, New York,
N.Y. 10020.)

Reviewed by Malvin E. Ring, D.D.S.

**Studies in Pre-Vesalian Anatomy.** By L.R. Lind. 344 pages. $18.00.

Syphilis was the curse and the scourge of Europe. Columbus was
rediscovering the Western world. Vasco da Gama reached India.
Science was studied in conjunction with astrology, palmistry and other
pseudosciences. But the study of the human body was returning to the
Greeks and away from the medieval scholars and Arab authorities. The
Renaissance had blossomed in the Old World. 1490-1543 was the era.

L.R. Lind in his *Studies in Pre-Vesalian Anatomy* has gone to
great lengths to present an excellent work on anatomy as it was seen
through the eyes of the ancient "wound makers." This book
approaches that of a text and is not intended for the casual reader who is
interested only in light reflections on early studies of anatomy. What
we have in Lind's book is a comprehensive, detailed work, probably
unequalled by any other book of its kind.

For example, his research took him to the Library of Congress as
well as the National Library of Medicine. Further research led him to
Italy, where he probed in the archives of numerous libraries in Bologna
and upon his return to this country to the library at the School of
Medicine at the University of California at Los Angeles.

The book covers the work of the early masters such as Achillini,
Benedetti, Zerbi, Carpi, Massa, Laguna, Dryander and Canano. All their work preceded the famous text by Vesalius, De Humani Corporis Fabrica.

Achillini is given credit for the discovery of the orifices of Wharton's ducts. [Two salinal fonts into which a stylus can enter are visible; they open near the tongue. . .]

Benedetti stated in his writings that men had more teeth than women, (a fallacy that originated with Aristotle!) Posterior teeth he termed "maxillars." He also noted that "...straight teeth have straight roots," a point which all of us as "tooth-drawers" should be aware of. Benedetti also mentioned the part teeth play in phonics and speech. Alexander Mercula, one of Benedetti's teachers, after losing his teeth, had to resort to a golden thread placed where the teeth had lately been in order to enable him to enunciate properly. The author states in a footnote that this is an interesting example of early orthodontics. However, prosthodontists who read that statement would probably dispute that conclusion.

Reviewed by Steve W. Kirk, D.D.S., who is the Chief Dental Officer at the Federal Correctional Institution at Segoville, Texas.


This book strives to develop the changes in the theories and practice of medicine from 1780 up to the Civil War in the United States without adumbrating the transmogrification that took place between the early period and the latter. A detailed examination of the formation of early medical groups and societies as well as universities is adequately covered showing their origin and final collapse incepted by the greed and pettiness of their own founders. The book carries through periods of charlatanism, Mesmerism, Thomsonianism and homoeopathy but sadly leaves us with an interregnum to the modern practice of medicine. A multiplicity of laws were enacted to create a form of self-regulation in addition to attempts at governmental control of the profession, but each in turn proved unenforceable to the point of tautology. The many medical societies which originated in this era epitomized the very microcosm of the profession in lethargy and apathy and were doomed in failure from the onset. The societies then, as today, represented only a fraction of the practicing physicians, and licentiates as well as those without licenses practiced on equal footings.

Medical schools failed wholly in the separation of their graduates from the empiricists, and the societies themselves failed equally in every attempt to raise the standards of practice. Fortunately in the era just preceding the War Between the States, a small undertow began to grow that would eventually bear fruition as a giant wave of the nation's populace seeking medical help from those versed in a scientific background.

Though every within-the-profession attempt to create a self-governing organization failed, these repeated efforts brought not only
the attention of the public to the need, but a tightening of requirements for entrance into the profession, and thereby the medical profession actually achieved better self-government by the onset of the Civil war than at any other time in our nation's history.

Reviewed by Gerald Steinberg, D.D.S. Dr. Steinberg is the Executive Director of the Maryland Academy of General Dentistry, Silver Spring, Maryland.


An order was issued by the City of London in 1569 "... for the Preventing of all Idle and Begging People, whether Men, Women or Children or other masterless Vagrants ... to take them all up, and to dispose of them in some of the four Hospitals in London ... Those that were Vagabonds and sturdy Beggars, they (the Beadles) were to carry to Bridewell. Those that were aged, impotent, sick, sore, lame or blind, to St. Bartholomew's or St. Thomas's Hospital."

