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Division of Behavioral Sciences, School of Dentistry
University of Oregon Health Sciences Center
611 S.W. Campus Drive
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The Officers of the
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DR. CLIFTON O. DUMMETT
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Dental Branch
P. O. Box 20068
Houston, Texas 77025

Editor
DR. MALVIN E. RING
40 Bogue Avenue
Batavia, New York 14020

Historian
EVERETT A. JACKSON
7512 Dundalk Road
Tacoma Park, Maryland 20012

Deceased
8 March 1984

The American Academy of the History of Dentistry, a not-for-profit organization founded in 1951, has as its goals the following:
Increasing interest among dentists in dental history.
Encouraging dental schools to develop historical collections on dentistry, and to offer adequate instruction in dental history.
Developing a broader understanding of the facts of dental history among the leaders in dentistry in order to aid them in their attempts in solving important problems in dental education and practice.
Stimulating more thorough and comprehensive research in dental history, thereby extending the boundaries of dental knowledge, giving substantial support to growing professional culture.
Creating an authoritative body to which important questions relating to dental history could be referred for factual verification.
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Miss Kowitz is a native of Chicago and has always lived on the north side of that city. She attended Chicago public schools including Wright Jr. College from which she received an A.A. in 1945. She then attended the University of Chicago and was awarded a B.S. in Chemistry in 1951. During this period she worked for The Synthetical Laboratories of Chicago where she did contract research for the U.S. Army Quartermaster Corps and the Pioneer Hybrid Corn Company. Following this she worked for the Glidden Company, first in the research laboratory of the Nubian Paint Division, and later in the Library of the Central Organic Research Laboratory.

When research operations were transferred to Cleveland she elected to leave the company, in order to study for an M.A. in Library Science at Rosary College, which she earned in 1959. She then accepted a position as Assistant Circulation Reference Librarian at the then Quine Library of Medical Sciences (now the Library of the Health Sciences, University of Illinois at Chicago). In 1967 she left to accept a position as Periodicals Librarian at the Archibald Church Medical Library of Northwestern University.

Reference work being more to her interest at that time, she secured the position as Reference Librarian at the Bureau of Library Services of the American Dental Association in February 1970. With the sudden death of the Assistant Director of the Bureau in 1976, she moved up to that position, with the attendant tasks of the Technical Services Librarian. When Dr. Donald Washburn (who was president of our Academy from 1979-80) retired from his position as Director of the Bureau of Library Services in 1977, Miss Kowitz accepted the position as Director which carries with it the editorship of the Index to Dental Literature.

Periodically Miss Kowitz teaches a course in Literature of Science and Technology at the Graduate School of Library Science of Rosary College, River Forest, Illinois, where she won the "Teacher-of-the-Year" Award for part-time
faculty in 1971. She has taught a similar short course for the Illinois Chapter of the Special Libraries Association and a short course in dental literature for the Medical Library Association.

Miss Kowitz is a member of the Medical Library Association, Special Libraries Association, American Library Association, American Society for Information Science, Chicago Library Club, American Chemical Society, American Institute of Chemists, and Iota Sigma Pi, the honorary sorority for women chemists. She also was pleased to be invited to attend the White House Conference on Libraries and Information Services in 1978.

She has compiled five editions of *Basic Dental Reference Works*, which is distributed free by the Bureau of Library Services; she prepares the book annotations for the *Journal of the American Dental Association*, and, with Hannelore T. Loevy, C.D., M.S., Ph.D., has co-authored a series of columns on dentistry and health science on postage stamps for the *Journal of the American Dental Association*.

Our Academy cannot help but prosper under the leadership of so outstanding an administrator and scholar.
The Rubber Denture Murder Case:
The True Story of the
Vulcanite Litigations

Batavia, New York

For about twenty years the dental profession, in the middle of the 1800's, was embroiled in litigation brought about by the insistence of the Goodyear Rubber Company that every dentist pay for the privilege of using Vulcanite. The cases were so devious and the legal entanglements so involved that the whole story has not been brought to light before this. Unfortunately, all of the transcripts of the murder trial were destroyed in the great fire which followed the San Francisco earthquake. However, it has been possible to piece together the facts from the newspapers of the day, for this was a murder case which made headlines from coast to coast.

It is a beautiful Easter Sunday morning that April 1879 in San Francisco. The short and slight, but dapper, man is in his room on the third floor of the Baldwin Hotel, one of the city's more fashionable hostelries. It is now 9:00 a.m. and he has just returned from the barber's in the lobby where he had been shaved and now he is readying himself to leave for Dr. Stone's Congregational Church. He finishes combing his hair and is adjusting his necktie when there is a knock at the door. Without a thought he opens it to face a tall and heavy-set man standing in the hallway. The little man scowls at the visitor, at the same time rather unwillingly inviting him in. A short conversation ensues, the exchange growing more and more heated. Then the stranger produces a snub-nosed Derringer. A single shot rings out and the little man falls backward, his head striking the wall leaving bits of his hair sticking to it. The assailant quietly leaves by way of a back stairway; no one is disturbed. The occupants of the adjoining rooms are down in the dining room having breakfast. A Dr. McAllister, whose room is right above this, hears a faint report, scarcely louder than an echo, but thinks nothing of it.

The dead man lies on the floor of his room all morning, with the door slightly ajar. Passersby who look in and see him lying there dismiss it as a case of "overintoxication." It is the chambermaid, coming about noon, who makes the grim discovery. And since there is no visible blood, it is believed that the dead man had suffered a coronary attack. However, at the morgue that wound in the abdomen is found; the bullet had entered at the navel and ranged downward, causing death. The verdict could be none other than murder.

This fateful murder, which happened just about a hundred years ago, climaxed one of the most persistently applied extortion schemes which the dental profession of this country had to endure for almost a quarter of a century: the paying of royalties for rendering a much needed health service, the replacement of teeth for those who had been so unfortunate as to have lost them.

The man who was murdered was Josiah Bacon, the Treasurer of the Goodyear Dental Vulcanite Company; the assassin was a prominent dentist, Dr. Samuel P. Chalfant. To be cast in the role of murderer was the last thing one would have expected of this highly respected dentist, and although his desperate act ruined his life, it effectively put an end to one of the most severe persecutions the dental profession had ever endured.
THE NATURE OF DENTISTRY IN THE EARLIER DAYS

To understand what tremendous forces drove this man to commit this terrible deed, it is necessary to go back to a time almost half a century earlier. In those earlier days dentistry had advanced but little from that which had been practiced in eighteenth-century Europe. Restoration of teeth was, at best, a poor procedure, since no suitable drill had been developed which allowed the dentist to excavate and properly prepare the tooth to receive a filling, and filling materials themselves left a great deal to be desired. A crude form of silver amalgam had recently been introduced into the country, but its many undesirable properties caused it to be rejected by many reputable practitioners. The day of cohesive gold was still far in the future and a search was being made for a satisfactory “stopping” for carious teeth.

In the field of prosthetics conditions were far worse. Dentures were laboriously constructed by swaging gold plate on a model cast from a plaster impression. Then the plate would have small holes punched in it, and natural teeth or simulated teeth carved from ivory or bone would be screwed to the gold. That the whole contrivance was decidedly uncomfortable goes without saying; what was worse was the very high fee which had to be charged for this tediously constructed appliance, a fee which generally meant that only the wealthy could afford to have these replacements.

Nevertheless, demand for them was not so great as might be expected, because in those days before anesthesia most people chose to retain teeth, whatever their rottenness, rather than submit to the tortures of extraction.

The discovery of anesthesia in 1844 by Horace Wells, the dentist of Hartford, Connecticut, suddenly changed all that. Now dentists were suddenly called upon to extract all those troublesome, aching and infected teeth, with the result that millions of people were now edentulous. But the slow and expensive method of replacement, with the artificial substitutes then in use, provided a poor solution to the problem.

THE FIRST BIG BREAKTHROUGH — RUBBER!

The first big breakthrough in prosthetics came when Charles Goodyear discovered the vulcanization of rubber and received his first patent in 1844, the same year as Wells’ epochal discovery. He had successfully tamed this remarkable compound, turning it from a sticky, changeable, mess to a stable material which could be used for many purposes.

However, it was his brother, Nelson Goodyear, who learned to convert this soft, flexible material to a hard, ebony-like substance, and to which he gave the name Vulcanite. He received his original patent for Vulcanite on May 6, 1851, but applied for and received a new patent on May 18, 1858. The reissued patents covered both the process of manufacturing the hard-rubber compound and the resulting product.

Nelson Goodyear’s Vulcanite soon met a host of imitators and he was hard put to protect his interests against patent infringers. Even after his death, his brother Henry, as administrator of his estate, successfully sued a number of rubber companies for patent violation. As late as 1862 in a case brought by the Goodyear interests against the New York Gutta-Percha and India Rubber Company, the judge, in ruling for the plaintiff, lauded the fruit of Nelson Goodyear’s labors as “...a remarkable material...of great value and well adapted to a great variety of uses. It is free from any disagreeable odor, impenetrable to ordinary fluids, hard, like ebony or ivory, susceptible of polish, and with an elasticity similar in kind to that of tempered steel. For many
purposes of utility and ornament its value is proved by its extensive use in the community."

Not least among its uses in the community was as a base for artificial dentures, as a material to which porcelain teeth could be attached with but a minimum of difficulty and which resulted in an eminently suitable and well-fitting and functioning set of artificial teeth.

The material was freely used by the dentists of the United States, hailed as the greatest advance in dentistry in a quarter of a century, and within a short time it supplanted gold as the material of choice in the construction of dentures. (Fig 1).

For a while it seemed that the manufacturers of Vulcanite were willing to garner their profits strictly from the sale of the material to the profession. Although there were some sporadic attempts to exact license fees from dentists using the material in their practices, there was but little real effort to enforce the licensing plan. And when the Goodyear patent expired in 1861 there was general rejoicing among the practicing dentists of the country who finally believed that henceforth they would be freed from the threat of paying a royalty for every hard-rubber denture they made.

THE BEGINNINGS OF THE EXTORTION SCHEME —
THE CUMMINGS PATENT

By a brilliant move, however, the Goodyear Dental Vulcanite Company turned the tables on the dentists and continued to exact its royalties. For now the Company announced that it had secured the sole rights to the patent which was held by Dr. John A. Cummings, said patent covering not only the whole process of producing a Vulcanite denture but the denture itself! And masterminding this astounding coup was the Company's treasurer, Josiah Bacon.

Bacon ruthlessly attacked dentists all over the eastern half of the nation as patent infringers, demanding that they secure licenses ranging from $35 to $50 per annum, plus a fixed amount for each rubber denture constructed,
the amount varying with the number of teeth replaced. With approximately 14,000 dentists in the U.S. at that time, a $50 annual license would bring in to the coffers of Bacon's company an anticipated $700,000 a year; and to this would be added the additional royalties for each denture. To further insure that the Company got its due, the following record was expected to be maintained by each licensee and turned over to Bacon twice a year:

To General Agent Goodyear Dental Vulcanite Company, Boston, Mass.
The following is the record of all the plates, and parts of plates, for artificial teeth, in which rubber or any allied gum has been used, which I have made, furnished, or sold, either directly by myself or by any person or persons in my employ, since the ______ day of _________, 186_; together with a description of such plates and parts of plates, and the names and residences of the persons to whom furnished, and the dates when furnished. And I certify upon honor that this record fully represents all my work in which rubber or any allied gum has been used, in any way, for all the time named, and that it is in all respects true.

The dental professional exploded with wrath and indignation. Who this Dr. Cummings was, no one seemed to know. But as the number of law suits began to multiply, the story unfolded.

CUMMINGS’ STRUGGLES FOR A PATENT
Cummings, an obscure Boston dentist, had heard of rubber having been used as a denture base. He himself had never used it. In fact, in order to obtain a rubber denture to submit as a sample with his patent application, he had to turn to a technician Robert Haering (who himself held a patent on a rubber process) to supply him with one. And when the Hard Rubber Company sold licenses for the use of rubber, Cummings was one of those who bought a license. But in those earlier years he learned that the process involving the construction of an entire rubber denture had never been patented.

Accordingly, on May 14, 1852 Cummings filed with the Patent Office a caveat, or notice of an invention not fully perfected, to protect an invention he claimed to have made “...of certain new and useful improvements in the setting and plates of artificial sets of teeth.” He then went on to state that his improvement consisted in “...forming the plate, and also the gums in which the teeth are inserted, of rubber or some other elastic substance, so compounded ...to form a hard gum ... rigid enough for the purposes of mastication and pliable enough to yield a little to the mouth.”

Cummings did nothing further for three years. Then on April 12, 1855 he applied for a patent, stating in his application that he had previously entered a caveat; this application was rejected the following May, with the Patent Office referring Cummings to two published articles, one suggesting the use of gutta-percha as a base for artificial sets of teeth, and the other suggesting the use of porcelain and other pastes as well as gutta-percha. Clearly, the government did not think Cummings’ idea a patentable one, because of widespread knowledge and use of rubber for dentures. (The Patent Office failed, however, to mention the fact that a Dr. Truman of England had secured a British patent for the same process as early as 1848, and had exhibited his dentures at the London Exposition of 1851).

Cummings then amended his specification by striking out all reference to gutta-percha and any other elastic material, specifying instead that the patent was to cover material capable of being vulcanized by Goodyear’s pro-
cess or any other process. This amendment was ineffectual and the application for a patent again rejected, with a third rejection following a reconsideration of the original decision for which Cummings had asked. Nothing further was heard from Cummings until 1859 when his attorney applied to the Patent Office for a copy of the specification he had submitted.

Then on the first of March, 1864, he again presented a petition for the grant of a patent, accompanying it with specifications and drawings exactly the same as those he had once submitted. And for some strange, unaccountable reason, this final effort was successful. The patent which had thrice been denied was now a reality!

BACON SECURES CUMMINGS' PATENT RIGHTS

Within a very short time, however, Cummings conveyed his rights in the patent to the Goodyear Dental Vulcanite Company, and then faded from history.

It is not hard to conjecture what moved Cummings to reapply for a patent eight years after apparently abandoning his attempt to secure one. It is most probable that Josiah Bacon, a fellow Bostonian, had in the course of his work with the Vulcanite Company met Cummings and learned of the latter's fruitless efforts, starting some twelve years earlier, to secure a patent. Bacon apparently convinced Cummings to renew his application, for Bacon was shrewd enough to realize that were the patent to be granted now, the earlier caveat would serve to prove primacy in any law suits that might arise. Bacon was then instrumental in getting Cummings to assign the patent to the Vulcanite Company; and he finally capped his efforts when in July 1866 he got the Company to assign to him, personally, "... the said letters-patent and all the rights thereby vested, together with the right to sue for and collect to his own use all damages for past infringements thereon."4 The instrument went on to state that Bacon would be holding the patent rights in trust for certain persons who planned to form a corporation to exploit the patent; and although these persons did ultimately form the corporation, to all intents and purposes it was Bacon who, singlehandedly and for his own enrichment, pursued the dental violators of the patent rights.

BACON BEGINS HIS PATENT SUITS

One of the earliest test cases for patent violation was launched against a Dr. Joseph R. Dillingham of Boston, Massachusetts in December, 1863. Dr. Dillingham's defense was that he had purchased the Vulcanite openly from a dental dealer, and since the material was made and sold for the very purpose for which he had used it, namely construction of a denture base, and was incapable of any other use, its mere sale alone implied a license to use it. Although the court did agree with this reasoning, it nevertheless ruled that since the Hard Rubber Company did not personally know of or consent to the sale to Dr. Dillingham (or to any other unlicensed dentists), it did not really imply a license to use it.5

The injunction granted by the court against Dr. Dillingham stirred some dentists to action, and the first meeting of some concerned practitioners to oppose this unreasonable restriction on the practice of their profession was held in March, 1864 in Boston;6 but little concrete action resulted and nothing further was heard from the group.

In spite of this decision against them, dentists the nation over continued to use the hard-rubber compound as the answer to the problem of the ever increasing number of edentulous jaws. But Bacon wouldn't rest and in Oc-
October, 1864 launched another major suit against a Dr. Isaac J. Wetherbee in the U.S. Circuit Court for Massachusetts, and successfully obtained a judgement and injunction against Wetherbee.

THE FIRST REAL DEFENSE ORGANIZATION OF DENTISTS

Bacon’s bringing suit in 1866 against some of the most prominent dentists in America, including Robert Arthur and Adalbert Volck, seemed finally to galvanize the profession to take steps to defend itself and a group of New York dentists organized the American Dental Protective Society, with Dr. John G. Ambler as President.

The group appealed to the profession at large for financial help, recognizing that a legal defense against the Rubber Company would cost upward of $20,000; dentists in the New York area already were subscribing from $10 to $500 each. “Brethren of the dental profession throughout the United States,” the appeal began. “The cause that we have undertaken is that of a great profession against a great monopoly. We appeal to you, to leave nothing undone toward the overthrow of these illegal claims, and to secure to the dental profession for all time, the free use of all vulcanizable compounds.”

The Society warned the dentists that although the Vulcanite Company was offering licenses in low amounts and easy terms, it was merely doing this in order to lull the dentists into an acceptance of the situation, and that once secured, the Company would keep increasing its exactions from a helpless profession. To fight the patents the Society retained George Ticknor Curtis, Esq., a prominent New York attorney, and asked him to render his opinion as to the validity of the Vulcanite Company’s claims.

Curtis issued a lengthy analysis of the facts which supported the dentists’ contention that they were being unjustly taxed. In the report he stressed the fact that Cummings’ substitution of one material (Vulcanite) for another (gold or gutta-percha) did not justify a patent since “... mere change of material in making a well-known thing, although the new material may be attended with some comparative advantages, will not support a patent.” Moreover, he advised, Cummings’ inactivity for eight years in pressing for a patent, while dentists everywhere were using the material and process, effectively constituted abandonment of his claim. In addition he felt that even if proof of dedication to public use is not evident, there has been such an acquiescence on the part of the patent owners that no Court of Equity would be warranted in enjoining its use.

On the basis of this advice the profession began to gird itself for a showdown battle with the Company. Dental associations throughout the nation adopted resolutions concerning the fight. The Northern Ohio Dental Association on October 11, 1866 proclaimed that it offered its cooperation to all societies which undertook to defend themselves against the enforcement of the Vulcanite Company’s “extortionate demands.” Members attending the Central Ohio Association in Zanesville pledged $100 each “... to assist those who might be prosecuted.” Philadelphia dentists appointed a committee to solicit contributions to a defense fund.

THE DENTISTS LOSE AGAIN

Attorney Curtis’ assurances to the contrary notwithstanding, the profession suffered its next major set-back in late 1866 when the Vulcanite Company won an injunction against a Dr. T.G. Wait and others in the U.S. Circuit Court for the Southern District of New York. This adverse decision had
the effect, however, of bringing more and more dental organizations into the struggle, with a group of Chicago dentists urging that the defense be continued until a final decision could be obtained from the U.S. Supreme Court.

Bacon was now busy rooting out violators everywhere, and in his zeal even began attacking dentists using material other than his. In 1868 he brought suit against a Dr. J. Brockway of Albany, New York. The defendant insisted he was not infringing on the patent rights since he was using “Simpson’s Rubber” which he claimed as an entirely different material from the

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**Goodyear Dental Vulcanite Company.**

**License and Agreement.**

Whereas, Letters-Patent of the United States, were lawfully granted unto John A. Cummings, of Boston, bearing date June 7, 1864, for an “Improvement in Artificial Gums and Palates,” of which improvement said Cummings is the first and original inventor; and

Whereas, Said Letters-Patent were lawfully surrendered on account of a defective and insufficient specification, and were on the tenth of January, 1865, lawfully re-issued to the Dental Vulcanite Company, a corporation duly established in Boston, Mass., who were the lawful assignees of the aforesaid patent and invention; and

Whereas, Said re-issued Letters-Patent were again lawfully surrendered on account of a defect in the specification, and were lawfully re-issued on the twenty-first day of March, 1866, in due form of law, to said Dental Vulcanite Company; and

Whereas, The Goodyear Dental Vulcanite Company aforesaid, are the legal owners by assignment of the said re-issues and the exclusive right to make, use, and vend the invention of said Cummings, aforesaid; and

Whereas, Jabez H. Lewis of Buffalo, county of Erie and State of N.Y. is desirous of acquiring the right, privilege, or license of using the invention of said John A. Cummings, and of working the said process and using the said invention for making artificial gums, or plates for artificial teeth, according to the specifications of the Letters-Patent, above described; it being hereby expressly admitted, declared and agreed by the said Jabez H. Lewis that the above mentioned Letters-Patent, under which the license hereinafter mentioned is granted and received, are valid and effectual in law to secure that exclusive right which they purport to secure.

Fig. 2. First page of a 4-page license issued by the Goodyear Dental Vulcanite Company to Drs. T.G. and A.C. Lewis of Buffalo, dated February 18, 1880.
Goodyear article, and in the face of this claim Bacon withdrew his suit. This, however, did not deter Bacon from attempting similar suits elsewhere, always with the expectation that a strong defense might not be made. Thus in September, 1868, he sued a Dr. Newbrough of New Jersey who had invented a so-called iodized hard-rubber. Bacon claimed that his patent covered all forms of hard-rubber, whether made strictly in accordance with the terms of his patent or not. Newbrough brought in some of the leading chemists of the day, professors from Yale and Columbia Universities, who testified that the hardening action was due to iodine and not sulfur; and here too, in the face of the vigorous defense, Bacon withdrew his suit. The Jersey City Evening Journal of August 14, 1868, in commenting on the case said that it was aimed at testing "... whether the Goodyear monopoly can crush out all inventions, however made." Unfortunately, withdrawal of the suit by the Vulcanite Company left this question unresolved. To the whole profession, on the other hand, it was clear who the moving force behind the suits was; in the words of one dentist active in the fight it was "... Josiah Bacon, the active and engineering Mephistopheles of this whole skinning raid upon the dentists."10

BACON'S INCREDIBLE GRAND SCHEME

Bacon didn't let this set-back with Newbrough faze him. In fact, he conceived of Newbrough as a pawn in the major coup he was planning. Mephistophlean was a proper adjective to apply to Josiah Bacon, because it was at this point in his contest with the dental profession that he attempted to pull off his greatest feat, one which by the sheer audacity of its planning and execution makes other attempts at subversion of justice seem puny and amateurish.

Fortunate for the profession there was one man who seemed to tower above all others in the fight against the unjust onslaught of the rubber company and that was Samuel S. White who had established the leading chain of dental supply houses and who was then publisher of the Dental Cosmos, the most influential dental periodical in the world. S.S. White devoted large portions of each issue of his journal to reporting the struggle against the patents, many times turning down profitable advertising in order to have space in which to carry the story of the litigation. He exhorted the profession to fight the patents and, in addition to personally setting an example by giving large sums for the legal battles, almost singlehandedly uncovered Bacon's new devious machinations and laid them bare before all the world, exposing them for the travesty they were attempting on the laws of the land.