And in every ward at St. Thomas's Hospital (which was founded in 1173) there was this sign:

THE INTEREST OF THE POOR AND THEIR DUTY ARE THE SAME
FOR
CLEANLINESS GIVES COMFORT
SOBRIETY BRINGS HEALTH
INDUSTRY YIELDS PLENTY
HONESTY MAKES FRIENDS
RELIGION PROCURES PEACE OF MIND
CONSOLATION UNDER AFFLICTION
THE PROSPECT OF GOD'S BLESSING, THROUGH CHRIST
IN THIS LIFE, AND THE ASSURANCE OF
ENDLESS HAPINESS AND GLORY
IN THE LIFE TO COME

"This may be paraphrased as follows: It is not enough for the poor to be miserable; they must be virtuous as well."

This short passage is but a small sample of the charming and remarkable writing which is to be found in what is probably the most definitive book yet on hospital construction and design.

Up to about a century ago most hospitals were thought of as places for the care of paupers and those without kin; most patients were nursed at home. Yet so little was known about disease that it was felt that only divine intercession would cure the malady. This resulted, in the middle ages, in hospitals being designed as long wards with an altar at the far end so that each patient could have an unobstructed view of the Mass being performed. And as the need for beds increased it was found that the sufferer at the far end of the ward couldn't see the altar. So the cruciform design was adopted, allowing four wards to have unobstructed views of the altar!

It wasn't until very recently, the last century to be exact, that hospital planning was carried on with functional care of the sick in mind. Earlier most hospitals were "derived," that is, the buildings were
actually borrowed from monasteries, palaces, estates, prisons, barracks or were consciously constructed in the architectural form of any of these.

The authors have brought to this work a wealth of background, skill and knowledge. Thompson is a professor of public health and nursing administration at the Yale School of Public Health while Goldin is a research scholar in the history of hospitals. The melding of their talents has produced a remarkably readable, yet eminently scholarly, work which can be enjoyed by everyone interested in the history of the health sciences.

The book is divided into four major sections: A History of Hospital Ward Design in Europe and the United States; Twentieth Century Ward Planning in the U.S. and Great Britain; the Yale Studies in Hospital Function and Design; and Progressive Patient Care.

However, such a mere listing gives no hint of the veritable treasure house of information this work really is. There are over 260 illustrations, most of them dug up out of European archives and reproduced in large enough form so that all their fascinating details can be easily seen.

Hospitals have played a major role in health care in the world for better or for worse (and for many years the effect on the patient was generally for the worse!) Therefore, it is necessary to have at least some understanding of how hospitals functioned if one is to be aware of how we've progressed in leading the people in their quest for health.

This book is copiously annotated, contains an exhaustive bibliography and index, and its generous 8½x11 dimensions make it almost a "coffee table" work. But it is truly a fine addition to the literature of the history of the medical sciences.

Reviewed by Malvin E. Ring, D.D.S.


Jay Weiss has written a charming little book about many of the things "every patient should know about orthodontics but is afraid to ask." In a somewhat amusing manner, he has confronted many of the "scientific" myths associated with orthodontics and dispelled them in a clear and simple fashion. The book deals with many basics - diagnosis, procedures, mechanics of treatment - all revolving around questions that are oftentimes asked by both patients and parents. A delightful chapter on the reasons why "those gadgets sometimes don't work at all" is quite informative, placing certain risky treatment in proper perspective. In a similar fashion, a small section on which musical instruments would cause the least harmful effect on a child's dentition should help many a concerned parent to decide with which instrument a child might best begin his or her musical education. Most of the chapters are written in terms anyone, be he patient, parent, or practitioner, can readily understand and appreciate.
However, the author occasionally gets carried away with trying to be overly clever. This results in oversimplistic banter in some areas where a less light hearted approach might have been more suitable. All things considered however, the book can do much to allay many of the fears a patient or parent might have upon first encountering orthodontic treatment.


This work represents actual lecture notes taken by Charles White of Manchester in William Hunter’s course which started on January 20, 1752. Later they were transcribed by either Dr. White or a member of his family. That the public should now be reading them is due to the superior detective work of Nell Dowd of South Australia.

The manuscript is undeniably important. It imparts insight into the relationship between the two brothers, William and John. William is remembered mostly for his *Atlas of the Gravid Uterus* and for the establishment of his anatomic theater and museum at Great Windmill Street. William was a motivating force behind brother John’s career. John was poor in language skills and the controversial issues of the day may have reached him through his brother if at all. Garrison believes that John did not have knowledge of Pfaff and Fauchard. So William coached John and saw him make surgery into science. Ironically, this same close relationship later turned sour and set brother against brother.

The section on the teeth is worth quoting:

“The Teeth are reckon’d sixteen in each Jaw.

They are divided into the Body, which is above the Gum, & the root or fang, which is beneath, the Neck is the line of division between the root and the Body; they are made up of a bony Substance & an Enamel.