The scheme had its inception with a suit brought in September, 1868 by Bacon against Dr. Benoni E. Gardner, an obscure dentist from Providence, Rhode Island, accusing him of infringing upon the Cummings patent which, as we know, was held by Bacon's company. After a short (and inadequately defended) trial, Justice Clifford of the U.S. Circuit Court for the District of Rhode Island ruled in favor of Bacon and issued an injunction against Gardner, enjoining him from any further illegal use of Vulcanite in his practice.

So far, the case went the way of all the previous cases against the dentists, with the court supporting the validity of the Cummings patent. But with the profession stirring itself, the day seemed not far off when a suitable appeal could be made to the Supreme Court for a once-for-all-time ruling as to the patent's legality. But such an appeal would take years of prepara-
tion involving, as it would, the gathering of witnesses, securing of funds, preparation of transcripts, securing of expert scientific opinion and so on. The struggle, nevertheless, seemed worth it, for if once the Supreme Court were to rule in the dentists' favor, the long struggle would at last be over.

Suddenly without warning, and without giving the dentists time to prepare, the profession was startled to learn that Dr. Gardner had filed such an appeal and that on May 6, 1872 the Supreme Court had dismissed his appeal; it appeared thus that all further legal action against the patents had been effectively blocked. There seemed no further hope of succor. But S.S. White began to dig into the background of the case and uncovered a web of deceit and connivance and spread the whole story upon the pages of *Cosmos*.

S.S. White began his investigation with a visit to Dr. Gardner in June, 1872. He learned from Gardner that at the time he was served with the suit by Bacon he was holding a license from Dr. Newbrough to produce rubber dentures according to Newbrough's process, the very one which had been involved in the contest with Bacon, and from which contest Bacon had withdrawn. Gardner told S.S. White that he had at that time contacted Newbrough, told him of Bacon's suit, and asked his advice. In response, Gardner was visited by Newbrough's attorney, John A. Foster, who advised him that Dr. Newbrough would assume the defense against Bacon, since Gardner was Newbrough's licensee, and that the case would be carried out totally without Gardner's assistance and with no money expected from Gardner for the defense; Newbrough would stand all the expense. Well and good, thought Gardner, and continued to use the Iodized Rubber even after the Circuit Court ruled again, in this case, in Bacon's favor.

Shortly thereafter, in the fall of 1870, a Mr. Jabez Holmes called upon Gardner and introduced himself as an agent for Josiah Bacon. Bacon, he said, was desirous of determining whether the Cummings or Newbrough patents were the valid ones, and wanted Gardner to bring an appeal to the Supreme Court for a final determination. Newbrough expressed surprise that Bacon, whose firm had won the case against him, should want to appeal it or have the defendant against whom it had won the case appeal it. Holmes replied that *both* parties desired to have the case appealed — and by the other party was meant and understood Dr. Newbrough and not Gardner. As Gardner expressed it he believed it "... an amicable suit between the Vulcanite Company and Newbrough in my name, to determine which was the patent which would hold good." But Gardner was about to retire from practice and he refused to sign the appeal without written assurance from Bacon that, come what may, he, Gardner, would not be held liable for costs or penalties. Bacon, in a letter to Gardner, dated September 21, 1870, gave his assurances and Gardner signed.

In the meantime Bacon was busy sewing Newbrough up. After he withdrew the suit against the Iodized Rubber Company, Bacon visited Newbrough and got his signature on a lengthy agreement dated July 1, 1869. According to the agreement Newbrough transferred all his rights to his rubber patents to the Vulcanite Company, agreeing to cease producing any types of rubber or licensing others to produce any. Bacon, on his part, agreed to two major stipulations: first, that Newbrough would henceforth receive twenty per cent annually of the increased receipts of the Vulcanite Company; and second, that the suit then about to be launched against Gardner would not be undertaken, since Newbrough was the true defendant in the case.
Thus, at the time the appeal was brought to the Supreme Court in Gardner's name, the real parties to the suit were in partnership and thus since there were no true two parties to the suit there was truly no plaintiff and no defendant!

Newbrough assisted Bacon in another regard. His attorney, John A. Foster, has been the one who had successfully fought Bacon in the earlier suit which had resulted in Bacon's backing off. He had also prepared a thorough defense against Bacon's patents. Since he might prove an embarrassment to Bacon should the dentists hire him to plead their case, Newbrough got the Vulcanite Company to employ Foster; the Company, then, from July 1, 1869 paid all of Foster's legal fees. Thus when Foster visited Gardner, ostensibly as Newbrough's lawyer, and supposedly conveying advice from Newbrough, he was actually and fully in Bacon's employ!

Before S.S. White learned of these machinations he rallied a number of interested dentists to action, and in December, 1871, a meeting was held in New York City at which time a committee was appointed to seek means of testing the validity of the Cummings patent through Gardner's appeal, and the lawyer retained by the committee was none other than that same John A. Foster!

As an example of the duplicity in this case, Foster wrote a letter to Dr. Gardner in January, 1872, telling him that the Committee for the Dentists had paid all of his legal fees for the appeal to the Supreme Court and that he was hopeful of a favorable result. And this was after he, Foster, had been in Bacon's employ for three years! But there seems to have been little honor among those thieves, for Foster had earlier confided to Dr. Newbrough that the Vulcanite Company had paid him $2300 for compiling the original case against Gardner, but paid him only reluctantly, and then only after Foster threatened "to blow on the whole thing," meaning, as Newbrough understood, to let the dentists know that it was a put-up job.

Bacon wasn't satisfied with stealing only this counselor from the Committee. Early in 1872 he lured away from a committee organized by Ohio dentists their chief counsel and paid him a retainer to "go on the shelf," as S.S. White put it.

There were other thieves and swindlers who were attracted by this whole sorry mess. Dentists throughout the eastern United States received this letter:

Doctor, — This note comes to you in the interest of every dentist in the United States. If you have been blackmailed and swindled by Josiah Bacon for years past, you will be for years to come unless some one dares defend their rights. We have taken that responsibility, and with your aid will rid the profession of Bacon and his patents. We ask from you the trifling sum of $5.00; at the same time we will accept anything from a dollar upwards. Be just as liberal as circumstances will permit. We have taken up for you a just and righteous cause . . . We cannot expose our secrets here, but we pledge our lives that Bacon shall never do the same thing again. We are well known in the profession and have sworn to defeat the patent. Don't let any excuse prevent you from responding at once to this call . . . Hand your money to the agent, or send it direct to

D. Ensign,
Dental Depot
733 Broadway, N.Y.C.

Suffice it to say that there was no dentist by that name; all the money which was collected ended up in the pockets of the clever swindler!
At any rate, the dentists were unhappy over this appeal which they felt they had been forced to undertake unprepared. S.S. White put it very well when he issued a statement while the profession awaited the decision of the Supreme Court:

This appeal case was forced upon the dental profession fully made up, loaded with stipulations which were manifestly in favor of the Bacon party, and when but a brief period remained before the hearing. The profession was cornered, and must intrust the full case in the hands of those who controlled this appeal, and be concluded thereby if they joined in it, or be concluded by default if they refused to join. This was to our minds a situation into which the dental profession need never have been put, and into which those who did it had no right to put them.14

So the profession had no choice but to make the best of a bad situation; and bad it was for, as noted earlier, the Supreme Court dismissed "Gardner's" appeal.

But S.S. White and other leaders of the profession didn't rest. They continued to dig and uncover more and more of the devilish dealings. One of the more ingenious ones was when Gardner signed the appeal at the request of Bacon's agent Holmes, it was necessary for an appeal bond to be posted. Nothing was said of this to Gardner, and unknown to Gardner a bond was posted by a Henry W. Gardner who was discovered by Bacon and paid by Bacon to post the bond, thus giving the appearance as though the money had come from the dentist's family, when in actuality the dentist never met or even knew anyone by that name.

In addition, when the case was being prepared for the Supreme Court, counsel on "both" sides got together and managed by a series of stipulations between them "... to put into the case all the points which were favorable (to the Company) in the Wetherbee and other suits, so that with the least possible risk to their patent, and thus safely and cheaply, they might obtain a decision in their favor on all important points in the court of last resort."15

S.S. White wouldn't rest. Acting on behalf of the entire dental profession, he secured affidavits from Dr. Newbrough, as well as his partner Henry Fickett who had also signed the agreement with Bacon; from Dr. Gardner; and from several other participants in the schemes. All of these were submitted to the Supreme Court along with a lengthy statement which charged Bacon and his party with having "... committed a deliberate contempt upon this highest tribunal of our country."

The application to the court laid bare the entire scheme, pointing out that counsel for both sides were in the pay of Bacon; that since Gardner was duly licensed by Newbrough and this was approved by Bacon in his agreement with Newbrough, there was no true plaintiff and no true defendant in the original suit, the one which had been "appealed"; that the appellant wasn't even liable for court costs or judgement, this having been previously agreed to by Bacon in his letter to Gardner; in short, that Bacon and his group became "... the legal and equitable owners of all and any opposing interest;... employed and paid counsel on both sides, and made up a record therein to suit themselves, in order to obtain an opinion of this court that should conclude the rights and interests of persons not parties to the pretended controversy," i.e. to the rest of the dental profession.16

Ringingly, White declared that the decree of the Supreme Court should be stricken out on the grounds of fraud. And happily for the profession,
For the first time in its history, the Supreme Court reversed itself and vacated its previous affirmance of the lower court decision, citing as its reason that the appeal suit was collusive from beginning to end! To the dentists it meant that it was no longer impossible to contest the patents in the courts.

AN AGREED ON TEST CASE

To Josiah Bacon it meant something else. It meant that he would now have to begin again the tedious business of bringing individual suits all over the countryside. The years from 1873 to 1877 were filled with suits against dentists in Maine, Massachusetts, Delaware, Pennsylvania and other states, all ending favorably for Bacon. Still, there was no one case which was recognized by the profession as binding, and as having established, once-for-all-time, a clear injunction that dentists would have to legally knuckle under to the Vulcanite Company. Finally, it was agreed upon by S.S. White and others involved in the litigation that a suit against a Dr. Daniel H. Smith of Massachusetts be selected as a test case, with an appeal slated to be taken to the Supreme Court if the dentist should lose. On May 8, 1874, the Circuit Court for Massachusetts rendered a decision against Dr. Smith, citing all of the previous decisions against the dentists as precedents. On January 8, 1877, the Supreme Court once again dismissed the appeal thus upholding the validity of the Cummings patents. It is of interest to note, however, that three of the justices didn't agree and their dissenting opinion seemed to strike at the very heart of the matter, for they said in part:

It is too common a case that associated companies, in order to maintain some valuable monopoly, look about to see what abandoned invention or rejected application, or ineffective patent, can be picked up, revamped and carried through the Patent Office; and by the aid of ingenious experts and skillful counsel succeed in getting the desired protection. I think that the courts ought to be strict in maintaining the rights of the public in such cases. 17

BACON'S NEW ONSLAUGHT AGAINST THE PROFESSION

Armed with this decision from the highest court in the land, Bacon struck out with renewed ferocity against his enemies in the dental profession. He instituted suits not only against dentists using Vulcanite, but even against those using the newly discovered celluloid and even against the Celluloid Company itself, but he lost this case. He attacked S.S. White with a $75,000 slander suit, charging that many dentists reading White's "...false and defamatory publications were dissuaded from purchasing licenses and still refuse to purchase (them)."

All of this seemed to infuse Bacon with new vitality; he was described as "...fighting his enemies... at every point and with wonderful quickness, making the warfare aggressive when there was a stronghold of law or precedent to be captured."

The Vulcanite Company lauded Bacon as a loyal and faithful employee who had the interests of the Company foremost, but this was merely window-dressing for the stockholders, for we have seen earlier that money Bacon collected enriched only Bacon. Even where a dentist was sued and found guilty, and then agreed to pay for a license, Bacon wouldn't issue one until all past money which he considered as being owed were first paid.

Bacon secured his evidence by a variety of means. He visited and had conversations with dentists all over the country, and since this was in the days before "bugging" and tape recordings, he kept private records of all
of these conversations and afterward made use of these transcripts as “true
records” in bringing his suits. In rural districts he found that everyone knew
which dentists were using Vulcanite. In the cities he received confidential
information from a variety of sources: from those dentists who had purchased
licenses and were angry at colleagues who had failed to do so but were us-
ing rubber anyway; and from dental assistants who had quarreled with their
employers and who turned their names in to Bacon for spite.

Perhaps the best description of Bacon's means of securing evidence was
carried in the news report of his murder:

His method of discovering those who were infringing on the patent
rights of the company rendered him still more unpopular. He employed
spies in nearly every city in the Union and paid them liberally to hunt
down delinquent dentists. He could well afford to do this for the profits
which the Vulcanite Company derived from the royalty amounted to a
princely income. One of his favorite methods of discovering infringements
was to employ a beautiful young lady, whom no dentist would
suspect. She would call upon the dentist and have him take an impres-
sion, to be reproduced in rubber. She was liberal with her money, and
only particular on the one subject of the rubber. This once obtained, she
had all the evidence requisite to enable Bacon to bring suit. Dental depots
were visited to find the amount and nature of the goods bought by den-
tists; servants of dentists were bribed; next door neighbors were ques-
tioned, and intimidation was often resorted to.

THE FATEFUL MEETING IN SAN FRANCISCO

Bacon's search for patent infringers carried him all the way across the
country, and on March 18, 1879 he left Boston on what was to be his last
journey. He stopped in Cincinnati and Chicago on the way, setting up various
law suits there, and finally arrived in San Francisco on April first.

There were about forty dentists in that city whom he planned to hale
into court. Among these was Dr. Samuel P. Chalfant; toward this dentist
Bacon had an especial animosity, for Chalfant had frustrated Bacon on a
number of previous occasions.

Chalfant at that time was 35 years old and had come to San Francisco
about four years earlier. He had served as a sergeant in the 52nd Pennsylvania
Volunteers in the Civil War from 1861 to 1865, and after his honorable
discharge enrolled at the Philadelphia Dental College from which he was
graduated in 1871. He first set up office in Wilmington, Delaware and had
established a thriving practice when he was first prosecuted by Bacon for
non-payment of royalty. Even though it was not a large amount of money,
Chalfant chose to abandon his practice rather than pay the fee. He next open-
ed an office in St. Louis, Missouri but again was hunted down by Bacon
who once more secured a judgement against him; again Chalfant chose to
leave town rather than pay the obnoxious fee. He used to say that if God
had given a man a set of teeth and he had lost them, he thought that a den-
tist had a right to put them in without asking permission of, or making pay-
ment to, anybody. This steadfast insistence on this right led him to San Fran-
cisco, as far as he could get from Josiah Bacon's Boston.

Soon after Bacon's arrival in San Francisco he larned that Chalfant was
in practice in the city, and went after him, intending to compel him to buy
a license which Chalfant again refused to do. Bacon then brought Chalfant
to court, and on Saturday, April 12, he subjected the dentist to a humiliating
and belittling cross-examination. This angered and unnerved Dr. Chalfant
who, unaccustomed to being treated in such a shabby manner, remarked
to a friend upon leaving the courtroom that Bacon was a harsh and vindictive man; the feeling which Bacon entertained toward Chalfant can be gathered from remarks which Bacon made to the court's Deputy Marshal McEwan the day before the trial:

Bacon was in the Marshal's office, examining some papers when McEwan said to him, “Do you ever push the dentists to the wall?” “Certainly we do, when they don't pay up,” was the answer. “There is Chalfant, for instance. I found him in Wilmington, Delaware using our patent without having paid the royalty. I commenced action against him, got out an injunction, obtained judgment, upon which an execution was issued, and broke him up. He then left town. When I went to St. Louis I found him engaged in the same business, and I broke him up again. I find him here doing the same thing, and he will have to pay or be broken up again.”

All that night Chalfant brooded over his ill-treatment at Bacon's hands, and early the next morning, Sunday, April 13th he went to the Baldwin Hotel. Making no attempt to hide his presence there he went directly to the reception desk where he asked whether Mr. Bacon was in. When the clerk determined that Bacon was not in his room, Chalfant left, only to return at 9:00 a.m. when he was advised that Bacon had returned to his room. Chalfant then went up to Bacon's room where he was admitted by Bacon.

As told by Chalfant later, he had fully made up his mind to pay Bacon any reasonable demands against him for his past use of Vulcanite, and pay for a license for future use, and it was for this express purpose, and no other, that he had gone to Bacon's hotel that morning. That he was not a crafty murderer bent on assassination seems to be born out by his open and non-surreptitious movements. Bacon, however, was determined to make an “example” of Chalfant; he refused any discussion of a compromise and gloatingly taunted Chalfant that he would make of him a warning to the whole recalcitrant dental profession. Chalfant, now at the breaking point because of the miserable treatment he had received at Bacon's hands the day previous, could stand it no longer, and drew his pistol, intending only to compel Bacon to deal with him more respectfully. Bacon on his part became infuriated instead of cowed, and the dispute became more heated when suddenly the Sunday morning stillness was shattered by the pistol shot. Bacon staggered backward and fell, his head striking the wall. Chalfant ran to him and raised his head and Bacon staggered to his feet but immediately fell again and died. Dazed and shattered, Chalfant left the room and went out of the hotel by a back stairway. For three days Chalfant hid in a shabby rooming-house and on Wednesday morning he appeared at the Police Station and surrendered. He was so changed in appearance that he was described as only a ghost of his old self. His eyes were sunken and his face haggard. His clothes, which were usually remarkable for their neatness seemed to hang on him. He had been without food and without rest for three days.

Afterward Chalfant pleaded for understanding. No one who knew him, he said, would believe that he was the kind of man to murder a fellow-being on account of a business disagreement involving only a few hundred dollars. There might be such men — he supposed there were — but he was surely not one of them. He hoped this would be taken into account at his trial and he expressed the hope that the community, in considering his case, would put themselves as far as possible in his place and exercise such charity as they would desire for themselves.
The court seemed to agree somewhat for it tempered justice with mercy and sentenced Chalfant to ten years in prison, from which he escaped after a few years, only to be captured and returned to prison to serve out his sentence. Upon his release he went back into practice with a nephew. (Fig. 3).

When the Vulcanite patents expired shortly thereafter, in 1881, the Goodyear Company announced to the dental profession that it did not intend to ask for their extension. One dental journal in an editorial said this was highly out of character for "... the action of the Company in the past had been so grasping that it seemed to be contrary to their nature to allow even the possibility of success in a renewal of their patent to pass them without seizing at it."25

The dental profession learned from its bitter experience in the Vulcanite controversy, and never again would it allow itself to be milked by profiteering patent-holders. Experience was a strong teacher; when some years later a group of coniving entrepreneurs attempted to extort royalty payments for every gold crown a dentist constructed, only the vigorous action by a united profession laid these plans to naught. Even today there are attempts to license techniques and processes which are legitimate parts of a health service, and only vigilance on the part of organized dentistry can keep these plans from fruition.

Fig. 3. This photo was taken of Dr. Samuel Chalfant (right) in the office in San Francisco which he established in association with his nephew, John, after his release from prison. (Photo courtesy of Dr. Gary Lemen, Sacramento, California.)
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DR. RING is the editor of the *Bulletin of the History of Dentistry* and is associate professor of dental history and literature at the School of Dentistry, State University of New York at Buffalo. His address is 40 Bogue Avenue, Batavia, NY 14020. Requests for reprints should be made directly to the author.
M. Evangeline Jordon, Pioneer in Pedodontics

— HANNELORE T. LOEVEY, C.D., M.S., Ph.D.
Chicago, Illinois

At a time when scant attention was paid to the importance of care for children's teeth, a dentist came along who pioneered new techniques which laid the groundwork for future care of this important segment of the population. Much of what Dr. Jordon taught is still valid today, and it is important that we continue to remind the profession of her seminal efforts.

Minnie Evangeline Jordon was born in Illinois in 1865. However, most of her childhood was spent in Rochester, Minnesota where her family moved soon after her birth. She was the oldest child of Eugene and Kittie Jordon and had at least one younger brother and one sister. The family lived in a farming community and ran a plant nursery. In 1885 her family moved again, this time to California where they settled in San Bernardino County. There, the future Dr. Jordon taught elementary school.

In 1897, dissatisfied with the life of a school teacher and attracted to dentistry as a result of her work as a dental assistant during summer vacations, she enrolled in the School of Dentistry at the University of California, graduating in 1898. After graduation she began to practice general dentistry, but by 1909 she had limited her practice to children and thus became one of the first dentists in the United States to specialize in what later became known as Pedodontics.

EARLY PEDODONTIC LITERATURE

Dr. Jordon graduated at a time when many changes were occurring in our profession, and much attention was being focused on the improvement
of oral health in children. In any profession, the literature is a fair reflection of the intellectual status of its practitioners. By consulting the literature of the time, one learns how much was being written and done about children. It is true, some dentists were still of the opinion that primary teeth should not be treated, and that the first permanent molar should be extracted as soon as decayed! But leaders in dentistry at the time were publishing articles on the management of children's teeth, and a symposium, "What are the best materials for filling children's teeth?", took place in Baltimore as part of the combined meeting of the Maryland State Dental Association, Washington City Dental Society and Virginia State Dental Association, on June 2-4, 1898. Dr. C.N. Johnson spoke on "The management of children's teeth" before the National Dental Association on August 1, 1899, and, of course Angle's book was being advertised in leading dental journals.

At the time of Dr. Jordon's graduation, radiography was just starting as a science and, in 1897, photographs of skull radiographs of children (Fig. 1) started to appear in the dental literature. Only a few books on dentistry for children had been published, and these primarily by physicians. In 1892 a book was issued by F. Forchheimer, M.D., professor of physiology and clinical diseases of children at the Medical College of Ohio, in which there are tables of tooth eruption patterns which are rather accurate. In 1895 R.D. Pedley, M.R.C.S., L.D.S., Eng., FRCS Edin., a dental surgeon of the Evelin Hospital for Sick Children in Southwest London, published a 268 page book with 99 illustrations, primarily on diagnosis of dental abnormalities in children. In 1897, H.M. Poulson of Troy, N.Y. was writing on the crowning of deciduous teeth. It was his own 3 year old son who required anterior crowns, and Poulson admits that some people felt he was a very cruel father. In 1895 a letter to the editor appeared in Dental Digest written by Wm. G. Cummins of Chicago calling attention to a note by W.H. Baldwin which appeared in Dental Cosmos in August 1884 on crowning of deciduous teeth with gold. Dr. Cummins claims he was already doing it in 1889 and was finding the method "very serviceable although not very artistic."

Dr. Jordon, therefore graduated at a time when enormous strides were being taken in pedodontics, and was destined to become a major contributing force in the development of this area of dentistry. By the time her book appeared in 1923 (first as separate chapters in Dental Items of Interest, and only later as a book), much attention was being paid to pediatric dentistry, and journals such as the Pacific Dental Gazette had a section of reviews on the subject under the supervision of Dr. John E. Gurley. It was called the "Department of Children's Dentistry" and was a regular feature by 1925.

Fig. 1. A reproduction of a radiograph of a child's skull which appeared in the article by Morton in 1897.
The need for better care for children continued to be a topic of discussion at dental meetings and in 1917 Grace Rogers Spalding wrote "It is to be hoped that the day is soon at hand when every orthodontist will have within his reach a dentist who devotes his entire time to the care of children's teeth . . . who will be especially trained to do any preventive work as well as operative work required . . . who will use materials and methods particularly suited to children and who will have a complete understanding of child psychology."9

Immediately after graduation Dr. Jordon became active in organized dentistry and dental education. In 1901 she was elected 2nd vice president of the Southern California Dental Association at its 4th Annual meeting on October 8-9, 1901.10 In 1900 she was invited by Dr. Edgar Palmer, the first dean of the Dental Department of the University of Southern California to develop a lecture course on "Care of Children's Teeth" (Fig. 2) and in 1901 a clinic was started at the Orphan's Home in Los Angeles where dental students under Dr. Jordon's supervision took care of the children's teeth. A few years later, when the college moved to better and more modern facilities, an infirmary was installed where children as well as adults could be taken care of.

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of. A full report on the different dental clinics available on the Pacific Coast around 1913 was presented by Dr. Jordon in Buffalo in 1913. She had been invited especially to travel east and present her material at the International Congress on School Hygiene in order to emphasize the need for oral hygiene in the total approach to children's health. Her paper shows her concern, or rather, her crusade for better children's dental health.

HER STRUGGLE AGAINST SUPERSTITION

At the start of her career, Dr. Jordon was engaged in serious battles against the superstition that dental treatment during pregnancy would damage the unborn child, in addition to her battles for the development of sound practices of pediatric dentistry. The idea that impressions of any sort could influence the outcome of a pregnancy and induce malformations was still in vogue at the time and Jordon spoke and wrote that “it is no longer necessary that women should lose a tooth for each child” She had a good sense of humor. In a lecture delivered to the Southern California Dental Association on October 1906, she related the story of a woman who had several teeth extracted during pregnancy and was advised by the physician that the baby would be “marked”. It would be born without teeth! So it was, but the teeth all appeared at the appropriate time.

JORDON'S MISUNDERSTANDING OF THE ETIOLOGY OF CARIES

While her ideas were sound, her knowledge was not. She did not believe in calcium metabolism but believed that dental caries during pregnancy were due to the lack of care during the “nausea and languor” so that care of the teeth was forgotten. Jordon did recognize the problems of nutrition and wrote in 1912 that “... with the present generation of artificially fed infants the children's dentist must be prepared to handle children any time after the first birthday”. However, her idea was that the artificial food was damaging since it was not maternal milk. She did not recognize that bottle caries was due to the bottle being held in the mouth for long periods of time so that it became a good culture medium for bacteria. She still was of the same opinion when she wrote her book 12 years later, in which she showed twins, one with good teeth and who had been breast fed, the other bottle fed and with very poor dentition. (Fig. 3). In 1918 she wrote “... the largest percentage of children who need dental care have been bottle fed.”

HER ATTITUDES CONCERNING NUTRITION

Dr. Jordon was also an advocate of good nutrition during pregnancy in
order to assure good dentition in children and she wrote extensively on the influence of prenatal conditions on the teeth of children. Of course, her knowledge of biochemistry was very limited. Therefore she advocated vegetables for their “mineral salts and roughage”. She felt that meats were an important component of the diet, not because of the protein they contained, but because they forced children to chew. Meats, per se, she felt were not an important component of the diet so long as the children got their chewing in some other manner. She opposed sugar because it “upsets the chemical balance of the mother’s blood resulting in insufficient mineral salts for the formation of teeth of the embryo”, particularly the first permanent molars. In her opinion “… soft teeth are the result of inherited habits, not inherited teeth since families of ‘inherited soft teeth,’ also have ‘inherited sweet tooth’”.16

JORDON’S NOVEL IDEAS FOR CHILDREN’S ORAL HYGIENE

In 1918 she appeared before the Southern California Dental Association, to again call attention to the need for early treatment of dental caries. At the time, great attention was being paid to the general health of soldiers at the front and the importance of dental health was being recognized. The importance of the first permanent molar was being emphasized as well as the need for prevention, good oral hygiene and good nutritional habits. Her idea for combating dental decay can be described as a 4 point approach:

A — Fill all teeth needing treatment before children start kindergarten.
B — Have daily morning tooth brushing at the kindergarten.
C — Grade children for oral hygiene just as was being done for reading and spelling.
D — Give all children in kindergarten and first grade monthly prophylaxis.

She advocated a van that would visit different schools to provide such a monthly service.

One of her other ideas was the introduction of a law that would permit a child to be absent from school for dental treatment. At the time she was in practice, patients could only be absent for medical reasons or if they went to state dental clinics. She felt that a change in this law was imperative.

The actual treatment which Jordon advocated was, in general, not much different from that offered at the time. Strong emphasis was placed on devitalization and usually treatments were long and required several visits to the dentist. She believed strongly in dental treatment for very young children, but felt that children of kindergarten age would do better if treated by women dentists. In expressing the view she stated that “… just as the beginning of education for children is performed by people specially educated for that line of work, so dentistry for children should have special surroundings (Fig. 4) and operators specially fitted for this line of work”. These ideas were expressed in several articles and they were expressed even at a time when many of the better known dentists working with children were men. Dr. Jordon also believed in special office furnishings and used Indian motifs in furnishing her waiting area. She liked Navajo rugs and wall coverings and used Indian baskets and weapons as wall decorations. She felt that this was a good way of initiating conversation with children.
DR. JORDON'S
TREATMENT METHODS

She was not always able to control very small children and
she very frankly stated that "... under 3 years, in some cases, it
may be necessary to hold the child," since these children
also cry when having ears washed or "at any other thing
to which they object so don't pay attention to that." Older
children, however, could be entertained while undergoing
treatment with stories or verses and she claims that her success
in pedodontics was greatly helped by having memorized a
number of Dr. Smith's Funnyland stories. (Fig. 5, Fig. 6).
Her articles on pediatric dentistry often contained short stories
or verses to be told to patients. This was apparently an impor-
tant aspect of her behavior control technique. While mothers were permitted at the first visit, no adult was
permitted in the operatory after the first visit if the child was 4 or older.

Iodine was used as a disclosing solution and children were instructed
concerning dental plaque, which she called "gelatin deposits". In order to
reduce decay, she advocated a once-a-month professional tooth cleaning
which she apparently enforced in her office and would have liked to have
seen introduced in the public kindergarten system. She felt strongly that
pedodontists and dentistry in general should be committed "not to filling
teeth but to the prevention of filling teeth."

Fig. 4. Dr. Jordon encouraged her young patients to play with toys in the dental chair. She cautioned,
however, that "swimming celluloid ducks in the spittoon was permitted only before the spittoon was
used." A turtle may also be seen in the glass bowl. The illustration is from Dr. Jordon's book on chil-
dren's dentistry.

Fig. 5 and 6. Whimsical drawings used by Dr. Jordon in her articles as examples of how useful
dental information could be conveyed to small children.
In 1923, she started the publication of chapters of a book on her practical methods of treating children. During the 30 years that followed her graduation, she published extensively on the need for dental care in children, stressing her conviction that dental caries is a disease of childhood that could be prevented by diet and care. “Rid the country” she said, “of the deadly candy shop and grocery store, get most of your living from the vegetable garden and the family cow, and apply the teachings of oral hygiene”.

**HER ROLE IN ORGANIZED DENTISTRY**

After her graduation she was active in organized dentistry and as part of these activities was instrumental in organizing the American Association of Women Dentists. At the turn of the century she was already active in the role of promoter of women in dentistry. In 1909 the Los Angeles County Dental Society had an entire program given by women dentists in which she participated. By 1910 a section of Women Dentists was organizing meetings as part of the general meeting of the Southern California Dental Association. By 1921 the climate was ripe for a society of women dentists, and Dr. Jordon was one of the 12 charter members at the meeting in Milwaukee. At that meeting, Dr. Jordon was elected president of the new group which was called The Federation of American Women Dentists (renamed The Association of American Women Dentists in 1928). In 1922, she presided over the first official meeting of the new group which took place in Los Angeles.

She was also interested in the development of an association for dentistry for children and encouraged Samuel D. Harris to form such a society. However, by the time it was formed she contemplated retirement from active practice, having done so in 1928, and did not attend even the organizational meeting in 1927 and, therefore, was not a charter member of the A.S.D.C. She was, however, made an honorary member.

After retirement she still continued some of her writing and teaching and her book (Fig. 7) continued to call attention to children’s dentistry. On January 26, 1948 a dinner was held by the Southern California Section of the American Society of Dentistry for Children to honor her. On June 1, 1949 the American Academy of Pedodontics also awarded her an honorary membership. The same year the Los Angeles County Dental Society gave a testimonial dinner in her honor and presented a plaque to her. She died in 1952.

We have come a long way since the days when Dr. Jordon wrote that “dental caries is a

**OPERATIVE DENTISTRY FOR CHILDREN**

A Text Book Dealing with the Prophylactic and Curative Treatment of the Teeth of the Child, Based Upon Experiences Gained During More than Twenty-Five Years Devoted to the Care of Children Exclusively

**BY**

M. EVANGELINE JORDON, D.D.S.
LOS ANGELES AND SAN FRANCISCO, CALIFORNIA

WITH 56 ILLUSTRATIONS

![Fig. 7. Title page of the first edition of Jordon's pioneering work on children's dentistry.](image-url)
preventable disease of childhood." Much remains to be done, but we are in her debt for starting us on our way.

ACKNOWLEDGMENTS

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DR. LOEY is professor of pediatric dentistry at the College of Dentistry, University of Illinois at Chicago. Her address is 801 South Paulina Street, Chicago, IL 60612. Requests for reprints should be made directly to the author.
Spain's Private Dental Museum

—BEN Z. SWANSON, D.D.S.
London, England

At the meeting of the American Academy of the History of Dentistry at Anaheim, California on September 30, 1983, Honorary Membership in the Academy was granted to Dr. Pedro Borja de Guzman of Gandia, Valencia, Spain. This dentist has been a lifelong collector of early dental instruments, equipment and other material and has built one of the most complete dental museums to be found anywhere in the world. This one, however, is housed in a private home.

Dr. Pedro Borja de Guzman is a dentist from Gandia, a beautiful city on the southeast coast of Spain. The climate resembles Southern California, and this area is Spain's premier citrus region. Its beaches provide a year-round playground for people from all over the world.

I first heard of Dr. Borja from several dentists in Madrid who spoke of his dental museum. Envisioning a collector of dental antiques and memorabilia much like myself, I wrote to him inquiring about the possibility of a visit. I received an immediate reply with a most gracious invitation.

On arrival, I met Dr. Borja's son, a practicing orthodontist, in his modern office with all the latest equipment. A huge custom-made stained glass panel of Saint Apollonia was the centerpiece of the reception room. A staff of four dentists with computerized patient records and treatment planning did indeed lead me to believe I was in California.

I was shown through the office, and then a time and place were agreed upon for lunch. At the appointed place, three generations of Borjas appeared to greet us. A memorable seafood dining experience ensued. One of the highlights were the percebes (barnacles), a delicacy which I had had before, but never so fresh and in abundance. Two hours later we discovered that the main course was due to arrive. We had to reluctantly turn it down as we were full from the previous four courses.

Next a trip to Dr. Borja's house, which was located right in the heart of the city. The ground floor was taken up with his other son's optometry.
Part of the library with the painting of St. Apollonia.

practice; the next floor contained his living quarters; and the third floor (about 4,000 square feet) was given over to the largest and most comprehensive dental museum I have ever seen.

I felt humble as a collector to see that one man had amassed a collection larger and more impressive than any of our dental school or association museums.

The museum consisted of numerous rooms and hallways, all filled with period dental operating rooms, an early dental laboratory, case after case of early forceps and instruments, and a dental library of exceedingly rare and early volumes.

Perhaps, the highlight was a 16th Century oil painting of Saint Apollonia. However, this competed in importance with items from the surgeries of court dentists to Spanish royalty.

Forcep and instrument design is a specialty of the collection. Perhaps the largest collection of both major and minor varieties of 18th, 19th, and early 20th Century design exist in this museum. Certainly the researcher of instrument design cannot consider his knowledge complete without viewing this extensive holding.

I admired the many dental oil paintings that lined some of the walls of the museum. On closer inspection, they were all painted by Dr. Borja and taken from photographs of famous dental paintings hanging in museums such as Madrid's Prado.

This is when I made a spectacular discovery; above Dr. Borja's signature was a small crown. I asked the significance of this logo, and Dr. Borja replied very modestly that he had been knighted by King Juan Carlos. Dr. Borja is now a baron, the Baron of Zafra.

An interesting sidelight to the museum is a 1930's manufacturing plant retained in one room. This machinery was used in the manufacture and packaging of a toothpaste called "Bucodens." This was Dr. Borja's own brand and had the family crest as its logo.

And what motive did Dr. Borja have for preserving our dental heritage as he has? The answer is simple, "... his love of the profession."

Dr. Borja was born in 1908 in the province of Valencia. He completed his training in Madrid in 1930 with an MD degree and a specialty in dental science. All Spanish dentists must become an MD before specializing.

He has been a prolific writer, recording even his first day of practice in a quaint, interesting article. Later publications addressed subjects in the history of medicine and dentistry as well as articles with clinical application.
He has written on such diverse subjects as the first outbreak of cholera in Spain to orthodontia as practiced in Spain in 1873.

Dr. de Borja (left) and Dr. Swanson in front of one of the beautiful, fully stocked cabinets.

For his tireless efforts over a 45-year period and for establishing this private museum, the Association of Odontologists and Stomatologists of the III Region (of Spain) struck a special Gold Medal of Merit and awarded it to him in 1978. At the acceptance banquet, he said, in part: "Everything that concerns my profession of dentistry, I consider a hobby. It entertains and delights me to have spent almost half a century in dental practice."

On the last day of our visit, Dr. Borja's two sons had us over to the museum to make a video record of our visit. We did a slow walk through the entire museum highlighting the most important pieces.

Several days after my return, I decided to read up on Gandia and first consulted the green Michelin guide. It turns out the Duchy of Gandi was given to the Borjas in 1485 by Ferdinand the Catholic. One of the Borjas
and the first Duke (Rodrigo, Bishop of Valencia) became pope in 1492 taking the name Alexander IX. The fourth duke, Saint Francis Borja, was canonized in 1671.

The entire Borja family is so genuine and gracious. Dr. Borja has done so very much to advance the cause of dental history, but he has remained largely unknown outside the Spanish-speaking world. Now, at last, Dr. Borja's great contribution to preserving our profession's heritage can be made known to the entire world.

DR. SWANSON is a retired Colonel in the United States Air Force. He is enrolled in London University, pursuing a course of study which will lead to a Ph.D. in dental history, the first such degree ever granted. His address is 53 Edgeworth Crescent, London, NW 4, England. Requests for reprints should be made directly to the author.
Oddments in Dental History: Down With Toothbrushes — Up With Tobacco!

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

Substantial investigation into the effects of tobacco on the structures in the oral cavity have pretty conclusively proven that the noxious weed does indeed produce many unwanted problems, among which are gingivitis, stomatitis and epithelial malignancies. But three-quarters of a century ago there were some who argued that tobacco was a boon to those trying to maintain good oral health, and these ranged from a New Hampshire congressman to a distinguished Italian dental scientist.

The Congressman incurred the ire of the editor of a dental journal who reprinted a newspaper report of an astounding suggestion by Rep. Cyrus Sulloway that mothers be imprisoned if they so much "... as put a toothbrush in the hand of a child." In an editorial in the Western Dental Journal, Vol. 26, 1912, the editor voiced his fears that "... judging from the Honorable's remarks, he would also make it a jail offense for anyone to take a bath before Saturday." The news item which caused him to vent his wrath was the following:

**AWAY WITH TOOTH BRUSHES.**


Washington, March 16—"If I had my way I'd make it a penal offense for any mother to put a tooth brush in the mouth of a child," declared Representative Cyrus Sulloway, of New Hampshire, today at a hearing before the District of Columbia committee on a bill to regulate dentistry.

Representative Sulloway denounced the use of the tooth brush vigorously and lauded the good old days of tobacco chewing and dipped snuff.

This kind of ignorance in a lay-person may be excused. But what say we when a prominent Milanese dentist encouraged his patients to use tobacco as an aid to oral prophylaxis? We know that the American Indians believed that tobacco smoke would relieve toothache, and after this plant was introduced into Europe in the 16th century its use was touted as a sure cure for a wide variety of dental ills. But this was scarcely different from the use of the fumes of burning henbane seeds to "fumigate" for a toothache. Both procedures produced as much good as a host of other worthless remedies. So it is surprising that a supposedly enlightened dentist should embrace such a questionable therapeutic measure. But embrace it he did, as reported in La Stomatologia, issued in Milan, Italy, October-November, 1910.

**TOBACCO IN ORAL PROPHYLAXIS**

—By Dr. G. Cavallaro

In his extensive treatise, Dr. Cavallaro answers the question which is so frequently put to the dentist by his male clientele, "May I smoke?" After some introductory remarks concerning the history of the smoking habit, the chemistry of nicotin and pyridin and their action on the mucous glands is discussed, and the so-called smoker's lesions, gingivitis, stomatitis, leukoplakia, smoker's plaque, epithelioma of the tongue and lips, and the action of tobacco on the teeth are specially considered. A carefully compiled record of the behavior of the bacilli of the saliva under the influence of tobacco in various forms — e.g. tobacco infusions
and nicotin solutions of various strengths, and smoke from various grades and brands of tobacco — as observed under the microscope, indicates how scientifically and conscientiously the author has tried to definitely answer this much-mooted question. His conclusions are as follows:

Tobacco has a strong antiseptic power, and possesses a greater or lesser action on all the micro-organisms of the oral cavity, according to the volume of nicotin the tobacco used contains and to the resistant force of the bacteria. Tobacco retards the development of the most resistant bacteria, the staphylococcus, the mesentericus vulgatus, the typhosus, the bacillus coli and the bacillus pseudotyphosus, and completely destroys others such as the bacilli of cholera and of pneumonia. Tobacco, therefore, sterilizes the saliva to some extent. It discolors the teeth, it is true, but does not alter the dental tissues in the least. The glandular secretions are augmented by small doses of nicotin, but diminished by large doses. The so-called smoker's gingivitis and stomatitis are not due to tobacco, but to an aggravation of the inflammatory or infectious conditions of the gums already present. It is not proved that epithelioma of the lips and the tongue is due exclusively to the action of tobacco. Tobacco has an antiseptic influence on the oral cavity; instead of being barred, therefore, it is rather to be recommended as an aid in oral prophylaxis. This antiseptic influence manifests itself especially clearly in clean mouths.

Now we realize where we've gone wrong. Let our rallying cry from this day forth be "Away with toothbrushes! Up with the cheroot!"

Officers of the American Academy of the History of Dentistry, elected at the 32nd annual meeting, September 30, 1983. From left: Dr. Malvin E. Ring, editor; Dr. Clifton O. Dummett, immediate past-president; Miss Aletha Kowitz, president; Dr. Ernest Beerstecher, vice-president; Dr. Ben Z. Swanson, president elect; Dr. H. Berton McCauley, secretary-treasurer.
Implantation is a relatively new specialty in dentistry suggesting revolutionary advances. It involves the insertion of artificial prostheses as distinguished from replantation or transplantation, both of which utilize natural tissues. This procedure, however, is not new at all.

The first mention of implantation in the literature was made by Bourdet in 1780 who stated that "... irresponsible persons claim to make a socket and implant into it a tooth." Investigation uncovered the fact that the artificial teeth were from sheep, although it seems that the importance lies in the fact that the procedure itself was performed, not the material used for the implant.

In 1809 Maggiolo described in graphic detail the insertion of gold roots as support for pivot teeth:

If circumstances are such that one may hope for certain success, one should start by making an artificial root proportionate to the thickness of the root which it is to replace. . . The artificial root illustrated in No. 14 of the first plate, requires three different small pieces as represented in Nos. 11, 12 and 13 of the same plate.

In order to make the first piece, No. 11, which we call the body of the root, a long and thick metal tube is selected answering to the thickness and height which the artificial root is to have. Its lower portion is distended by a triblet or slightly tapering mandrel, which is driven into the tube by hammer blows. It is then notched like a spring dowel, of which we have already spoken; then the surface of the root is made by shaping up an oval metal base, being about equal in size to the horizontal surface of the root which is to be replaced. In the center of this base a hole is made the size of which must be equal to the diameter of the tube which forms the body of the root. These two pieces, Nos. 11 and 12, must be soldered together as they are seen united in No. 14, in such a way that the hole in the base corresponds quite exactly to the opening in the body of the root, and that one of the two apices of the elliptic base comes to lie over the notch made in the lower part of the body of this root. The soldered portion is then trimmed, in order to give to these pieces a smooth and polished surface. After the base has been solidly soldered its ends are slightly bent, this being an indispensable precaution in order to make the base adjust itself more perfectly to the contours of the gum upon which it is to rest.
After this is done in the way described, a piece of gold tubing of such thickness is selected that it will just fit the tapered extremity of the body of the root. It is split into four blades up to nearly its upper extremity, which then forms a sort of a ring uniting the blades. With a fine file these four blades are filed so that they are slightly separated from each other. All the four blades are then bent to form a sphere, as seen in No. 13 of the first plate. This little globe is then set on the pointed extremity of the body of the root in such a way that two of its blades correspond to the two extreme portions of the base which are most closely together. They are then fixed in place by soldering the ring which unites them to the end of the body of the root, and three of the ends of the same blades to the body of the root itself, toward the middle of which they must taper.

Although Maggiolo's book was published in 1809, credit for the implantation procedure is given to Dr. W.J. Younger of San Francisco whose first operation (although utilizing natural teeth) was performed on June 15, 1885. He devised a process of drilling artificial sockets in the maxilla and placing therein natural teeth, suitably sized and shaped. The socket was drilled with graded trephines and burs adapted to the size and shape of the root to be implanted. The pulp of the tooth was first removed and the canal filled with gutta percha, the apex being finished in gold. The tooth was soaked for fifteen minutes in a solution of bichloride of mercury, and then inserted and ligated to adjacent teeth, if necessary.

As it was a most spectacular operation, scores of teeth were publicly implanted within the following year or two. Since many of these operations were performed under unfavorable conditions, failure was almost universal. These disastrous consequences forced the profession to discontinue the implantation procedure as abruptly as it was adopted.

It was time to look for an artificial material which would substitute for a natural tooth and could be utilized with greater success. In 1887, Dr. S.M. Harris implanted in an artificial socket, a porcelain crown fixed on a platinum post around which lead was melted in a mold to resemble a tooth-root. In 1889 Dr. J.M. Edmunds implanted a porcelain crown attached to a platinum shell made in a tooth form and coated with metallic lead.