The Enamel is not Bone, for it is not Vascular, nor capable of being injected, but as a Convincing proof, that it is not bone it will dissolve in an Acid Liquor if steepd in it, whereas Bones infus’d in Acids turn Cartilaginous.

Each root is hollow, for the Admission of Blood Vessells, & Nerves, to pass into the Substance of the Teeth, but these cavities grow less, as we advance in Years.

The Teeth are never found in a Cartilagenous State.

In the fatus, they are of a Gelatinous Substance; Ossification begins in the body of the Teeth, & is continued to the roots, and there are as many points of Ossification as there are Tubercles in the Teeth.

The Teeth are divided into 3 Classes, viz. Incisores, Canini & Molares; the Incisores are the four Anterior Teeth in each Jaw; the Canini are one on each side the Incisores in each Jaw; & the Molares are five on each side of both Jaws; the Incisores, the Canini, & the two first Grinders are formed at Birth; & are those Teeth which are shed.

The Teeth usually cut about the 7th Month, & are shed about the 7th Year; when a Tooth is shed, that part of the Alveolar process entirely wastes.
The secondary Teeth are formed in Sockets of their own; which are situated lower than the other Sockets.
All Dentifrices which destroy the Enamell, are pernicious, & if continued render the Teeth, black, and carious.
There are generally as many protuberances on the body of the Tooth, as there are roots; but these latter sometimes grow together, at other times they are divaricat'd, but especially on the upper Jaw; where not having sufficient depth because of the Maxillary Sinus, they spread & are extract'd with greater difficulty, than those on the lower Jaw, the fangs often breaking, & sometimes bringing away part of the Jaw.
Children in Dentition have great pain from resistance of the Gums, against the growing Teeth; Scarrification by taking off, this resistance relief's them greatly, yet if they cut before the protuberance, & resistance, the Air may destroy the Substance not yet sufficiently formed to bear it. The Tooth may proceed from an Inflammation of the External as well as internal periosteum; but it is generally occasioned by a Nerve from within being offended by the [omitted in text] thro an Opening into the Tooth, or by a Caries."

The above reference is to pulpal recession. Also, interestingly, William divides the teeth into three classes. Later John was to separate them into four by dividing the "molares" into molars and bicuspids or premolars. Elsewhere in the notes mention is made of cleft palate, gomphosis, and saliva. The sections on saliva are rather interesting but are here omitted to serve as an enticement to read this book.

At one point the notes refer to the inferior alveolar nerve as a "remarkable nerve." At another we learn that the submandibular salivary gland was called the submaxillary because the mandible was known as the maxilla inferior. At still another we learn that drainage for a maxillary sinusitus was established by an operation invented by Cooper. The first molar was extracted and the membrane was pierced establishing an orifice to Highmore's antrum. The sinuses were thought to function as resinating boxes in speech.
Vascularity studies were made by means of wax or cinnabar (mercury) injected into vessels. As an example, through these experimental injection techniques the notes say it can be demonstrated that there is no circulation of red blood from the mother to the fetus. An entire section is devoted to techniques of making and preserving specimens. The repercussions of this material suggests a part played in the ultimate development of a Hunterian Museum.

My only criticisms would be to improve the pagination and add a table of contents. Possibly even to annotate the manuscript. A warning to the hard of seeing that this is a facsimile of a handwritten manuscript and has not been set in type.

Reviewed by Michael D. Kurtz, Hollis, New York. Mr. Kurtz is a senior dental student at the School of Dental and Oral Surgery of Columbia University.


This bibliography, which is issued annually, and has in the past been cumulated every five years, is probably the best tool which any
researcher in dental history has at his disposal. Several years ago, in a book review in this Bulletin, the Bibliography was strongly criticized for having failed to include articles from the Bulletin as well as from other very important sources. The National Library of Medicine then explained that it was actively trying to update the listing and that it hoped, before too long, to have all important sources indexed. This the NLM has finally accomplished! The indexing staff has been able to cull through journals it had overlooked before and has included all of the articles of a historical nature in this latest volume of the Bibliography.

But it is not only in the field of dentistry that it is of importance to the dental historian, but in all of the adjunctive fields. For example, the section on Famous Persons will frequently be a storehouse of information which will flesh out a study which one might be doing of a noted individual's dental problems. In a similar way the many other sections of general interest such as Folk Medicine, Magic and the Occult, Quackery and so on are of great value in finding information.

This volume, the ninth in a series of annual bibliographies, is such a valuable research aid that, at this low price, it deserves a place in the library of every digger in the lore of dentistry.

Reviewed by Malvin E. Ring, D.D.S.
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