In 1895 W.G.A. Bonwill experimented with the implantation of metal tubes, or pins, of gold or iridium into the solid alveolar process. In 1898 R.E. Payne gave a clinic before the National Dental Association on "The Implantation of a Silver Capsule" and in 1905 C.R. Scholl reported the implantation of a porcelain tooth with a corrugated porcelain root. Related work was performed by Edwards (1889) and Gramm (1898) and by Wright, Hilischer, Von Heyden, Frank and Behrend (all done in 1891). C. Payne in 1900 reported the use of gold and iridium pins and capsules to support single teeth and full dentures.

A major pioneering effort along this line was performed by Dr. Edward J. Greenfield who was graduated from the Chicago College of Dental Surgery in 1899 and settled in Wichita, Kansas. At the National Dental Association's 14th annual meeting in Denver, Colorado in 1910, Dr. Greenfield presented a clinic, "Implantation of an Artificial Root." He exhibited an artificial root made of reinforced wire loops of gold and soldered to a disc base having a slot for carrying an artificial tooth or an abutment for a bridge.

He presented a patient in whom he had implanted an artificial root to replace the upper left bicuspid. "The root is constructed of iridio-platinum wire, No. 20 gage, soldering with 24 karat gold and is soldered to the iridio-platinum frame," he wrote. "This frame is placed into the socket that has
been prepared, and is left there for three months before the crown is set. At the end of this time the new growth of bone has filled the socket and holds the root perfectly solid.”

However, Greenfield’s classic article on implantation appeared two years later in the Dental Cosmos, 55: 364-369, 1913, and is here reprinted in its entirety.

The procedure was very similar to that used today for some implants. He used a trephine for cutting a suitable hole in the bone, but instead of removing the core of the bone, he merely cut a hole the same thickness as the cylindrical iridio-platinum implant he utilized. This gave the new implant greater stability until bone could grow into the interstices of the implant.

Until his time, implant procedures utilizing roots made of such material as ivory, lead, gold, platinum, perforated porcelain, etc. had all met with failure. Greenfield’s efforts were classic in their meticulous, scientific methodology which paved the way for further research and development in this field.

Much of dentistry’s progress has resulted from ideas discovered and often independently rediscovered from time to time. Like all endeavors, advances are achieved by cumulative efforts, by a procession of successes and failures. Pioneering endeavors like Greenfield’s will eventually spark further developments and produce future achievements.

IMPLANTATION OF ARTIFICIAL CROWN AND BRIDGE ABUTMENTS

By E.J. Greenfield, D.D.S., Wichita, Kansas

(Read before the Academy of Stomatology of Philadelphia, at its monthly meeting, Tuesday, January 28, 1913.)

In this age of achievement and progress, when it is not at all uncommon for the miraculous to become the actual, when people no longer gasp at the definite accomplishment of ideas which at first glance or consideration are seemingly impossible, it is not at all surprising that prosthetic dentistry should keep pace with the notable achievements in other fields of science.

This great and vitally useful branch of our profession, which is concerned with the mechanical restoration of the organs of mastication, has been both the producing agent and the beneficiary of wonderful developments during the last few years. Consequently our study of the implantation of artificial roots should be considered of the utmost importance by all dentists who are anxious to keep abreast of the times, and should be of intense interest to all who wish to be in the van of progress — in short, to each and every man who desires to be a leader in his particular vocation in his community.

IMPERFECTIONS OF NATURAL TOOTH IMPLANTATION

For several years the countless attempts to replace natural teeth after extraction have met with only a fair measure of success. Every practicing oral surgeon has probably implanted quite a number of natural teeth, and knows how unsatisfactory this operation is. He finds that five years is a long life for the majority of implanted natural teeth. It is a matter of rather general experience that the implanted natural root fails, viz, simply disappears, because nature absorbs it, just as she does the deciduous tooth.

Like all my brothers in the profession, I have continually been confronted with the very serious problem of just what to do for patients with one tooth
missing, or with the posterior teeth all lost. And this problem has been of such intense interest and so vitally important that I have spent every spare moment during the past eight years trying to devise a means of making implantation a permanent operation. I believe my success in this work, the perfection of the process which I shall describe, and the instruments used in it, will be of the same interest to you as they have been to me.

SERIOUS SEARCH FOR A SUBSTITUTE

Through much study and extensive experimenting, I was early convinced that, even with the most careful work, the implanted tooth could never meet the demands of the profession. Through searching constantly for a substitute, and though having at my beck and call all of the advantages, facilities, and equipment of modern dentistry, my actual discovery of artificial root implantation was somewhat due to chance. One night a few years ago I happened to be present at a very difficult operation. I watched the surgeon reduce a fracture in which he used a silver-wire suture; then and there came the problem-solving query — If a surgeon can use metals in bone, why cannot a dentist do the same?

THE MISSING LINK IN DENTISTRY

Inspired by this thought, I set to work with increased energy, and it seems to me that the activity resulting from that chance observation of a surgical operation has produced a process which is perhaps as audacious and revolutionizing in prosthetic dentistry as were the discovery and use of wireless telegraphy, radium, and the X rays in their particular fields of science. For this discovery in actual concrete form is an artificial root that is permanent. I have tested and proved it repeatedly, with continued success, and have demonstrated before clinics in all parts of the country that artificial roots can be put into the human mouth to stay.

This new process of implantation is no less than the making of a few circular incisions in the jaw-bone of an edentulous mouth, inserting properly prepared artificial roots of iridio-platinum, and mounting on each a base or anchorage, to which can be attached a full set of permanent, natural-appearing teeth, capable of rendering as good and efficient service as those endowed by nature at her best.

NO SPLINTS NECESSARY

Perhaps the greatest convenience to dentists in this new process is the fact that the splint is unnecessary. For filling the vacancy caused by the loss of a single tooth, what better method could be employed? No splint will be needed, and the adjacent teeth will not have to be mutilated in order to serve as anchorages or abutments; the artificial root eliminates all that. Besides, the mechanical phase of this wonderful process is so utterly simple that it will be readily understood, and proficiency in its use will be quickly acquired by all who desire to use it.

The permanence of the operation is its chief value. At a clinic in Wichita, Kans., Dr. EO. Hetrick, now president of the National Dental Association, asked the question, “How long will this platinum root last?” And such was and is my confidence in the permanence of this process that I answered honestly, “I do not expect to live long enough to answer that question.” And what is more, though the tooth in question was not a spectacular case in any way, it still does not show any signs of deterioration in its enduring qualities.
THE PROCESS AND THE INSTRUMENTS

The artificial root used for this process is a hollow, latticed cylinder of iridio-platinum, No. 24 gage, soldered with 24-karat gold. It is impervious to acids, and does not injure the tissue which grows about it. The disk-shaped cast base with groove or slot (Fig. 1, A), in which the crown attachment (Fig. 1, B) is inserted, is made of 22-karat gold, and is soldered to the metal frame of the root.

Special machinery is necessary for cutting and shaping these roots. Absolute accuracy is essential, for the artificial root must fit exactly the circular incision or socket made for it in the jaw-bone of the patient.

These roots are made in three different sizes or diameters, 3/16, 5/16, and 7/16 of an inch respectively, and are 1/2 inch in length. As a rule, the 7/16-inch size can be used for supporting a molar, while the two smaller sizes are employed for bicuspids and anterior teeth. The character of the ridge, however, in which the roots are to be implanted must serve as the ultimate guide in the selection of the proper size of the root to be used in the operation. In a small, narrow ridge the small root is used for a molar as well as a front tooth. The length of the root — 1/2 inch — is ample for any case. Often it will be necessary to shorten the root a little by removing a layer of the crate-like root-frame.

Of course, thorough sterilization of these roots and of the instruments used always precedes the operation of implantation. When everything is ready and the patient has been put under an anesthetic — either general or local — the gum is cleansed with ether and then painted with tincture of iodin. Next the tubular knife (Fig. 3) is employed in the dental engine for removing the gum tissue.

The remainder of the operation is performed with a cylindrically shaped drill or trephine (Fig. 4), which is made in the same three widths as are the roots; likewise the selection of the drill for any particular operation is determined by the character of the ridge in which the trephinement is to be accomplished.

The trephine is first used with the center rod (Fig. 4, A) in place, for the sake of guiding the instrument in position as it starts the socket in the jaw. After the socket is started, the trephine is removed for a moment and the center rod is taken out. Then the excavation is continued to about 3/8 of an inch depth in the alveolar process or bony structure which supports the teeth. In the absence of alveolar process, a socket is trephined in the jawbone to a depth of 1/4 inch plus whatever depth is necessary, if any, to
permit the tooth-supporting base of the root to be evenly embedded in the
gum tissue (Fig. 6).

From the above, it will be observed that it is absolutely essential to ex-
cavate the root-socket (Fig. 5) to exactly the right depth. Conditions deter-
mining this depth may vary, but in any event the attachment for the crown
of the root, when in position, must be on a level with the outer surface of
the gum tissue (Fig. 6). It should be noted that a row of holes is punched
through the cylindrical wall of the trephine around its center, to serve as
a guide to the depth to be attained in trephining.

Thus far the operation should have consumed about five minutes' time.
The circular socket in the jaw-bone (Fig. 5) is now finished, and the patient,
if he has been subjected to general anesthesia, can be allowed to regain
consciousness.

The root-socket should now be filled with bismuth paste, the formula
for which is as follows: Bismuth subnitrate 30.0, white wax 5.0, soft paraffin
5.0, vaselin 60.0 parts by weight; mix while boiling. Then the thoroughly
sterilized artificial root is placed in position (Fig. 6), i.e. sunk down around
the bony core or center of the root-socket.

When once in place, the artificial root should not be removed; but if for
any reason there is absolute necessity for its removal, care should be taken
not to rotate the root as it is taken out, for in doing so, the core of the socket
might be fractured or pulled out entirely.

In the course of a week or ten days after operating, sensitiveness has
largely abated, and in six weeks' time — rarely longer, the bony tissues of
the jaw have united through the latticed root-structure, and a positive an-
chorage is provided for the attachment of the artificial denture.
HISTOLOGIC REASONS FOR SUCCESS OF OPERATION

By means of the bony core which the trephine produces in making the incision or root-socket, the artificial root, after being placed in position, will be held firmly until a sufficient deposit of bone cells has filled the spaces in the root-frame. Thus the artificial root becomes solidly embedded in the jaw.

This bony center of the root-socket is one of the chief factors in the success of this process of implantation. It assures the fit of the artificial root in the socket trephined for it, and an absolutely accurate and certain fit is decidedly essential to permanence and endurance.

Without this core or center, splints would be necessary, also there would be no possibility of operating on an edentulous jaw; but with it, there are practically no limits to the prosthetic appliances available. It is this feature of the process which makes it so inviting and interesting to all members of the profession, especially when the results accomplished are compared with the results of the implantation of natural teeth. The implanted natural tooth fails because of the rarefying inflammation which occurs at the seat of implantation.

The end results can readily be demonstrated by experimentation. It can, also, be proved that in the implanting of new bone in osseous tissue the grafts naturally die, and are gradually replaced by the formation of new bone. In the dead bone or grafts we find a more rapid dissolution, and the defect becomes filled with connective tissue, with latent osteosclerosis or condensation. By analogy, the same process must take place in the implantation of natural teeth.

To go into the minute embryological formation of cartilage and its replacement by bone is a matter too remote for this discussion. Suffice it to state that bone tissue is developed from the mesoblastic layer of the embryo, or the mesoderm, as is all connective tissue. But an understanding of the process of formation of new bone is a necessity in the implantation of artificial teeth, for it is with this knowledge alone that we are able to understand the process, and to gain a clear conception of what we are doing.

When an artificial root is implanted in either jaw, a cellulo-plastic exudation forms around and between the mesh-work of iridio-platinum wire, and is soon converted into granulation tissue, and inasmuch as the constituent cells are derived from bone, they early manifest a bone-forming or osteoblastic function. The periosteum becomes thickened and more vascular, and is slightly loosened for a short distance by an exudation of plasma, which is soon followed by a new deposit of spongy bone on the surface as the result of the irritation.

The granulation tissue from the periosteum unites with that from the bone, forming what might be called the provisional or ensheathing callus. The transformation of this callus into bone starts from the periosteum by the multiplication of the osteoblastic cells and their invasion of the granulation tissue or callus, the cells being derived from the osteogenetic layer of the periosteum.

Fig. 7. A radiograph made by Greenfield showing his implant in place.
It will thus be obvious that the continuity of the bone is restored long before the act of repair is completed, and that the end result depends on the ossification of the ensheathing callus. The time necessary for the removal of the clot and the formation of the granulation tissue is about a week or ten days, and new bone formation commences about the first week. By the fourth or sixth week, according to the size of the cavity, the degree of immobilization of the root, and the recuperating power of the individual, the union will be completed, and all tissues consolidated.

APPLICATION IN EDENTULOUS CASES

In cases of entire loss of the teeth, incisions are made in each jaw at points so selected as to insure sufficient anchorage for the proposed restoration. I have made as many as eight incisions in either jaw for artificial abutments for bridge work.

The danger of these operations may be thought greater, possibly, than the benefits to be derived from them. But such is not the case if attention is given to the prevention of infection by keeping everything sanitary and sterile — a precaution every dental surgeon should exercise in performing any operation.

CONSTRUCTION OF A BRIDGE

I have found that a great many dentists are confused as to the setting of a bridge on artificial roots. The impression often prevails that the bridge must be soldered to the caps and then made to slide into the grooves on the roots. This, of course, would be impossible.

One practical way of making a full bridge is as follows: First, a heavy platinum pin is soldered to the gold cap or crown-supporting base of the ordinary artificial root (Fig. 1, B); then the caps are placed in position on the roots. The pins are covered with tin foil so that the plaster will not pull too hard on the roots. Next an impression is taken, and the caps are removed and placed in the impression. Care should be taken to keep them in order. Then the model is poured, the bite taken, and the case mounted on an articulator.

Next, inlay wax is pressed over the post or pin. The tooth is placed in position and the wax is carved as it is to appear when finished in gold. This should be continued until all the teeth are in proper position; then the teeth are removed and the casting is made.

If parts are cast separately, it will be necessary to replace them in position, invest, and solder, care to be taken not to solder the caps to the bridge. Finally the caps should be replaced on the roots, and the bridge cemented in place.

A bridge made in this manner can be made removable by drilling a hole in the pins and castings, threading them, and placing screws in them to hold the bridge.

POSSIBLE LIMITATIONS ARE FEW

The conditions limiting the success of this process of implantation are decidedly few in number, and inconsequential as to effect. The physical condition of the patient must, of course, be taken into consideration as in any other operation. If the patient's condition is anywhere near normal, little trouble should be encountered in implanting an artificial root.

The nature of the maxilla or the alveolar process in which the intended implantation is to be made also has somewhat to do with the success of the
operation. The subsequent solidity of the implanted root depends largely on the amount of the area — the width and depth — of the ridge available for the operation.

This operation must not be placed in the same class as all other implantations, nor should it be anticipated that this process comes to the same end as all other implantations. No fear is to be entertained that infection will occur. If a solid body is inserted in the maxilla there would be room for infection to set in around it, but in this operation a cage-like, hollow cylinder is inserted in a circular socket in the maxilla. This root is open all the way up, clear to the gum, and the circulation carries away any bacteria which might otherwise be destructive. This is one of the main features in the success of this process of artificial root implantation. If the root were a solid body or even simply perforated, it would be thrown off, as nature would not tolerate it, and there would be room for infection.

Another factor which limits the conditions of failure is the simplicity of the operation, which is neither difficult nor complicated, and can be performed in a few minutes.

Another advantage is the immovability of the root. When once implanted, this artificial root is solid and stationary, the bony core in the center of the socket assuring solidity.

I have implanted both natural teeth and these artificial ones, so I speak from experience when I say that the absorption which takes place after a few years and absolutely destroys implanted natural teeth is entirely avoided by this process, which provides for the anchoring in the jaw of good, solid, imperishable artificial roots.

REFERENCES

3. All of the above procedures were discussed at the monthly meeting of the Academy of Stomatology of Philadelphia as reported in the Dental Cosmos, Vol. 55: 433, 1887.

DR. HERSCHFELD is in private practice. His address is 2169 Galloway Road, Bensalem, PA 19020. Requests for reprints should be made directly to the author.
Dr. Ben Z. Swanson, the new vice-president (left), his lovely wife Kamila and Dr. Arden G. Christen of Indianapolis at the excellent luncheon.

Dr. Alan Bloore, Beverly Hills, California, gave a fascinating talk on living with dental antiques.

Dr. Handore T. Loevy of the University of Chicago poses with Dr. Malvin E. Ring, editor of the Bulletin and Miss Aletha Kowitz, president-elect of the Academy.

Dr. Gary Lemen, Sacramento, California, let us in on the secrets of collecting early dental equipment.

Three past-presidents of the American Dental Association attended the meeting. From left: Drs. Maynard Hine, Lawrence Kerr and Robert Shira. Behind Dr. Hine is president of the Academy Dr. Clifton Dummett, and to the right is Dr. Ben Z. Swanson.
Dr. Jack Gottschalk of Cincinnati, chairman of the Bremner Essay Award Competition and first-place winner David Huff of Buffalo (center) and 3rd place winner Keenman Feng of Victoria, British Columbia.

Dr. Gordon Dammann of Lena, Illinois, spoke on dentistry in the Civil War.

(photos courtesy Dr. Edward J. Leone)

Academy president Clifton O. Dummett and A.D.A. president Burton Press, who spoke on the problems besetting the dental profession.

Dr. John D. Jago of Queensland, Australia, delivered a paper on quackery in dentistry.
Solyman Brown and His Epic Poem "Dentologia"

— JAMES F. GARDINER, D.D.S., M.P.H., M.Ed.
New Orleans, Louisiana

Unique to dentistry are two poems in epic form written almost a century and a half ago by one of the early leaders of the dental profession in America. Solyman Brown, minister turned dentist, composed these poems which were hailed by the contemporary literary community as true works of art. They stand far above the level of doggerel verse usually associated with dentistry, and here are printed several of the cantos of the poems. Too long to be reprinted here in their entirety, they nevertheless merit reading by all dentists as well as lovers of literature.

Of the many early 19th century pioneers of our profession, Solyman Brown was the truest "Renaissance Man." He was born on November 17, 1790 in Connecticut and in his early years was known to be a very knowledgeable and avid student of literature. In 1810 he entered Yale College to prepare for the ministry. He was graduated in 1812 with a Master of Arts degree, and a year later received the degree of Doctor of Divinity. Until he met Dr. Eleazor Parmly in 1832, he spent the intervening years first as a minister and teacher in Connecticut, and later as a professor of language in New York City.

In 1818 he published An Essay on American Poetry, a volume which took the controversial position that the young United States would soon be able to produce first class literary minds and poets. He was strenuously opposed in this view by William Cullen Bryant who supported the then popular view that this was not likely. Ironically, Bryant was to live to disprove his own contention. In 1833, Solyman Brown wrote "Dentologia, a poem on the diseases of the teeth and their proper remedies," which he dedicated and sent to Dr. Eleazor Parmly. Dr. Parmly received it warmly and was convinced that it was of considerable literary merit, but distrust his own opinion, had it reviewed by literary experts of his acquaintance. They unanimously agreed that the poem was a literary triumph. Parmly saw to it that the poem was published in the new American Journal of Dental Science in full in 1839.

In 1838, Brown wrote and published in book form a sequel to "Dentologia" entitled "Dental Hygeia, a poem on the health and preservation of the teeth," which he dedicated to his brother, Dr. A. Woodruff Brown, also a well-known dentist.
Solyman Brown was a charter member of the American Society of Dental Surgeons, of which he was secretary for many years. Along with Chapin Harris, he promoted the establishment of the first national dental journal, the *American Journal of Dental Science*. He served on the publishing committee of the new journal and was its co-editor with Chapin Harris in its first year. He was also associated with Hayden, Harris and Parmly in a failed attempt to establish a dental chair at the New York City Medical College. This ultimately resulted in the establishment of an independent dental college in Baltimore in 1839.

Solyman Brown was a frequent contributor to the *American Journal of Dental Science*, but it is commonly held that the most important of his clinical contributions was "A Treatise on Mechanical Dentistry," a long exposition published in serial form in the early journal. For his literary effort he was rewarded with both praise and derision. Some practitioners of the period held that he was foolish to publish the secrets of the profession so that anyone could use them. Others held that the scientific and practical knowledge of the profession could only be expanded by a free exchange of views.

**BROWN'S BUSINESS AND PROFESSIONAL LIFE**

Dr. Brown practiced dentistry in New York City for almost thirty years. In 1844 he sold his practice and went into retirement. He invested much of his wealth in a communal group fostered by Horace Greely in northern Pennsylvania.

After the group failed and disbanded, Brown returned to practice for two years with a Dr. Miles of Ithaca, New York. In 1852, he opened an establishment for the sale of dental materials, and in 1854, helped organized the New York Teeth Manufacturing Company which went bankrupt during the Civil War.

Following the failure of the new business, Dr. Brown retired once again from the dental field and became pastor of the Swedenborgian Church in Danby, New York. He remained there until 1874 when his health became so poor as to preclude further service to his church. He died on February 13, 1876 at the age of eighty-six at the residence of his son-in-law.

Solyman Brown was the last of his kind to grace the ranks of dentistry. His literary skills, artistry, and dedication to his profession marked him as a unique pioneer. His contribution to the establishment of a dental school may have helped to preclude the emergence of another Solyman Brown — someone with his unique combination of classical learning and literary artistry.

Solyman Brown's poems "Dentologia," from which the following sections are excerpted, and "Dental Hygeia" are quite simply unique to dental literature. They have been read and enjoyed by members of the profession for the 140 years of its organized existence.

*On Deciduous Teeth*

(from Canto Second)

The first dentition asks our earliest care,
For oft, obstructed nature, laboring there,
Demands assistance of experienced art,
And seeks from science her appointed part.
Perhaps ere yet the infant tongue can tell
The seat of anguish that it knows too well,
Some struggling tooth, just bursting into day,
Obtuse and vigorous, urges on its way,
While inflammation, pain, and bitter cries,
And flooding tears, in sad succession rise.

The lancet, then, alone can give relief,
And mitigate the helpless sufferer's grief;
But no unpractised hand should guide the steel
Whose polished point must carry wo or weal: —
With nicest skill the dentist's hand can touch
And neither wound too little or too much.

Be prompt to act: — 'tis dangerous to delay,
Since life awaits the issue of a day: —
Reject the gentler means: — employ the best: —
Let unobstructed nature do the rest.
This rule neglected, many a smiling form,
With beauty bright, and life blood glowing warm,
Its parents' pride, a floweret in bloom,
Descends lamented to an early tomb.

Nor less the danger when the first array
The infant teeth — alternately decay,
Or yield succession to a hardier race
With marked reluctance; for, in either case,
Neglect will bring repentance in its train;
In one, deformity; — the other, pain
Or fell disease; — but timely care may still
Avoid the danger, or repair the ill.

If pain ensue, and neighboring parts inflame,
Extraction is the cure; and 'tis the same
If nature's law, obstructed in its course,
Should meet resistance from opposing force:
For this resisting force howe'er remote,
Meets in the dental art its antidote;
Pain flies its presence; anguish wipes her tear;
To hope's fond vision rainbow-hues appear;
Pale, trembling beauty hushes her alarms,
And beaux, admiring, own her added charms.

Now mark the contrast in some hideous face,
Robbed by neglect, of symmetry and grace:—
Behold those organs, formed on nature's plan,
To serve important purposes to man;
To form the sounds in which his thoughts are drest,
His wishes uttered, and his love confest;
To fit his solid food of every name,
For healthy action on the general frame;
Behold these organs, wrested by abuse,
From wisest purpose, and from noblest use,
Deranged, displaced, distorted, set awry,
Disgusting objects of deformity!

Such mal-formations hardier man perplex,
But, with more grief, afflict the softer sex: —
For when with grace, deformity is joined,
As one base passion desolates the mind,
So one contrasted fault alone disarms
All conquering beauty of a thousand charms.

Let azure eyes with coral lips unite,
And health’s vermilion blend with snowy white;
Let auburn tresses float upon the gale,
And flowery garlands all their sweets exhalé;
If once the lips in parting, should display
The teeth discolored or in disarray,
The spell dissolves, and beauty in despair
Beholds her fond pretensions melt in air.

But learn the remedy: — the dentist’s skill
Subjects disordered nature to his will: —
As great commanders hear without alarms,
The shouts of battle and the shock of arms,
And, when their troops, in broken ranks, incline
To wild confusion, bring them into line;
So he — the master of the dental art,
Can order, grace, and symmetry impart,
Where anarchy had else sustained alone
The undisputed title to his throne.

On Toothbrushing
(from Canto Third)
If sloth or negligence the task forbear
Of making cleanliness a daily care;
If fresh ablution, with the morning sun,
Be quite forborne or negligently done;
In dark disguise insidious tartar comes
Incrusts the teeth and irritates the gums,
Till vile deformity usurps the seat
Where smiles should play and winning graces meet
And foul disease pollutes the fair domain,
Where health and purity should ever reign . . .

Let each successive day unfailing bring
The brush, the dentifrice, and, from the spring,
The cleansing flood: — the labor will be small,
And blooming health will soon reward it all.
Or, if her past neglect preclude relief,
By gentle means like these; assuage her grief;
The dental art can remedy the ill,
Restore her hopes, and make her lovely still.

Yet, other evils may her care engage,
The offspring of an epicurean age.
Destructive caries comes with secret stealth
T’ avenge the violated laws of health:
Dilapidates the teeth by slow decay,
And bears them all successively away.
So, silent time, with unresisted power,
Labors at midnight in the lonely tower;
Corrodes the granite in the ivied wall,
And smiles to hear the crumbling atoms fall;—
Till all the mighty structure disappears,
A dream forgot, a tale of other years.

When caries, thus, the solid tooth destroys,
That sullen enemy to mortal joys,
The tooth-ache, supervenes: — detested name,
Most justly damned to everlasting fame!

They say who most have felt, and best should know
The power of this most execrable wo,
That when Pandora's box of mortal pains,
Was first unlocked among the wondering swains,
To every vice its kindred grief was sent,
And every crime received its punishment,
Except intemperance: — no single ill
Could heaven's irrevocable law fulfil,
The fixed resolve, th'omnipotent decree,
That each offence should meet its penalty;
Then all these mortal woes in one were joined,
And tooth-ache came, the terror of mankind!

On Repairing Caries
(from Canto Fourth)

If then the teeth, designed for various use,
Decay and ache, 'tis only from abuse;
And lo, triumphant art can well ensure,
At least a remedy, if not a cure.

Whene'er along the ivory disks, are seen,
The filthy footsteps of the dark gangrene;
When caries comes, with stealthy pace to throw
Corrosive ink spots on those banks of snow —
Brook no delay, ye trembling, suffering fair,
But fly for refuge to the dentist's care.
His practiced hand, obedient to his will,
Employs the slender file with nicestskill;
Just sweeps the germin of disease away,
And stops the fearful progress of decay.

Fair science, thus, with timely care combined,
Becomes the faithful friend of human kind;
Reverses, oft man's miserable fate,
And serves his cureless ills to mitigate:
Extracts the poison from his tainted breath,
And plucks the feather from the shaft of death.

From long neglect which nothing can atone,
Should caries excavate the solid bone,
Destroy the bright enamel in its way,
And lay the nerve quite naked to the day;
Still dental science, subject to my song,
Invents expedients to redress the wrong.
But mark the triumphs of victorious art,
When sighing fair ones see their hopes depart;
When speech unsyllabled offends, and when
The lisping notes of childhood come again:
When vicious chyle from undigested food,
Abates the vital vigor of the blood;
Then — ever prompt to dry misfortune’s tears,
Again the artist’s magic skill appears.

On Dental Materials
(from Canto Fourth)

Behold the dental artist’s bright array
Of magic wonders glittering to the day;—
The white stalactite from the mountain cave;
The branching coral from the ocean wave;
The crystal from the rock; the gem that shines
With decompounded light from Indian mines;
And alabaster; and that yellow stone
That graces jealous beauty’s virgin zone;
The brightest gifts of every varying clime,
Resplendent spoils of nature and of time; —
And see, obedient to his ruling will,
Their forms transmuted by his plastic skill,
Till, as when Cadmus, coveting to reign,
With teeth of dragons sowed the Theban plain
A marshalled host sprang vigorous from the glade,
In blazoned arms and towering plumes arrayed;
So spring to light, while love her flag unfurls,
A shining panoply of orient pearls.

With aids like these, from nature’s store supplied,
And following nature man’s unerring guide,
The artist boldly ventures to restore
The dental arch, till, perfect as before,
The teeth in order greet the wondering sight,
A theme of admiration and delight!

On the Effect of Tooth Loss
(from Canto Fifth)

But most the teeth, for various use employed,
Disturb the system when themselves destroyed;
For when these organs yielding to decay,
In morbid exhalations waste away,
The vital air, from heaven’s aerial flood,
That warms with life the circulating blood,
Bears to the heaving lungs the deadly bane,
Where all its noxious qualities remain,
While every breath the poisonous draught repeats,
And spreads disease with every pulse that beats.

Nor less the nervous sympathy conveys
Each dental malady a thousand ways,
For, as the witching music of the lyre,
Is heard along each vibratory wire,
What time the heaven-instructed minstrel flings
His hurried hand among the magic strings: —
So when disease invades the dental arch,
And strides in anguish on his angry march,
His burning touch, like the electric flame,
Flashes through every fibre of the frame;
Fever ensues, with all its raging fires,
And oft the maniac sufferer expires.

And yet of all the evils that accrue
From loss of teeth, though neither small nor few,
The chief is this; — 'tis nature's general plan,
That all the solid aliments of man,
Before admission to the secret shrine,
Where vital chemistry, with skill divine,
Transforms the cruder mass to milky chyme,
By nature's matamorphosis sublime,
Should suffer comminution; — hence we find
The dental organs formed to cut, and grind,
And masticate the food: — this rightly done,
The process of digestion, well begun,
Results in health to each dependant part,
That feels the living impulse of the heart.

But when, from loss of teeth, the food must pass,
A crude, and rigid, and unbroken mass,
To the digestive organs: who can know,
What various forms of complicated wo,
May rise terrific from that single source?
For nature, once resisted in her course,
Breeds frightful things — a monstrous progeny!
Consumption, fevers, palsy, leprosy,
The hobbling gout, that chides, at every breath,
The lingering pace of all-destroying death;
And apoplexy, dragging to his doom
The half surviving victim of the tomb.

On Keeping the Teeth
(from Canto Fifth)

And see — the venerable man appears,
White with the hoary frosts of threescore years; —
The good old man, whose useful hours have flown,
To soothe all others' sorrows but his own;
Whose daily labors to mankind are given,
In charity, but all his heart to heaven.
So pure the life this virtuous man has passed,
That all his powers are perfect to the last;
No borrowed lock to grace his brow aspires;
No optic glass his vigorous eye requires;
He lacks no single tooth that nature gave,
Nor asks a staff to guide him to the grave.
REFERENCES

1. Brown, Solyman; "Dentologia, a poem on the diseases of the teeth and their proper remedies." American Journal of Dental Science, Volume 1, No. 5, 1839.

DR. GARDINER, who has contributed articles to the Bulletin previously, is associate professor of Community Dentistry, Louisiana State University School of Dentistry, New Orleans, Louisiana. Requests for reprints should be made directly to the author. His address is School of Dentistry, Louisiana State University Medical Center, 1100 Florida Avenue, New Orleans, LA 70119.

POETRY AND THE DENTIST

At the Dentist's
I've had a holler tooth filled, an'
I didn't yell a mite;
The dentis' called me "little man"—
Tho' once I tried to bite.
But I wuz boun' to stan' it, for
Pa said: "Now, Jimmy, lad,
Perten' you've been away to war
And you've got wounded, bad."

The dentis' said: "that cav'ty
Can't be fixed up too quick;"
A teeny mirror helped him see
Upon a weeny stick!
He stretched my mouth, I guess a mile;
So, gee! I nerly died;
For, my! I couldn't swaller while
He wuz at work inside!

An' then he dug an' dug an' dug—
But what I hated wuz
The thing I call a "doodle bug";
'Cause, sakes! but it can buzz!
He'd put that in, an' whir an' whir
Till it wud feel red-hot—
I don't want more of that; no, sir!
Sh'd say I'd rather not.

An' even when he didn't touch
A place that hurt a bit,
Somehow it hurt me jus' as much,
Since I was 'spectin' it.
But when he got the 'malgum stuff
All wadded in an' flat,
I said: "Oh, pooh! I'm pretty tough!
I've stood lots more 'n that!"
—Edwin L. Sabin, in Puck, 1899.
From the Collection of Professor Gardner P. H. Foley, Baltimore, Maryland.
A Short History of Dentistry in China From Earliest Times Through 1900.

—CARLA H. SCHLISSEL
Buffalo, New York

As an ancient nation, the Chinese have a long history of oral health care. However, until most recent times this has been of a primitive kind, dispensed by untrained charlatans and quacks. It was not until the current century that China began to move into the modern world insofar as dentistry is concerned. Nevertheless, it is surprising to learn that essentially modern treatment was also practiced by the Chinese centuries ago.

In the China of earlier years, the practice of medicine and dentistry was never very favorably regarded. The average Chinese had extreme distrust of a medical or surgical practitioner. In addition, the very poor could not avail themselves of any aid, unless it was free. It appeared that “it was cheaper to suffer than to be cured.”

Dentistry was considered to be one of thirteen branches of medicine, and the history of medicine was divided into periods: “Mythical” (?-1122 BC); “Golden” (1121 BC-960 AD); “Controversial” (961-1800 AD); and “Transitional” (1801-present).

During the “Mythical” period three emperors had been practitioners of the healing arts. Emperor Fu Hsi (2953 BC) brought to the profession an understanding of the pulse as a diagnostic aid. Shen Nung (2838 BC) examined and classified most of the medicinal herbs and established the foundation of classical Chinese medicine. Perhaps the Emperor who contributed most to medicine and dentistry was Huang Ti, (2698 BC), who introduced diagnosis through study of the pulse, and physical therapy as a method of treatment. He was also the first to study dental disease.

According to Huang Ti there existed three types of dental disease: fong ya, representing inflammatory conditions, ya kam, which were diseases of the soft tissues, and chong ya, or caries, believed to be caused by tooth worms. Chong ya was prevented by the removal of food debris by rinsing after eating. Chiao ya (rampant caries or “burned tooth”) was believed to result from too many sweets. Oral disease and pain were believed to be the result of an imbalance in the body’s heat and cold, while tooth mobility arose from fong ya or inflammatory disease. As teeth were considered skeletal tissue, anything beneficial to bone — deer horn, for instance — was believed to be beneficial to teeth.

Therapeutic measures for dental disease consisted primarily of internal draughts of herbs, chrysanthemum, insects, reptiles, and/or drugs to combat abnormal bodily changes. Local treatment included acupuncture with silver needles, counter-irritation (moxa), massage and medical plasters to decrease inflammation. Cautery was a favored mode of therapy for “aching nerves” and consisted of inserting into the cavity of a tooth of a castor-oil bean that had been heated to the burning point.

The native dentists at this time practiced primarily sleight-of-hand as cures, and worked upon the credulity of the people. There were four types of pre-professional practitioners: tooth-worm removers; tooth removers; tooth cleaners; and tooth fitters.
DENTAL CARIES AND ITS TREATMENT

Toothworms were believed to be the cause of caries and, therefore, to relieve a toothache the offending worms had to be removed. This was the job of female toothworm removers who were to be found primarily in interior provincial rural districts, and who usually operated in, or in front of, a temple. According to an agreed upon fee the remover presented her client with the offending worm or worms. Lime cement was then placed into the cavity to prevent other worms from entering. There were several methods for removing worms, all involving “magic” and/or misrepresentation.

The first method of worm removal consisted of poking the affected tooth with a silver pin and then scraping a yellow lump of worms—which was probably plaque—from the tooth with a chopstick. The number of lumps removed depended on the fee paid. This treatment removed the pain for a few days. A second method involved holding back the lips and poking the gingiva with a pointed spatula. The flow of blood and saliva thus liberated the “worms” which the operator had introduced into the mouth in a small piece of paper. With a pair of forceps she removed these “worms” and satisfied her patient. A third method employed the use of a long pair of metal forceps, one side of which was actually a hollow bamboo, painted to resemble metal, containing maggots. While the operator poked around in the patient’s mouth, a maggot was ejected from the small end of the instrument into the mouth, then picked up and displayed for the patient, thus “curing” him.

During the “golden” period, if the dental practitioner had to deal with a decayed tooth which he could not remove, he satisfied himself by filling it with a paste. As early as the start of the “controversial” period, also known as the period of stagnation and decline, amalgams were used to fill badly decayed teeth. The Chinese, characterized as being economical, saved silver filings from plates for filling material, and amalgamated them with mercury, the fingers being used as pluggers.

TOOTH EXTRACTION TECHNIQUES

As early as the “mythical” period, if a tooth could not be saved, it was extracted. The tooth removers had practiced in rural China since ancient times, removing teeth loosened by inflammation. They set up stands in the streets, with strings of extracted teeth and scrolls attesting to their skill.

The Reverend T. J. Devan, in 1847, observed that “... the Chinese have a peculiar dread of the sight of blood, hence when the Dentist knocked out a tooth (for they did not extract them ...) an assistant stood by, ready with some styptic, to fill up the alveolar cavity and arrest the hemorrhage. ... The loss of a teaspoonfull of blood might produce fatal or serious complications.”

Teeth were extracted by a process called “coughing up,” utilizing a white powder representing either the salt extracted from the sweat of a horse or white “dragon’s bones.” This was applied to the aching tooth which was then supposed to drop out. If the “dragon bone” powder did not work, then it could not have been genuine, for only the genuine “dragon’s bones” were expected to do good. In later years it was revealed that this powder was arsenic, also known as Lu sauk-dang. If toothache did not actually prevent the patient from eating or drinking, the tooth was not extracted; rather an opium pill and oil of mint were rubbed on the jaws.

Towards the end of the nineteenth century the Chinese began using mechanical pliers and elevators for extraction, similar to those in use today.
CLEANING OF THE TEETH

Any teeth remaining in the mouth were cleaned by tooth cleaners at inexpensive stands at county fairs. Although teeth were left clean and white, they were rendered more susceptible to decay because a dilute solution of hydrochloric acid was used. A safer alternative which was sometimes used was powdered cuttlefish bone, applied with a small bamboo instrument.

FIXED AND REMOVABLE PROSTHODONTICS

People recognized the need to replace badly decayed and missing teeth. Tooth fitters offered to provide full and partial dentures and gold crowns that were more-or-less toothshaped, or to crown healthy anterior teeth for adornment. In 1295 AD, Marco Polo recorded in his Travels that men and women in the province of Karbandan in Southern China customarily covered their teeth with leaves of gold.

Prosthodontics, however, was practiced for centuries. To fill an edentulous area a circle of one-half to three quarters of an inch was sawed from the shaft of an ox femur, carved to a tooth shape and ligated to adjacent teeth with copper wires. In addition to ox femur, the teeth of a manatee were also used. If a bridge was necessary, a block of ivory was appropriately carved and retained by gold, silver or copper wire tied or ligated to the remaining teeth. If only a short edentulous space was present a single tooth may have been wedged into it, but due to the increased separation which resulted from the pressure, it had to be replaced with a new and larger one within a short time.

In the latter part of the 1800's (the "Transitional" period), the Chinese began taking impressions with a black mass of "stick-lac boiled with cocoanut oil," although without the use of impression trays. This mass was moistened and molded around the teeth with the dentist's fingers. A plate of beaten or hammered gold or silver was made to conform to the impression, then trimmed and adapted to fit around the teeth. Artificial teeth of ivory or bone were fastened to the plate, then filed to the proper size and form and then riveted in place. This tooth-supported partial denture, similar to swaged partials, would last for only eight to twelve months.

Although porcelain had been discovered in China during the "Golden" period, there is no record of the use of this kaolin product for making teeth until well into the twentieth century.

EARLY METHODS OF DIAGNOSIS AND ORAL SURGERY

The "Golden" period was so called because it ushered in the Age of Confucius and the Doctrine of Yin and Yang. During the Shu dynasty (605-609 AD), twenty-one dental pathological conditions were identified. Three etiological factors — wind, fire and worms — were believed responsible for almost all dental ailments, including bruxism, gingivitis and caries. Diagnosis was made by inspection of the tongue. This was actually a case of rediscovery, for tongue inspection was first described in The Yellow Emperor's Canon of Internal Medicine (3rd-5th Century BC). It consisted of observing the substance of the tongue itself as well as the tongue's coating for changes which were believed to be closely related to disease states. These changes were believed to give a clue to the anticipated severity of the illness as well as its prognosis.

Surgery was also performed during the "Golden" period. A cleft lip repair performed during the Ch'in dynasty (255-206 BC) was recorded in two books. The lip was repaired by cutting the edges of the cleft and suturing the raw edges together. For one hundred days post-operatively the patient was not
allowed to smile or talk and ingested only a thin gruel. This operation was apparently a success, for the book goes on to say that this particular patient was eventually promoted through the ranks to become a governor-general of six provinces! During the “Controversial” period surgery was primarily confined to exodontia, lancing abscesses with needles or attempting to reduce dislocations and unite fractures by pressure or bandages. Sometimes, however, operations were performed for cleft lip repair or readying the jaw for the insertion of false teeth.

EARLY TRADITIONS IN ORAL HYGIENE

Culturally, the Chinese never ate or drank anything cold but rather consumed everything warm so as to prevent an imbalance in the body’s heat and cold, thereby preventing oral disease and pain. As early as 619 AD they rinsed their mouths with a saline solution and had access to a bamboo toothbrush. The modern toothbrush, similar to today’s, was invented in China in 1492. Even so, very few people actually used the toothbrush and fewer still had the calculus removed from their teeth. This seemed to cause no perceptible inconvenience to the Chinese who had a very low caries rate in spite of this lack of care. The use of toothpicks after each meal has been practiced there since at least 1768. As had been noted previously, the Chinese seemed to find it cheaper to suffer. This may have been because China was a poor country and it is understandable if they preferred to spend whatever money they had on food.

THE TRANSITIONAL PERIOD LEADING TO MODERN TIMES

With the “Transitional” period, beginning in 1801, the abandonment of native medicine in favor of Western medicine was beginning. The traditional dentist practiced as he had always done. He had a tent or a stand on the street and displayed strings of extracted teeth and/or a huge scroll proclaiming “his fame and skill in cleaning, curing, and a knowledge of the mouth in general.” It wasn’t until 1918 that the first dental school in China was opened in Shanghai.

The Chinese people normally visited their traditional Chinese dentists. However, by 1874 there were over 1100 foreigners living in Hong Kong. Therefore Hong Kong was considered to offer great occupational opportunity for a man “about twenty-five years of age, possessing a first-class education, good address, and means enough to remain for five or ten years without having to depend upon his income.” The foreign dentists, primarily Americans and Englishmen, practiced among their countrymen and other Europeans. The poorer Chinese never sought a foreign dentist’s services except in those very rare instances where they were of the wealthier classes. As a result of a lack of understanding of their culture, the Reverend T. J. Devan stated: “The (Chinese) people love their money more than their teeth, and are content to suffer pain and inconvenience rather than be relieved at the cost of five or ten cents.”

The author wishes to express her thanks to Dr. Lisa Tedesco of the State University of New York School of Dentistry and Ivan Lee for their patience and support in the preparation of this paper.
REFERENCES


This paper was the winner of an Honorable Mention in the 1983 Bremner Essay Award Competition conducted annually by the American Academy of the History of Dentistry among dental students of the United States and Canada.

MISS SCHLISSEL is a fourth year student at the School of Dentistry, State University of New York at Buffalo. Her address is 238 Princeton Avenue, Amherst, NY 14226. Requests for reprints should be made directly to the author.
DENTISTRY AND FOLK ART XVIII: FEINDEL DENTISTE

Artist: Leon Willette, French, 1857-1926.

A design by Willette for a calling card for the Parisian dentist Feindel, whose office was located at 7, Place de la Bastille. Willette was an artist who was known to have immense feeling for the sufferings of his fellow man. His world was full of allegories, dreams and good fairies and he befriended beggars and stray animals which he commonly portrayed in his pictures. In this charming scene, a young woman holds her infant child who apparently is suffering from a toothache. A pet dog and lamb accompanies the patient. The field of operation is the blacksmith's shop and the operator with his oversized forceps appears ready for the task at hand. Is it not strange that a late 19th century Parisian dentist would want to associate himself with such a primitive operation? Fashionable dental salons offering so-called sophisticated techniques were quite in vogue in Paris during that period.

What Is It?

This little dandy appeared in the British journal, *Ash’s Monthly* for June, 1922. Hugh Miller, L.D.S., of Glasgow, its inventor, describes it as consisting “... of a nickel-plated receptacle which is pushed on to the end of the mouth mirror and is held in position by means of a spring grip. A piece of ordinary blotting paper is then inserted in the receptacle.” Sounds very simple ... but exactly what purpose did it serve? The answer will appear in the next issue of the *Bulletin*.

The item pictured in the last issue was, as most of you may have guessed, an early saliva ejector. It was used in the days before plumbing was common in dental offices, and depended on the patient operating it. The directions for its use, as given in the *British Journal of Dental Science* for May, 1865 follow:

DIRECTIONS—Place the mouthpiece (A) under the tongue, and allow the staple (Ax) to embrace the lower lip. Then press it down so that the perforated parts may receive the saliva from behind the lip and under the tongue. Owing to the flexibility of the metal, it is easily adapted to any mouth, and kept in position by pressing the small shield against the outer part of the lip. The alternate compression and dilation of by the patient, will then be sufficient to keep the mouth entirely free from saliva, which is thus drawn into the glass receiver (C). The latter may be placed under the operating chair, or in any other convenient position.

This apparatus is so constructed by means of valves, that it is impossible for the saliva to be forced back again into the mouth.
NOTES & QUERIES

DENTISTS WHO SERVED IN THE CIVIL WAR

Past-president of our Academy, Dr. Milton B. Asbell is preparing an article on “Dentistry and the Civil War.” In conjunction with that he has prepared a roster of dentists who served in both the Union and Confederate armies. He asks any of our readers who can supply any additional information, or correct any errors, to communicate with him. Any help will be greatly appreciated. His address is 1001 Kings Highway North, Cherry Hill, NJ 08034.

UNION ARMY

Delaware:
William D. Nolan (?-?).

Florida:
S. Ewing Smith (1841-1921). 60th Illinois Volunteers, after interrupting his studies at the New York College of Dental Surgery.

Illinois:
Charles R.E. Koch (1844-1916), Colonel, served in the army from 1861-1866.
Greene Vardiman Black (1836-1915), Sergeant, 129th Illinois Volunteers, 1862-1864.
Russell H. Mace (1851-1917), Assistant Surgeon, U.S. Hospital, Cairo, Illinois.
Paul Hubbard (1818-1885?), Surgeon, headquartered at Columbia with General J.B. Douglass.
W.D. Stone (1824-1878).

Massachusetts:
Charles H. Darby (1844-1910).

Missouri:
James A. Price (1829-1916), Organized the 18th Missouri and 16th Kansas Regiments.
Franklin Swap (1830-1902), Private, Captain, 2nd Iowa Cavalry.
Dudley Overton (1827-1862).
George L. Shpard (1842-1929), 2nd Missouri Cavalry.
George W. Travis (1834-1908), A.M. Austin (1840-1899), 11th Indiana Infantry.
Charles F. Wright (1847-1895) Drummer boy, enlisted at age 14.
Eleazer Hovey (1816-1898).
Robert B. Kice (1837-1923).
Charles Knower (1838-1878), Assistant Surgeon in an Engineering Regiment.
Homer Judd (1820-1890), Contract Surgeon, 34th Missouri Infantry and 40th Regiment, Missouri Volunites; also hospital river boat, Huntsville Hospital.

Montana:
A. Hamilton (1831-1907), Indian campaign in Nebraska.

New York:
Edwin James Dunning (1821-1901), Assistant to the Sanitary Commission.
Albert H. Fuller (1841-1912).
Samuel B. Prevost (1838-1913).

North Carolina:
T.G.C. Fahnestock (1838-1825).

Ohio:
John T. Toland (?-1863), Private, Colonel.
George Watt (1828-?), Surgeon, 154th Regiment, Ohio Volunteer Infantry.
Henry W. Howe (1842-1900).
Frederick H. Rehwinkel (1825-1889), Captain, Co. E, 37th Ohio Volunteer Infantry.
Royal W. Varney (1839-?), Assistant Surgeon, 31st Ohio Volunteer Infantry.
William Jones (?-1874), Assistant Surgeon, 135th Ohio Volunteer Infantry.
Matthew H. Cryer (1840-1921), 6th Ohio Cavalry, 2nd Lieutenant, Captain, Major with Sheridan's Cavalry Corps.

Pennsylvania:
John H. McQuillen (1826-1879), Volunteer Surgeon, Philadelphia hospitals.
Charles A. Kingsbury (1819-1891), Assistant Surgeon.
Simeon H. Guilford (1841-1919), Private, Pennsylvania Volunteer Infantry.
James E. Garretson (1828-1895), Military hospitals in Philadelphia.

Virginia:
Cyrus K. Doggett (?-?), Private, hospital steward, Battery B, 19th Battalion Artillery.
Robert G. Grant (?-?), Private, hospital steward, Co. F, 13th Battalion, Virginia Reserves.
J.W. Harris (?-?), Private, hospital steward, Harrisonburg General Hospital.

Wisconsin:
Charles Chittenden (?-?), 11th Wisconsin Volunteer Infantry.

CONFEDERATE ARMY

Arkansas:
William T. Hyslop (?-?), Wounded at Macon, Georgia.

Delaware:
William Bellingham (?-1864).

Florida:
Andrew B. Brookins (?-?), Surgeon with Breckinridge in Kentucky.
James Young Crawford (1846-1910), Private, Commissary Department in Florida.
Bethel McMullen (1845-1939), Joined army at age 16.
A.P. Phillips (1841-1911), Left Wofford College, Spartanburg, South Carolina. Lost 2 fingers in the Battle of Atlanta.
Henry R. Estes (1844-1922), Scout in western Tennessee under General Forrest.

Georgia:
B.B. Alfred (1817-1880), Originally from Connecticut; relocated to Georgia in 1855. Manufactured women's sewing needles during Union blockade.
James B. Bean (1834-1870), Dental Surgeon, Richmond Hospital.

Kentucky:
William H. Goddard (1808-1883), Converted his factory to a government hospital; established a subsistence committee feeding soldiers at the Nashville Depot.

Maryland:
Adalbert J. Volck (1828-1911), Special agent appointed by Jefferson Davis; participated in blockade-running activities.
A. Snowden Piggott (1822-1869), Surgeon, medical, from 1862 to 1865.

Mississippi:
Samuel P. Cutler (1815-1880).
William W. Westmoreland (1845-?), Enlisted from the University of Alabama.

Missouri:
Joseph Hassell (1828-1901).
Abel Prosser (1851-1915).
J.W. Luckie (1828-1901), Officer at Macon, Georgia.
L.O. Ellis (1847-1931).
Luther Jenkins (1840-1915).
J.W. Meng (1847-1917), Enlisted at age 16.
H.J.B. McKellons (1825-1901), Stored ammunition.
John Reed (1838-1915).
Thomas Reed (1832-1916).
John King Stark (1830-1895).
Sheldon Shroult (?-?).
Charles Washington (?-?).

North Carolina:
Vines E. Turner (1837-1914), Captain on the staff of Major General James A. Walker.

South Carolina:
Benjamin H. Teague (1848-1921), Enlisted at age 17; Co. B, 2nd Regiment, Gary's Cavalry Brigade, Hampton Legion.
Thomas T. Moore (1845-1922).
Theodore F. Chupein (1830-1901), Sergant, Washington Artillery; performed dental services at request of General Shank Evans.

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Isaac H. Alexander (?-?).
John Anderson (?-?).
William H. Ball (?-?).
David L. Boozer (1833-1903).
Oliver S. Bond (?-?).
William S. Brown (?-1901).
Thomas W. Boucher (1825-1898).
John W. Crymes (?-?).
A.K. Durham (?-?).
H.R. Handberry (?-?).
B.C. Hart (?-?).
E.C. Jones (?-?).
D.H. McCullum (?-?).
W.B. McKeller (?-?).
William C. Wardlaw (1837-1893).
Benjamin Mockenfuss (?-1919).
Robert R. Saws (?-?).
N. Simmons (?-?).
J.R. Thompson (?-?).
R.S. Whaley (?-?).
Samuel A. White (?-?).
West A. Williams (?-?).
Gordon F.S. Wright (1832-1909).

Virginia:
George F. Keesee (1842-?), Quartermaster Depot, Richmond.
Richard B. Winder (1828-1894), Captain, Major, Quartermaster of Prisons.
Carter Perkins (1832-1926), Army of Virginia.
Watkins Leigh Burton (?-?), Captain of volunteers, assigned to Richmond Hospital.
Solomon Angle (?-?), Private, Co. E, 23rd Regiment of Virginia.
George H. Chewning (?-?), Served at Fredricksburg.
William W.H. Thackston (1820-1899), Private, 3rd Regiment, Virginia Reserves; hospital steward, Farmville Hospital.
W.S. Wilkinson (?-?), Dentist; hospital steward.
Richard C. Mackall (1822-1902), Brother to General George W. Mackall, imprisoned in Maryland.
S.H. Williams (?-?), Private, Mt. Pleasant Riflemen.
Henry Reginald Moel (1836-1870), Surgeon, 60th Virginia Infantry.
John Boardman Wood (?-1897).
Richard Maurice Bodgood (?-?), Hospital dental surgeon; hospital steward at Lynchburg, Virginia.
Marmaduke E. Doughtrey (?-?), Dentist; hospital steward, Co. A, 16th Regiment, Virginia Infantry.
Samuel P. Larmer (1837-1900).
AN UNUSUAL BIT OF DENTAL MEMORABILIA
IN A CHICAGO DENTAL OFFICE

Dr. Richard A. Glenner, a general practitioner of Chicago, Illinois and recipient of the 1983 Hayden-Harris Award of the American Academy of the History of Dentistry has indulged his penchant for collecting dental memorabilia in a most unusual fashion. Dr. Glenner bought an entire dental office dating from the turn of the century from the estate of a deceased dentist.

He prepared a room in his dental office to receive it and had it installed exactly as it had been in its original location, even down to the bottles of medicaments in the cabinet and the pictures on the wall. Patients waiting their turn are invited to spend some time in the antique office, getting a feel for what dentistry must have been like almost a century ago.

Dr. Glenner, who is probably the world’s greatest authority on dental equipment, is the author of a number of articles on the subject which have appeared in the Journal of the American Dental Association as well as other periodicals. He has recently finished a book on the history of dental equipment which will be published in a few months. He has graciously invited all who are interested to see his antique office which is at 3414 West Peterson Avenue in Chicago.

HEBREW MANUSCRIPT OF THE 17TH CENTURY
DETAILS DENTAL TREATMENT

The Israel Institute of Medical History, headquartered in Jerusalem, Israel, issues a quarterly journal Koroth which it describes as “a bulletin devoted to the history of medicine and science.” In the issue of August 7, 1983, Volume 8, it reprinted a portion from a 17th century Italian manuscript, written in Hebrew, which detailed the treatment for dental caries. The manuscript is in the possession of the Department of Hebrew Manuscripts of the Hebrew University, Jerusalem with the identifying signature Heb6 6231, and is dated 1626. It was kindly translated for us by Mr. Melvin Davidson of Buffalo, New York.
A Wonderful Patent to Take Out the Decayed Part of the Tooth (Worms) That Are in the Teeth and to Remedy the Pain

Take a bit of the seed of the carti (a type of tree) and wrap it in a bit of wax and make from it a little ball. Afterwards, take a bowl and put in the crevices one bit of iron that was previously (made) white by flame. Afterwards, take another small bowl that would cover the iron and make a small hole in the side of the bowl. Take one long branch of one tepich (handbreadth) of measurement and you fit it into the hole; and afterwards put the little ball on the warm iron and cover this ball so that the smoke will be retained inside. And quickly you will put the tip of the branch near the hole of the painful tooth and it will receive the smoke of the ball inside the tooth, and the sick part of the tooth will come out and the sickness will be removed.

DENTAL HISTORY FEATURED IN MASSACHUSETTS NEWSPAPER

One of the most comprehensive articles on the history of dentistry ever to appear in a newspaper for public edification was published by the Worcester, Massachusetts Evening Gazette on September 1, 1983. Occupying the entire front page of that issue’s “Science and Health” section, the article was prepared with the cooperation of past-president of the American Academy of the History of Dentistry, Dr. H. Martin Deranian. Dr. Deranian was awarded the Academy’s Hayden-Harris Award in 1982 and that fact is prominently mentioned in the article, as is the Academy. The article traces the growth of dentistry from the days of the ancient Egyptians to today, with the stories told of many of the major contributions of the dental profession including the discovery of anesthesia and the work of Dr. V.H. Kazanjian, the dentist who laid the groundwork for the modern practice of plastic surgery.

Dr. Deranian is quoted extensively in the article concerning the philosophy of dentistry, in which he stressed the attitude of the profession toward prevention. “The true measure of a profession,” Dr. Deranian concluded, “is its willingness to find ways to eliminate its services through the search for more understanding and new and better techniques. Dentistry certainly has done this.”
DENTISTS USE "TOOTH" AS DOOR HANDLE

Visitors to Rothenburg ob der Tauber on the "Romantic Road" of the Federal Republic of Germany who are interested in dental curiosities should take note of the handle in the form of a molar on the door to the offices of Dr. Alfred Hanel and Dr. Christoph Hanel at Galgengasse 9. The double door is decorated with a wrought iron grill, and opens with a twist of the pewter-colored molar.

— Submitted by Aletha Kowitz, M.A.

False Teeth for Paupers—At the East Grinstead Board of Guardians, the Medical Officer (Mr. T. J. P. Hartigan) recently made a novel application in person. It was that the Guardians should purchase a complete set of false teeth for a female inmate. The inmate, Mr. Hartigan added, had not a tooth in her head, and being unable to masticate her food, suffers much from indigestion.—Mr. Stenning, one of the Guardians, suggested that the Board should grant the application but that the teeth should remain the property of the Guardians—Everyone laughed at the suggestion at first, but Mr. Stenning said it was a serious matter, because if they once supplied teeth the Board might be receiving applications from all over the place and people would be coming into the House for a short time on purpose for a set of teeth.—In answer to a Guardian, Mr. Hartigan mentioned that he made the present application because it was necessary on medical grounds.—The Board decided to grant the application, that the cost should not exceed 3 pounds 10s., and that the teeth should be lent to the inmate.

—British Journal of Dental Science, Volume 41, 1898.
To the Editor:

I have really enjoyed my first year in the Academy! The Bulletins are wonderful and the Newsletters are also very informative. The $15 I spent for membership is about the best $15 I have ever spent. I look forward to many great years of membership. Please keep up the good work.

Daniel G. Fields, D.D.S.
Russellville, Arkansas

To the Editor:

I am inquiring for information concerning research fellowships or continuous education courses conducted on the history of dentistry by American or foreign schools. Would you be kind enough to direct me to the sources which may aid my inquiry?

Since I have already read the classic textbooks on the history of dentistry, I am most interested in membership into your academy. Would you also provide me with information and procedures on membership and subscription to the Bulletin?

Thank you for your assistance and attention to my letter.

Sincerely,
Dale Smith, D.M.D.
Cinnaminson, New Jersey

To the Editor:

Having graduated with a degree in geology, I became interested in the mineral aspects of dentistry. In the fall of 1982, I questioned whether toothlike material and a laser might be used to restore teeth.

By assimilating and communicating ideas I have determined that dental authorities see possibilities. This may include a lased tooth/inlay restoration. Such technology may be of aid to many people the world over. The implications seem tremendous.

Most sincerely,
Jeffrey L. Bowen
Arlington, Virginia
To the Editor:

Let me say again how pleased I was to be at the Academy of the History of Dentistry meeting last week, and to meet in person many of the people whose names I have come to know from over the years. I was especially pleased to meet you, because of the long and committed and excellent job that you have done as Editor.

With warmest regards,
John D. Jago
University of California
at Los Angeles

To the Editor:

At the request of Harry Hagman, C.D.T. of Minneapolis, we have placed your name on the complimentary list to receive the publications of the National Association of Dental Laboratories, the NADL Journal and the NADL News. We hope you will enjoy reading them, and if there are other people in your organization who would like copies, please let me know.

This year's celebration of the 100th anniversary of the dental laboratory industry has generated considerable interest in the history of our respective professions and I am certain that our readers would be interested in an article written by you. If you would consider it, the NADL Journal would certainly want to publish it.

I look forward to hearing from you.

Sincerely,
Audrey J. Calomino, Managing Ed.
The NADL Journal
Alexandria, Virginia

Identification of the Prince Imperial.—The circumstances of the Prince Imperial's death have revived a question which has been somewhat neglected by lawyers and physicians, viz.: the importance of the teeth as a means of identification of deceased persons. The late Prince Imperial had been so much disfigured that identification would have been extremely difficult but that the Prince had had four small cavities in the first molar teeth filled with gold by Dr. Rottenstein, of Paris, and had met with a slight accident in April, 1876, from a blow on the front teeth, which had made it necessary to file the teeth a little in order to smooth the enamel. These constituted signs which are unalterable even by ages; and, as careful dentists keep usually a record of such operations, they afford a means of identification which is unerring, and which, as in the present instance, was of great value, and might, under certain circumstances, be of the highest importance.

To many people, a discussion of, a thesis on, or even the thought of death, is to be avoided. Death is taken to be evil and to be feared. Life and death are opposites. You are either alive or dead, and since everyone will eventually be dead, death can be ignored while we concentrate on life. Modern medical technology, however, is showing us that, rather than two separate states, life can be looked upon as a continuum, with one pole being death and the point on the continuum where life changes to death being indistinct. The realization of the existence of this indistinct area is causing another large group of people — physicians, theologians, philosophers, judges, lawyers, politicians, administrators and others — to think, investigate and argue about the character and features of this gray zone where life loses to death. It is this group of thinkers that Veatch addresses in this book, subtitled “Our Last Quest for Responsibility.”

As the Director of the Research Group on Death and Dying at the prestigious Institute of Society, Ethics and the Life Sciences in Hastings-on-Hudson, New York, Robert M. Veatch, a Harvard Ph.D. in medical ethics, has probed thoughtfully and deeply into this gray quagmire of ethical, moral, technical and legal problems and produced an intriguing exposition of its manifestations. His writing style is lucid and to the point. He cites many of the cases with which we are familiar from our reading of the daily press. He stimulates us to cogitate on the subject rather than requiring great effort to decipher and understand his propositions.

Veatch begins this work with an effort to define death. He discusses the traditional anthropological, historical and philosophical views and proceeds to show us how current technical procedures have brought us to the stage
where a heart (real or artificial) and lungs (real or artificial) can continue the transport of oxygen, enteral or parenteral nourishment and the toxic products of their cellular combustion. If life does not cease with the onset of death, these procedures can be thought of as prolonging life. This, then, requires a definition of life which Veatch posits as "the capacity for consciousness or social interaction or both." When these capacities have been lost, life is gone and the procedures cited above are prolonging death rather than prolonging life. Under this concept, Veatch then provides a sample statute specifying the standards for determining that a person has died.

If we accept that life requires the capacity for consciousness and/or social interaction, we are placing the dying person where he belongs — at the center of decision making for answering a series of germane questions. Veatch continues his thesis by exploring some of these dilemmas, such as that of choosing not to prolong dying; the right to refuse treatment; the development of a workable policy toward the rights of the dying; the rights of individuals to be fully informed on those matters which pertain to their life and death; the use of the dying and/or dead as organ banks from which the living can withdraw tissues and organs for transplantation and the impact of all of these problems on public opinion and governmental policies and procedures.

The only dental references in this fascinating work are to the Uniform Anatomical Gift Act, which specifies that a body donated under its provisions may be used for "medical or dental education, research, advancement of medical or dental science, therapy or transplantation..." and the inclusion of teeth on the list of "twenty-five different kinds of organs and tissues (which) have now been transplanted in human beings with varying degrees of success..." Nonetheless, as people who live and die, working with other people who live and die, we dentists have much to gain, both personally and professionally, from reading and rereading this book. It is to be recommended to all who are willing to think about this major problem concept of our times.

—Reviewed by Eric R. Robinson, D.D.S., M.S., Toledo, Ohio


There are some writers who have that uncanny knack of taking a complicated subject and presenting it in such a clear and charming manner that it is a pleasure to read. This is the case with John Woodforde who has told the story of dentistry and dentures in a way that is at once enlightening as well as fascinating. Woodforde is the radio critic for the London _Sunday Telegraph_ and has authored books for the layman dealing with such diverse subjects as the history of the bicycle and a description of English farm buildings.

The author has done his homework diligently and has put together a book that is well researched and accurate, going into the details of early dentistry and the struggle to provide missing teeth without ever becoming either pedantic or boring.

The story of false teeth is truly an intriguing one, having touched so many people over so great a period of time. James Laver, in his preface to the book, tells of the French philosopher, Voltaire, who was questioned by Boswell. "Sir," said Boswell, "do you speak English?" and Voltaire, making a joke, re-
plied, “Sir, in order to speak English it is necessary to place the tongue between the teeth — and I have no teeth.”

This book was originally issued as a hard-bound copy in 1968, but this paper-back at a reasonable price makes the book available to the lay readership it is intended for. Yet every dentist would get pleasure and instruction from reading this book, for the author has done such a creditable job in covering the subject. He deals with the development of porcelain dentures, Fauchard’s place in introducing spring-held dentures, George Washington’s dental problems, the role of charlatans in extraction as well as replacement, the use of dentures in forensic evidence, and many other topics. He brings the story right up to date when he describes not only how modern dentures are made but also such experimental techniques as implantation.

The book contains about seventy well-reproduced illustrations and, although most of them are very familiar, nevertheless serve to highlight this fascinating account of how the dental profession has alleviated one of mankind’s most pervasive ills. It not only makes a great gift for a dentist only mildly interested in dental history but is also a unique piece of educational literature to leave on a waiting-room table.

—Reviewed by Malvin E. Ring, D.D.S.


The second half of the nineteenth century hosted spectacular advances in biological and medical research, supplanting the romantic, half-mystical school of Naturphilosophie and the “vital forces” theories that had dominated physiologic dissertations for one hundred years. A continuous flow of information, laboriously investigated using many ingenious devices, emanated from the research laboratories of Germany, Austria, Switzerland and France. High among these prestigious purveyors of new knowledge were Carl Ludwig, “one of the greatest experimental physiologists of all time”, and his close friend Emil du Bois-Raymond, the father of modern electrophysiology. Among his accomplishments was Ludwig’s introduction of the kymograph into physiology. He also studied and reported on glomerular filtration and compiled data on salivary gland secretion and its control by secretory innervation.

Du Bois-Raymond, a complex man considered by some to be more philosopher than physiologist, spent most of his productive years attempting to isolate the secrets of electrophysiologic action of muscle and nerve. While few of his interpretations have escaped serious challenge, his methodology, utilizing a self-developed sensitive galvanometer, and nonpolarizing electrodes, remained the cornerstone for future research.

Their correspondence spans fifty years, starting in October 1847, when Du Bois-Raymond, already possessing a doctorate, was working in Berlin and Ludwig was an associate professor of comparative anatomy in Marburg. The content of their letters reflects the genuine affection each had for the other, as well as the passion each felt for his respective field of endeavor. The repeated references to poor funding, frugal living standards, periodically abrasive comments about colleagues and conjecture about future academic positions would parallel many a current researcher’s reflections.
Their letters have been translated into flowing, idiomatic English. The original Foreword, written by Paul Diepgen who first gathered, edited and published these letters in 1927, is included in English translation as well. A remarkably complete section of notes on the contents of the letters completes this volume, and the precision and depth of detail of these annotations bespeaks the totality of Diepgen's research.

More than the professional information revealed, this is a volume of friendship and intimacy. The joy of conversations and camaraderie between two extremely bright, gifted men, who, because of the absence of the as-yet-to-be-invented telephone, were forced to chat, gossip, encourage and commiserate with each other in writing. One hundred years later, we are the beneficiaries of this communication.

—Reviewed by John H. Gryfe, D.D.S., F.R.C.D.(C)
Oral Surgeon, Dept. of Dentistry
Humber Memorial Hospital, Weston, Ontario


These are John Hunter’s classics of dentistry published in facsimile. The first part was originally published in 1771, the second in 1778. Also in 1778 the two parts were issued together in a second London edition. It is this edition which was reproduced. Accompanying this book is a small brochure of notes from the editor which contains a brief sketch of John Hunter by J. Menzies Campbell; a study of the book by M.F. Ashley-Montague; and a discussion of Hunter’s dental works by Campbell. It would do the reader well to read this little brochure first, because it prepares one for the sheer beauty and historical impact of the book.

These books by Hunter are still considered among the most famous in the history of science, and the medical historian, Garrison, lists them as among the three most important books in the history of dentistry. This edition, errors and all, is an example of late 18th century bookmaking. Many editions have been published throughout the world but this is the first facsimile to appear, and the first edition to be republished in almost 150 years. It is with The Natural History of the Human Teeth that the foundations for the scientific understanding of dentistry were established. The printing is exactly as it was in Hunter’s day, as is his method of writing. Hunter realized enough profit from the book in 1771 to enable him to marry Miss Anne Home.

Hunter addressed these two works chiefly to the dentist, and their publication aroused widespread interest. Educated people, especially those in the professions, were well aware of him and his insistence on accuracy and solid judgement. Throughout his works Hunter put forth numerous observations, theories and conclusions, some of which are as sound today as they were in 1771. He also made some incorrect observations. His presentation of anatomical structures is masterful. In outlining the structure of teeth, though, he described only enamel and “bone”. He regarded teeth as non-vascular and, throughout his many experiments, he failed to inject the contents of the pulp chamber. Yet his description of the adult dentition is a masterpiece, although he completely omitted a description of the primary
teeth. He was not correct in stating that the first permanent molars erupt about the 12th year. He expressed his theories concerning deciduous teeth, the anatomical description of the antrum of Highmore, the extraction of teeth and the use of instruments for this purpose, as well as the transplantation of teeth.

His *Practical Treatise on the Diseases of the Teeth* is still a classic, in which he described the clinical picture of the various stages of intra-oral infections. His description of "Scurvy in the Gums" (pyorrhea alveolaris) is sound today, but he recommended sea-bathing and a mouthwash of salt water. He cautioned against extracting a tooth quickly, as it might result in a fracture of the tooth, bone, or both. But if a root did break, he recommended its removal if possible. When severe hemorrhage followed extraction, he advocated packing the socket with lint soaked with oil of turpentine, using a cork between the socket and the opposing tooth to maintain steady pressure.

He discussed transplanting teeth in detail, but his methods of transplantation would be highly questionable today. His method was to have several people in attendance in addition to the patient who was to receive the transplant. If the first person's tooth did not fit the socket of the patient, he removed a corresponding tooth from the next person, or the next, until a suitable one was found. He then used ligatures to stabilize it to the adjacent teeth. He recognized that not all transplants were successful, and that not all donors happy, no matter the remuneration.

Hunter's work of 1778 was not as exact as that of 1771, since he wasn't a dentist and not in a position to observe the results of treatment of the various oral diseases. Consequently, many of his theories were just plain wrong. This detracts very little from the fact that his works were monumental in nature, and their impact on the scientific and professional community remains undiminished after two centuries.

Preparation of a volume of this nature required the efforts of numerous people. Film for this edition was especially prepared from an original edition. The text and plates were prepared exactly as they were during Hunter's time, as was the type, and the paper was especially made. The binding is of Buffalo Calf and covers are brass die-stamped in 22 karat gold, all of which makes this volume very special. To be the owner, giver or receiver of such a volume would be the ultimate in consideration, thoughtfulness and appreciation. It is a beauty to see, a treasure to read, and a masterpiece of production, and recommended for any professional, no matter what his specialty might be.

—Reviewed by Lloyd E. Church, D.D.S., Ph.D.


The Quintessence Publishing Company has been known for its outstanding quality books, usually replete with excellent color photographs. It is, therefore, astonishing that this house should issue such a poor book as this biography of G. V. Black. This great scientist, the "Father of Scientific Dentistry", is surely deserving of more than this badly put together paper-back which would be overpriced at $5.

To start with, Pappas brings nothing new to the subject. There have been countless articles and pamphlets written about Black, and some of these have
contained all of the information Pappas managed to put together. In fairness to the author, it must be stated that the facts are essentially correct and that he gives to Black the credit due him for his pioneering approach to the problems of standardization of materials and techniques. He deals at length with Black’s introduction of the principles of cavity preparation as well as with his work in amalgam research. Yet Black’s role as a dental educator, and his efforts to make Northwestern’s dental school the sine qua non in the nation are covered in barely twenty lines and the impact he had on dental education is felt not at all after reading this book.

About the most distressing feature of the book are the totally inadequate photographs, principally because of their tiny size. This results from the fact that the page size, a mere 4½ by 7 inches, is just too small to accommodate, in one case, 6 illustrations! In addition, the quality of the reproduction of the photographs is so poor that it is not much better than newspaper quality.

The book is so vastly overpriced as to make it almost an insult to the dental profession, for how else would a publisher set such a price for such a work unless it felt that anything could be foisted off on us. Compare the value of this book with the paper-back book by Dr. Gordon Dammann on Civil War instruments which sells for $7.95, and which was reviewed in the last issue of the Bulletin. That book, of large format, has excellent and clear photographs which makes it a pleasure to read.

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


Books on the history of medicine fall into two categories. The first are for historians, whose life-work is the reward of piecing together a picture of “an age in time”. Here the historian may be erudite, but it is imperative that he understand the entire background of the time he is studying, including its social and political history in relation to the rest of the world. The second are those books which give a sense of appreciation of the changing pattern of medical attitudes. These illustrate the defining of medical skills and are of use to the present-day healthworkers who are evaluating how far we have come in our search for tomorrow’s responsibilities.

Medicine and Society in France falls into the latter category. It gives impetus to the search for the future, by appreciating the growing structure in medical thinking which began to emerge in the 18th century. The seven essays illustrate the precise research necessary, as well as useful speculation. More important, as a vehicle of history of use to general medical readers, there is enough of the parallel “life of the times” to inform the reader of the setting in which the struggle for standards took place. This is always a central feature of reading any book on history: “To what are the people reacting?”

Nothing can be more social than health care; nothing could have more fundamental cultural, philosophical, and religious implications than society’s response to those of its members who call for help because of problems with the biological process itself, or because of sickness or accidents.

Hospitals for the sick; hospitals for the vagrant, orphan, and prostitute; and hospices, quacks, midwives, faith healers, physicians, surgeons, barbers, and nursing nuns made up the institutional and professional medical
help that was available in pre-industrial France. They argued with each other for the right to help the sick as ordained by custom and law. There was competition for the payments made to them by philanthropists and the state.

There emerges through the seven essays the growing authority of organised, controlled, educated, institution-based chairs of Medicine, Surgery, Obstetrics in the making. In Essay 1, Jean-Pierre Goubert shows that although the enlightened physicians of the eighteenth century took much of their inspiration from Hippocrates and Galen, they were clearly supporters of the importance of firsthand observation. There emerges a picture of confusion around the social borders between "physician" and "charlatan", between learned and "popular" medicine. As the surgeons began to become organised in Guilds, purveyors of "popular" medicine were elected to Guilds amidst controversy: "... three bonesetters admitted contrary to the rules." The official surgeons found themselves in an understandable quandary: should they reject these semi-surgeons, or should they try to absorb them? Officially, of course, the outcome was rejection, since the medical profession wanted to keep full control with the help of diplomas. A subcategory included dentists, oculists, hernia experts, pedicurists. Infighting within the medical profession fostered confusion, but enlightened surgeons made every effort to classify the practitioners of charlatanry in a logical and functional manner. In so doing they transferred to the domain of "popular" medicine a set of values that applied to the domain of learned medicine. Yet, there is always a feeling of superiority among legitimate physicians.

In Essay 2, Jacques Leonard touches the heart of the matter of social care in eighteenth century France in this statement: "The nuns' success with the common people stemmed from the fact they did not reveal secrets that were better kept hidden, as certain matrons did, nor did they make insolent jests. They blessed fertile wombs, and nothing more." The outcome was a quarrel that pitted women in white headdresses against the men in white coats. Throughout this period, however, books for nurses began to be written. Sister Philomene, in the novel by that name written by the Goncourt brothers in 1861, was studying "a bit of basic medicine." The nuns innocently contributed to "clericalizing" medicine by conferring upon it the solemn prestige that the profession may be on the brink of losing during the final quarter of the twentieth century.

The two points of importance in the third essay are the challenge to the practice of wetnursing, and the use of swaddling clothes. This accompanied the move to deal with the corrupt city air and the prescription of urban doctors that their wealthier patients should send their babies to the country to be reared. But clear-sighted physicians refused to use rhetoric in praise of city or country, advising that the mother should heed the "voice of her (own) blood and of nature."

The origin of writing about basic observations on medical practice began in the unique way described in essay 4. Vicq D'Azyn (general secretary for the Societe Royale de Medecin) instituted "the academic eulogies". In paying homage to deceased members, he made an indispensible contribution to the academic and literary world. The genre of the eulogy defined some of the characteristic thought patterns of the cultural elites. During the period from 1776 to 1789, D'Azyn delivered about fifty eulogies which were subsequently published in the Memoires de la Societe Royale de Meedecine. There stemmed from this the growth of elitism, where the members saw themselves as the heirs to the indispensible culture taught in colleges specializing in the humanities, without which one could not be fully a part of the
scholarly elite. This elite began to move from country to country to learn
from other elitists, and they broadened their knowledge with the study of
Latin and philosophy.

Investigation of conditions in places of work and early observation of
health inspectors’ reports is unearthed in essay 5. Hatters, clockmakers, cloth
workers, glassworkers, copperplate engravers, chalk sifters, candle makers,
rough polishers of mirrors, wood carders, all surface for examination, but
the royal health inspectors had only limited powers to intervene in the lives
of these artisans. The greater use of “fresh air” seems to be the principal
recommendation for the improvement of health.

The present day sociologist would appreciate essay 6. It contains a splen-
did assault on the functions, and locations, of various types of institutions,
their relation to population densities, and the resulting health and social con-
ditions. Until the end of the eighteenth century, puerperal fever remained
the dominant cause of death in childbirth. The medical profession was be-
ginning to deal more effectively with the mechanical aspects of birth, but
not with infection. The result was that the rich, living in conditions of better
hygiene, shunned the services of midwives, and called upon more compe-
tent surgeons. So it was that the death of a woman in childbirth was usually
related to poverty and ignorance.

Here we have a glimpse of the heart-rending history of individuals fac-
ing the consequence of illness. There is much to learn about the word “call-
ing” which should infuse all medical endeavour. This collection is an excellent
contribution to that end.

—Reviewed by James M. Dyce, D.D.S., L.R.C.P., L.D.S.

Under the Influence: A History of Nitrous Oxide and Oxygen Anesthesia. By W.
D. A. Smith. xxxviii + 188 pages, $20, Park Ridge, Illinois, Wood Library —
Museum of Anesthesiology, 1982.

Horace Wells’ epochal discovery of anesthesia was not quickly recognized
nor universally adopted for a number of years. It was overshadowed by Mor-
ton’s more successful demonstration of ether. But the years have shown that
nitrous oxide has a firm place in the armamentarium of the anesthesiologist
today and is probably the most widely used drug for that purpose. In spite
of that, there has not been, to date, a book devoted solely to the fascinating
history of this anesthetic.

This lack has been admirably filled by Dr. Smith, an English anesthesioli-
gist who is the son of a dentist. The book is a compilation of essays on
the subject which appeared in various British professional journals and con-
sequently is admirable for the extent and completeness of the references.
But it is never pedantic or dull; rather it is a fascinating story which gives
us a wonderful insight into the impact this drug had on the world.

When nitrous oxide was first introduced there was difficulty in deter-
mining the proper dosage. Dentists and physicians were wary of giving the
patient too much, and too little failed to allow for painless surgery. As a con-
sequence, some ingenious techniques were tried, among them the hyper-
baric delivery of the gas. For this, special hyperbaric chambers were built (by
Thomas Crapper & Co., the original manufacturer of the toilet) big enough
to hold ten persons. The gas was pumped in under pressure, with the hope
that thus more would be absorbed by the patient, making an overdose less
likely. However, it is not made clear how the surgeon avoided being anesthetized along with the patient!

Originally the gas was used as a pain obtunding agent, and dentists would give their patients a whiff of it after an extraction. Also, the use of the gas was so ubiquitous in Europe in the mid-1800's that a popular song "Laughing Gas" became an instant hit.

The full potential of the gas wasn't realized until it was learned that mixing it with oxygen during administration made it far safer to use. The story of the trials and tribulations until the right mixture was found is told in great detail and this is one of the most interesting parts of the book.

The book is copiously illustrated with period pictures and is very easy to read. The Wood Library - Museum of Anesthesiology, maintained by the American Society of Anesthesiologists, is to be commended for bringing out this immensely entertaining as well as instructive book about a drug which is so central to the history, and practice, of dentistry.

—Reviewed by Malvin E. Ring, D.D.S.


Topic headings, summaries and chapter outlines would improve this work because it is poorly organized and structured. There are six chapters, an introduction, an epilogue and, gratefully, an index. The time covered by this book is the Middle Ages and early Renaissance.

Goldstein sees the Middle Ages as a very special time, a period of intuition, faith and instinct. He invokes visions of Bacon's futurology; of Columbus' voyages and their scientific rationale; the pass-through of Classic and Islamic learning to Europe from Moorish Spain — as that country was recaptured in the name of Christianity.

We are told of the cathedral school at Chartres, founded to foster science, and of the inception and spread of the place system in numerical computation. In short the author endeavors to delineate the under-pinnings of our era — the era of science — and to show the preservation of these foundations or their actual establishment in Medieval times and during the early Renaissance. Goldstein sees a very close relationship between the art and architecture of this period and the development of modern science.

This book is for the critical reader because the author is prone to make sweeping conclusions which he presents as dogma, when in reality they are opinion. With this caveat, the book is fun to read and contains some interesting material.

As for the healing arts, mention is made of Vesalius' Fabrica and daVinci's notebooks, the foundations of modern gross anatomy. Goldstein also relates such tales as that Leonardo was a homosexual and that the Mona Lisa was really a man!

Goldstein describes the inception of western scientific medicine and the strong influence upon it of Arabic culture. But the work is very shallow, and is further marred by the use of "buzz-words" such as "holistic medicine."

The illustrations are very poorly selected. From its style and vocabulary, the book seems to be addressed to a group which would have finished at least History 101. Yet illustrations such as David, the Mona Lisa and similar works are included, with which even a slow high school boy would be
thoroughly familiar. The author calls a graphic Islamic illustration of a hemorrhoidectomy an "amusing illumination."

This book has only small merit from the viewpoint of the dental historian. It would, however, be of interest to a student of the Dark Ages and the early Renaissance, and this period's influence on the emergence of the age of science.

—Reviewed by Raphael Escoe, D.D.S. 
Massena, New York


This atlas presents a new and completely different design and form to be used in the teaching of gross anatomy. It is the first within memory to feature entirely new drawings and photographs of surface anatomy.

Organized by region into eight sections with more than 384 beautiful full color paintings and photographs, each section begins with a full color photograph of the surface anatomy and is accompanied by an explanation of the significant clinical landmarks. Since the section is presented sequentially, it first starts at the surface and then proceeds to the deeper structure, all portrayed in clear, vivid, color. Accompanying photographs make the area very real and alive to the student. All anatomical terms are those in current use. An additional feature of the atlas is the text that accompanies each picture. Here some of the abnormalities and diseases are presented which affect the area under study.

Professor Snell makes a good point that medical students are students of medicine, not just students of anatomy, and that they should be reminded of the practical application of their knowledge of normal anatomy. Readers are made aware that the complex structure of clinical medicine has as its basis the solid foundation of anatomy.

My suggestions for improving the atlas are few. On page 460 the lines pointing to uvula and palatoglossal arch do not show these structures. In presenting diseases of special areas, a photograph of dental and periodontal disease — two of the most common afflictions of man — would be most helpful. Dr. Snell is to be complimented, however, on his organization of this text. It is a much more interesting way to study gross anatomy than with many of the other texts now in existence.

—Reviewed by Lloyd E. Church, D.D.S., Ph.D.
Department of Surgery
Capitol Hill Hospital, Washington, DC


Mary Breckinridge (1881-1965) is the counterpart of Florence Nightingale in the history of American nursing. Ms. Breckinridge, granddaughter of Vice-
President John Breckinridge, who served under James Buchanan, acquired an eclectic education through her world travel and study in European schools. She was brought up as a Southern lady and cherished Southern customs. Personal tragedy inspired her to dedicate the last half of her life to others. Breckinridge lost both of her children (a son, Breckie aged 4 and a daughter in infancy) and, as a memorial to them, spent the rest of her life caring for mothers and children. Her memorial lives on to the present and thousands of people lead healthier and happier lives as a result.

Her desire for adventure and her skill in meeting enormous challenges were phenomenal. Even before her major nursing projects were begun she had helped to nurse thousands of influenza victims during the 1917 epidemic in Washington, D.C. Experiences that occurred after World War I in France and England and after her son's death in 1918, enabled Breckinridge to develop her leadership qualities by responding to emergency situations and organizing nursing services and the distribution of food. These accomplishments prepared her for the monumental goal she set for herself of organizing the Frontier Nursing Service (FNS) in the mountains of Leslie County, Kentucky. FNS served ten thousand of the poorest people scattered over 700 square miles, people who had little or no access to medical care and who continue to exist today.

To obtain professional training Breckinridge attended St. Luke's Hospital Nursing School in New York City, studying under Adelaide Nutting, and later, learning midwifery in England and Scotland since it was not taught in the U.S. at the time. The first nurse-midwife training program in the U.S. was established under the auspices of the FNS. Her participation in nursing programs in Europe and the U.S. gave Mary Breckinridge the best possible background for founding the Frontier Nursing Service and leading it to success.

The FNS was launched in 1925, and its mainstay was the horse. Nurses travelled to their patients on horseback and could advise, instruct and treat about a thousand people from each of the six outpost nursing stations which were built between 1927-30. The FNS was a model program through which medical science was introduced to a poor and uneducated community in a short period and produced exemplary results. Breckinridge called upon all medical professionals, including dentists, to provide the best medical care for her patients in the one hospital built in the area. She raised over six million dollars in her lifetime to support the FNS, which was a fully philanthropic-supported endeavor. The local self-help ethic, and later, Federal and state programs for building roads and providing money for medical care and equipment have contributed to the maintenance and development of the FNS.

In this reprint of Mary Breckinridge's autobiography, which was on the best seller list in 1953, we are given a vivid sense of her resourcefulness, spirituality and perseverance to improve and increase the health care of the Kentucky community she chose to serve. However, Mary Breckinridge was a private person who did not share all of her thoughts with the reader, especially those about people and events that must have given her intense emotional pain. The book is no less admirable and exciting and is a testimony to a remarkable woman who made medical care, with the emphasis on "care", her life's work.

—Reviewed by Audrey B. Davis, Ph.D.
Curator, Medical Sciences
Smithsonian Institution, Washington, D.C.
## Cumulated 5-Year Index,
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The American Academy of the History of Dentistry, a not-for-profit organization founded in 1951, has as its goals the following:
Increasing interest among dentists in dental history.
Encouraging dental schools to develop historical collections on dentistry, and to offer adequate instruction in dental history.
Developing a broader understanding of the facts of dental history among the leaders in dentistry in order to aid them in their attempts in solving important problems in dental education and practice.
Stimulating more thorough and comprehensive research in dental history, thereby extending the boundaries of dental knowledge, giving substantial support to growing professional culture.
Creating an authoritative body to which important questions relating to dental history could be referred for factual verification.
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The Miracle Man of the Western Front: the Story of Dr. Varaztad Kazanjian

— Hagop Martin Deranian, D.D.S.
Worcester, Massachusetts

One of the world’s greatest plastic surgeons, who came to this country as a penniless immigrant before the turn of the century, began his professional career as a dentist. And as a dentist attached to the British forces in World War I he innovated techniques for dealing with shattered faces that laid the groundwork for the modern surgery in that sphere.

After World War I, in 1919, Honorary Major Varaztad Hovanness Kazanjian of the British Royal Army Medical Corps stood before King George V in Buckingham Palace for investiture as a Companion of the Most Distinguished Order of Saint Michael and Saint George, one of the highest honors that the British Empire can confer. A dentist of extraordinary skill, he was being honored for his remarkable services to the British Expeditionary Forces in France. His treatment of facial and jaw wounds had gained for him the reputation as “the miracle man of the western front.” In the following years, he was to build a legendary career as one of the foremost practitioners of plastic surgery in the world and he was to give dentistry a rarely equalled dignity.

EARLY DAYS IN TURKEY

He was born into a long line of Kazanjis. No ordinary coppersmith, the Kazanjian fabricated the huge vats and cauldrons used for cooking and boiling liquids over an open fire. The molding of this brilliant and malleable metal with its peculiar red color is an ancient craft which demands manual skill. So it was with Hovaness Kazanjian, the father of Varaztad, who like his forebears before him, was a Kazanjian. Hovaness Kazanjian was an Armenian Christian living as a minority in a Turkish Moslem land in the last half of the 19th century. Though subjugated, the Armenians had maintained their identity. For centuries, they had lived in relative harmony with the Turks of the Ottoman Empire; some of them held high positions in the government. The Kazanjians had lived for four centuries in Erzingan in Central Turkey and belonged to the upper middle class.

The life of Hovaness Kazanjian had its own personal tragedy. Stricken by the early loss of his wife and with the responsibility of raising three motherless sons, he married a widow, Anna Sirronian, who had three fatherless children of her own. Out of this union came three more children. The first was Varaztad Hovaness, born in Erzingan on March 18, 1879, (the
same month as Einstein). This son inherited his artisan father's skill and would nurture it and apply it to the healing arts with unparalleled originality and success.

Hovaness Kazanjian needed a better home with more financial opportunities than Erzingan had to offer for his rapidly expanding family. So three years after Varaztad was born, the family moved west to Sivas, a riverport on the Halys River. There he established a copper factory and the family was fairly comfortable. Varaztad attended a Protestant missionary school and a private Jesuit school. He received rudimentary training in physics, chemistry, mathematics and languages, but not in English. Moreover, increasing Turkish oppression created such an atmosphere of fear that Armenian history books were hidden behind basement foundation stones to be read only in secret.

His father died when he was twelve years old and, at the age of fourteen, he traveled to Samsoun, a historic and cosmopolitan port city on the Black Sea in Turkey. An older half-brother who was a commission merchant there, took him into his business. But Varaztad had no interest or talent for business. At that time, several European countries maintained their own post offices in Samsoun, and Varaztad secured employment in the Austrian post office in that city.

It was a time of grave political turmoil for the Armenians. Even as a boy of fifteen in Samsoun, Varaztad was politically active. The Armenian patriots in Europe printed forbidden pamphlets and mailed them to fictitious names in care of the Austrian post office where they were claimed by members of the Armenian patriotic groups. Young Varaztad and four other Armenian young men formed a youth group to work for freedom, and his position in the post office was strategic. Soon he was being sought by the Turkish authorities for "passing forbidden political pamphlets in the dead of night." To save his life, an uncle smuggled him out of Turkey, together with two half-brothers. Relatives who had preceeded them had encouraged their emigration to America so they joined a fleeing group of Armenian refugees enroute to Cherbourg. There they transferred to another ship bound for New York and in a misadventure familiar to many unsuspecting immigrants of the period, were forced by exploiters into virtual steerage with sixty other immigrants.

ARRIVAL IN AMERICA

He was sixteen when he arrived in Ellis Island in October of 1895 "with a bundle on my back and nothing else, not even a passport," and was in risk of being sent back to Turkey and certain death. He had no more than a few coins, could speak no English, and had only a slip of paper with the name of a relative in New York. Although the authorities feared that he might become a public charge, after a delay of several weeks, he was providentially admitted.

While he was waiting on Ellis Island, he heard from new immigrants brutal tales of atrocities in Turkey. Sultan Abdul Hamid II began the ruthless campaign in 1895 which would continue intermittently for twenty-seven years until it reached its zenith in 1915. Although he was safe on American soil, he had no way of knowing the fate of his own family still in Turkey since both Sivas and Samsoun were subjected to massacre.

From New York, he was sent directly to Worcester. In 1895, this thriving industrial Massachusetts city had the largest colony of Armenians in
America about nine hundred. The largest single employer of Armenians in Worcester was the Washburn and Moen Manufacturing Corporation, the largest wire mill in the world (Figure 1). His first job for a brief time in Worcester was in a factory making springs. It was piece work and since he understood neither English nor the procedure, his first week's pay in America was ninety cents! In two weeks, it had risen to six dollars, as he quickly learned the routine. It was at this juncture that he left to work at the wire mill, an affiliation that would continue intermittently for eight years until 1903. He earned as much as twenty-five dollars a week for a ten-hour day plus overtime. Without fail, he would send a part of his salary to Armenia to sustain his mother and brother and sister. He planned on staying in America only long enough to earn money so that he could return to his native Armenia when the political situation improved. This was his intention as late as 1900.

His passion for knowledge was so intense that immediately upon arrival in Worcester, he began night school at the Dix Street School. For seven years, he did not miss a single night. He became an avid reader, even taking books to work with him. He also took correspondence courses, attended lectures and was privately tutored in English, often at the end of a ten-hour work day (Figure 2).

Among the people who greatly influenced him was Reverend K.G. Benneyan, Pastor of the Armenian Protestant Church of the Martyrs in Worcester from 1896 to 1904. He urged the young homesick wire worker to renounce the idea of returning to what was left of Armenia, and advised him to become an American citizen. Varaztad listened and thereafter participated even more fully in the life of his new country.

Sunday church services followed by summer outings were special occasions when the members of the fledgling Armenian community of Worcester came together. On one such Sunday afternoon bicycling outing in 1900, the subject of careers was being discussed by the young workers of the wire mill. Varaztad was uncertain about his future. He knew that he did not want to
work in the wire mill for the rest of his life. Yet, he was over twenty-one and still in night school and he did not even have a high school diploma. He was seriously considering mechanical engineering. But on this particular outing, one of his wiser and more worldly friends urged him to consider dentistry as his lifework.

This extraordinary career suggestion was made by a fellow wire worker who saw in Varaztad a gifted man with an untapped potential. After painful thought, the idea took firm root in Varaztad's mind. Once he had made the decision to become a dentist, he characteristically concentrated all his efforts in fulfilling his goal. He had just become a citizen. He moved to Boston and enrolled in the freshman class of the English High School “I was a man then” he said later, “and at first felt embarrassed when I saw the children who were my classmates, but I soon said ‘What of it?’ The main thing is to improve my English.”

**HIS ENTRY INTO DENTISTRY**

In 1902, after one year of high school he approached Dr. Eugene Hanes Smith, the Dean of the Harvard Dental School, about matriculation. Informed that he had to pass an admission examination, he studied every spare moment for the examination which was only two weeks away, and to his great astonishment was admitted.

During the summer of 1902, Varaztad worked at the wire mill to earn his tuition. In October, he matriculated at the Harvard Dental School as a member of the class of 1905.

Dr. Robert Catheron, his classmate, many years afterward recalled their student days together:

When the Harvard Dental Class of 1905 first met it would have taken wiser men than we to pick out the man who a quarter of a century later would have deservedly outstripped his classmates. In fact, I doubt Kazanjian would have been selected among the first ten, handicapped as he was by unfamiliarity with the language and in the eyes of the provincial New Englanders, by being a foreigner.

Along in the second and third years when we were wrestling with dentistry, we became more aware of the little dark eyed fellow who was always good natured and busy as the proverbial bee. It was apparent in talking to him that his existence had not followed the conventional lines in which most of ours were cast and his modes of thought were different, often refreshingly so.

At the end of his first year, he returned to the wire mill in Worcester for the last time. During the summer between his second and third years, he worked in the laboratory of a dentist in Boston.

In June of 1905, he received the degree of Doctor of Dental Medicine, graduating as an outstanding student, realizing that impossible dream which originated on that outing in Worcester five years before (Figure 3).
He opened his first dental office in Boston at the corner of Boylston and Tremont Streets. His office was modest and his patients few. In 1906, because of his record in school, he was appointed a part time Assistant in Prosthetic Dentistry with very little remuneration. Thus began a teaching career that would span his entire active professional life.

Because of the lack of hospital facilities, fractures of the jaws were treated in the Harvard Dental School Clinic. In those days before widespread automobile accidents, most broken jaws were the result of drunken brawls on holidays and weekends. Because of the poor pay, no one wanted to treat these unfortunate patients, except Dr. Varaztad Kazanjian. He treated over four hundred cases of jaw fractures in the dental school clinic under poor conditions. He was one of the first to eliminate the cumbersome interdental splint and substituted the simpler intermaxillary wiring. The years at the wire mill were invaluable training.

To the clinic also came patients with portions of the face and jaws missing because of injury or cancer surgery. For them Dr. Kazanjian fashioned artificial noses, eyes, ears and other facial tissues, which often defied detection.

He remembered one particular case. "A sailor on a warship lost his entire upper jaw in an accident. I was asked to make a denture for him. It took me six months, but I finally devised a way which involved an apparatus which was held in place by rods and wires leading to the upper part of the face. I was very proud." The case was featured in Ripley's "Believe It or Not" as the "man who chewed his eyebrows." (Figure 4).

As his reputation grew, dentists began referring difficult cases to him, and as his practice increased he moved his office to 158 Newbury Street in the more fashionable Back Bay area of Boston.

His first appearance as an essayist before a professional society occurred early in 1910, when he addressed the Harvard Odontological Society on "The Retention of Artificial Dentures." Read with considerable apprehension and with halting expression, its content was creditable enough to merit publication in the Journal of the Allied Dental Societies, the first of his more than 120 contributions to the literature.

He quietly entered the medical school at Boston University and successfully completed the second year in 1912, but never returned for the third year. In 1912 he accepted the position as head of Harvard's Prosthetic Laboratory; teaching had such intense interest for him that he was willing to abandon his medical studies. By the time he was thirty-three years old,
his practice had become a lucrative one with more and more dentists referring patients.

THE WORLD IS EMBROILED IN WAR

In 1914, the largest conflict the world had yet known erupted and quickly embroiled Europe. The United States declared its neutrality but from the start there existed intense support for the Allied cause.

Sir William Osler, the brilliant and influential Canadian teacher of medicine, early in 1915 suggested that American universities staff a much needed base hospital to care for the casualties of the British Expeditionary Forces. Harvard, Columbia and Johns Hopkins joined in the undertaking with Harvard assuming the responsibility of equipping and staffing the first hospital unit.

Known as the First Harvard Unit, it was rapidly assembled in June, 1915. There was provision for thirty-two physicians and surgeons, 75 nurses and 3 dentists. To Dr. Eugene H. Smith, Dean of the Harvard Dental School, fell the task of choosing the dental members.

After careful thought he chose as Chief Dental Officer Dr. Varaztad H. Kazanjian. In spite of his distinctive work, he was comparatively obscure; there certainly were others who were better known. Dr. Kazanjian accepted the offer and chose as his assistants Ferdinand Brigham and Frank Cashman, both senior students at the school. Dr. Brigham in his memoirs writes:

Dean Smith sensed that it was the most dramatic event in the history of the school, and he intended to make the most of it. He chose Dr. Kazanjian with instinctive judgment, based on all his experience in choosing men and shaping dental events. Dr. Smith knew his man, knew that his quiet, unassuming manner which has confounded many from that day to this into thinking that he was timid or unmethodical, cloaked a thoroughgoing ability to forge ahead, an ease of organizing, an imagination in meeting the unknown . . . Other things he was not. He was not of the elite Back Bay dentists; his reputation as a teacher did not yet go far beyond Harvard's door; he was not an M.D. as well as a D.M.D.; he had not been in a position to know the medical members of the Unit well; he had not yet gained the prestige with the University and Medical School that older dentists enjoyed. I am not aware that Dr. Smith considered any other candidate than Dr. Kazanjian. He had the interest of the school at heart. He read the future carefully.

"I was present," Dr. Catheron wrote, "when Dr. Harvey Cushing spoke at the Harvard Dental School to the alumni. The hearty and prolonged applause when Dr. Cushing spoke of Kazanjian as the school's representative showed that the alumni were solidly behind the appointment."

The Unit sailed out of New York harbor on June 26, 1915, on the S.S. Nordam, a neutral ship of the Holland-American Line. It was a rough fifteen-day crossing with a zig-zag course taken near their destination to avoid submarines, for only a month before, the Lusitania had been torpedoed by a Ger-
man submarine. This eastward crossing of the Atlantic was considerably different for Dr. Kazanjian than his westward crossing twenty years before; now he travelled in a first class cabin instead of steerage (Figure 5).

Though it was rumored that the war would be over in four months, it lasted four prolonged and difficult years. Fought for the most part in open trenches and in close combat, World War I produced many highly destructive and disfiguring gunshot wounds of the face. Scarcely anyone was prepared to treat the avalanche of broken faces that increased in number as the war became more intense.

On July 17, 1915, about one year after the war had begun, the Harvard Unit arrived in France; its destination was Camiers, a small village on the channel coast. There they took over General Hospital No. 22 which was one of a group of five base hospitals set up in tents and near one another. The arrival of the Harvard Unit relieved British doctors for other duties (Figure 6).

As far as fractured jaws and facial wounds were concerned, nothing was being done. They were being returned to England, but even there, specialized treatment facilities were non existent. Thus Dr. Kazanjian took upon himself the treatment of these unfortunates. He extended himself because, as he later said, “Nobody knew what to do with them.”

Dr. Ferdinand Brigham, Dr. Kazanjian's surgical assistant throughout the war recalled:

One of the surgical wards had admitted two cases with gaping facial wounds and fractured jaws and I guess the surgeons called Kazanjian automatically. He took it all in his stride so easily, and the details of treatment were organized so smoothly and quietly that I hardly recall those days of transition from dentistry to surgery, as other cases were admitted. The surgeons marveled at Kazanjian's work and were genuinely relieved to turn over cases for which they had no method of treatment.

Word of his unique skill spread along the battle front and he became the best-known surgeon in the Allied armies before the war was over. He
personally treated over 3,000 soldiers with gunshot and shrapnel wounds of the face and jaws.

In December, 1915, the Jaw Unit was transferred to General Hospital No. 20, an entirely British unit in the same area at Dannes-Camiers. The British assigned about a hundred beds to Dr. Kazanjian's unit. It was composed of five wards with its own mess, lavatories, x-ray rooms, and operating rooms. This was to be the permanent home of the Unit until 1919.

When his classmate, Dr. Catheron arrived in London in November, 1915, as a replacement, he found that Dr. Kazanjian had become a noted personality. "One had only to see him to realize that he had been in contact with great events and had grown to meet them."

At a large military hospital in England a group of military surgeons were being entertained by Sir William Osler when a Colonel Walker of the Royal Army Medical Corps mentioned in glowing terms the treatment rendered to fractured jaws by an American dentist. Dr. Kazanjian, who was present, said not a word and finally Sir William Osler himself informed the astounded Colonel. "You are now talking to that man." Incidents such as this were to occur again and again; his humility became legendary. The History of The Harvard Dental School characterized him best:

Yet throughout it all, this Harvard dentist retained a modest simplicity and unassuming manner that gained him instant and spontaneous popularity. A short, black-haired, soft-spoken man with kindly eyes, he went quietly about his business and performed marvels upon the soldiers. His stature and appearance made him almost insignificant, yet in his presence, one felt there existed within him a vitality, a force, a genius, a keenness of perception that gave him extraordinary powers of accomplishment. It is small wonder that the stricken British soldiers, suffering untold agonies from splintered jaws and mangled faces, believed implicitly in his ability to help them.

Dr. Kazanjian's uniqueness was his ability to combine dental prosthetic appliances with plastic and reconstructive surgery. He crossed the fine line separating dentistry and plastic surgery. Sir Harold Gillies, a British surgeon, based at a military hospital in England, saw the wounded Tommies as they returned home and commented:

Although the 'jaws' coming over from France were often untreated, cases coming from Kazanjian's Harvard Unit always showed excellent care. His work about the mouth and his use of weighted dentures produced such soft lips and ample chins that we would always gather around cases on arrival to see exactly what he had done.

Dr. Kazanjian was first cited for distinguished service in British War Office dispatches on Jan. 1, 1916, and twice after that. It was at this time that an English writer characterized him as "the miracle man of the western front."

Although America entered the conflict on April 6, 1917, German air raids on the Unit intensified. Dr. Kazanjian observed:

Almost every clear night the raiders flew over, and we used to pray for rainy nights so that they would not be able to attack. These raids were the most agonizing experience of the war. They threw the large group of hospitals in our vicinity, numbering more than thirty-five thousand beds, into complete disorganization, and on one occasion, a Canadian hospital was completely demolished with the loss of many lives.
POST-WAR HONORS

It was, however, a desperate last-ditch maneuver of a dying Empire. With the German war machine utterly exhausted, an armistice was signed on November 11, 1918, at Compiegne. But Dr. Kazanjian was needed until February 1919. At this time he was honored by King George and made a Companion of Saint Michael and Saint George. "I tried to get decorations for my assistants. They did fully as much as I in the work," he characteristically said and added:

It was not I, nor was it my assistants. It was the great need of the times that evolved the technique which made it possible for injured men to speak again, to look something like they had before. Take the need, add patience, and hope and resourcefulness, and you have the ingredients that will bring the surgeon to success, in most cases of shattered jaws, paralyzed tongues and noses shot away.

When Dr. Kazanjian returned to Boston, Dr. Eugene Smith was eager to bestow all honors in his power as Dean of Harvard’s dental school and appointed Dr. Kazanjian Professor of Military Oral Surgery.

The American Dental Association Convention of 1917 was held in New York, and "when the slide of Major V.H. Kazanjian, in uniform, was thrown on the screen," Dr. Lawrence Baker noted, "the audience of over 6,000 went wild."

Humility with dignity, that rare blend which often accompanies genius, were Dr. Kazanjian’s most notable traits. He was quiet and unassuming often to the point of diffidence; his bearing was shy and approached the apologetic. He was never known to negate a colleague’s work and his kindness, warmth and modesty are legendary. A journalist, commenting on his dislike of publicity, noted that if there were only two doors in a room, Dr. Kazanjian would manage to escape through a window rather than face an interview.

KAZANJIAN RETURNS TO MEDICAL SCHOOL

In the fall of 1919, when he was forty years old, he matriculated at Harvard’s medical school, because without the M.D. degree, he could not freely perform in Boston the same surgical procedures he had done in France. He now became both professor and student (Figure 7).

In medical school, he was quieter than usual and his classmates paid little attention to him. But his position with his classmates was dramatically changed by an unforeseen incident. This enduring anecdote was described by Dr. John W. Cooke in 1943:

Some surgical demonstration had been planned at the Peter Bent Brigham Hospital for a group of medical students, who crowded the surgical amphitheater. Dr. Cushing made his appearance, accompanied by two high ranking officers from the Royal Army Medical Corps. The attention of the students was fixed upon Dr. Cushing and his guests, and the occa-
sion was an impressive one. On glancing up at the group of students above him, one of the British medical officers suddenly grasped his companion's arm and pointed. And then, with greater haste than dignity, the assembled students were startled to see these two high ranking officers climb up the steps and literally drag down to the amphitheater floor the quiet, black-haired little dentist, whom the medical students thought they had successfully ignored. And Kazanjian was introduced as the man who had taught these guests the technique which was to be demonstrated.

The medical degree which he received in 1921 was the key which unlocked doors for him. The prestigious Massachusetts General Hospital granted him staff privileges and eventually seven other hospitals in the Boston area did also. He began a surgical practice in Boston which drew patients from all over the world and from all walks of life, including Sigmund Freud, for whom he made a maxillo-facial prosthetic appliance. One journalist named him "The Father of Modern Plastic Surgery" and still another, "The World's Most Famous Plastic Surgeon" (Figure 8).

Fig. 8. Page from the Worcester Telegram, May 8, 1932.

Named Professor of Clinical Oral Surgery of Harvard in 1922, he continued in this capacity until 1941 when he was appointed the first Professor of Plastic Surgery in the history of Harvard University. Private practice he continued until he was in his 80's.

Dr. Kazanjian published over 150 professional articles, and in collaboration with his colleague and former student, Dr. John Marquis Converse, he wrote the classic plastic surgery textbook, *The Surgical Treatment of Facial Injuries*.

Primarily through Dr. Converse's efforts, the V.H. Kazanjian Visiting Professorship in Plastic Surgery was established at the New York University Medical Center, Institute of Reconstructive and Plastic Surgery in 1962.
His honors and awards are too numerous to recount but they include Honorary degrees from Bowdoin College and Emerson College when he received one at the same time as his niece, Arlene Francis (Figure 9).

Kazanjian died on October 19, 1974 in his ninety-fifth year. A simple, dignified service was conducted on October 22, 1974 at the Harvard University Memorial Church. With his death ended an era: he was the last of the great leaders responsible for the status of plastic surgery as a highly respected medical specialty.

At the memorial service, my thoughts returned to the first time that we met. It was during my third year at the University of Pennsylvania School of Dental Medicine. I heard his name being paged on the loudspeaker system one morning. He was at the University because he was giving a graduate course for oral surgeons. I ran to meet him, and he greeted me enthusiastically yet courteously and seemed genuinely interested in my budding career. Here was the man whose story I had heard since I was a teenager in Worcester, and these anecdotes became a familiar part of my life and a source of inspiration to me.

In the following years our paths crossed often. On several occasions, he allowed me to “scrub in” with him on cleft palate operations he was performing (Figure 10).

Once while we were talking, I asked him if he could single out the one event that gave his life its singular direction. “It was that Sunday afternoon outing in Worcester,” he said, “many years ago when one of the fellow wire mill workers said, “You take dentistry — That’s a good profession.”
Sir Thomas More was criticizing advice which had been given him not to think about a certain problem which was vexing him. He rightfully dismissed this suggestion as being impossible. Moreover, he compared this advice as being as unsuitable and fruitless as a quaint remedy he had heard about for toothache. This charming bit of reasoning is from his Works, page 1215, published in 1557:

Besides thys, to counsayle a man never to think on that case is, in my mynde, as much reason as the medicine I have heard taught one for the tothe ache, to go thryse about a church yarde, and never thynke on a fox tayle. For yf counsayle bee not given them, it canne not serve them. And yf it bee given them, it muste putte the poynte of the matter in theyr mynde, whiche by and by to rejecte, and thynke therein neither one thynge nor other, is a thynge that may bee sooner bidden than obayed.

Dr. Samuel Beach Bradley (1796-1880), a physician who practiced in upstate New York, received his training as a preceptorial student in the village of Clinton, Oneida County, N.Y. under a Dr. Hastings. He began practice in the village of Eaton, N.Y. (then called Log City) in 1817 where he put an announcement of his arrival in the community’s weekly newspaper. Three days after opening his office he received his first professional call “to pull two teeth which I did with good success. This event, though trifling, causes pleasant emotions. The compensation, 25$, is the first I have received since I have been here and of course since I have been in business for myself. The pleasure it produces is not in proportion to its smallness.”
The preceding article recounted the life story of a remarkable individual who rose from humble beginnings as a penniless immigrant to this country to Harvard University's first Professor of Plastic Surgery. His pioneering work was done with those unfortunate soldiers of the British Expeditionary Forces in World War I who lost parts of their faces to shell and shrapnel. Dr. Kazanjian devised hitherto unknown techniques to rebuild these shattered bodies and reported his successes to the American medical and dental communities upon his return to this country in 1919.

Reprinted here is his classic paper “Observations on war surgery of the face and jaws” which he delivered at the annual meeting of the New Jersey Dental Society in Atlantic City, July 16-19, 1919. It was subsequently printed in the Dental Cosmos, 62:283-294, 1920.

The treatment of wounds of the face and jaws may be divided into two distinct periods. The first, or early period, which covers the three to four weeks following the receipt of the wound is the most critical for the patient. This is the period of initial exhaustion, of loss of blood, of pronounced sepsis, and of great pain and mental depression. This is also the time at which alarming complications, as broncho-pneumonia, secondary hemorrhage, and general infections are most likely to occur.

After this critical first period, the patient passes through the second period, and the convalescent period is in sight. At this time, depending upon the severity of the case, the treatment of the patient is confined chiefly to the further repair of the bony tissue by means of splints, to the construction of prosthetic appliances, to minor operations, and to plastic operations for the reduction of the facial deformity.

Throughout the war many problems of surgery of the face and jaws were the subjects of keen discussion, and naturally many different opinions existed as to the procedure in different phases of the treatment. Some of the problems of special interest to the dental surgeon are herein outlined.

FIXATION OF THE MAXILLARY BONES

During the past years many types of splints and special devices for the repair of maxillary fractures have been offered to the dental profession, and it would seem to the average student that there existed a confusion of appliances, with every author and designer insistently advocating the device of his own construction. But if the evolution of the treatment of gunshot wounds of the face and jaws be analyzed, it becomes clear why so many splints and methods were presented. Individual dental surgeons were influenced by the kind of cases which they had under treatment, by the severity of these cases and especially by the degree of co-operation which they had from their medical and surgical associates.

Mechanical devices are used for the fixation of the bony fragments, for the support and control of the soft tissues, and for the restoration of function of the upper and lower jaws. In the first two
instances the appliances are used to bring about the immediate or early immobilization of the parts affected, or to produce a gradual reduction of the deformity. During the early period of treatment the tissues of the face are greatly inflamed, but nevertheless the bony parts respond readily to treatment and tolerate the application of splints. As the wounds proceed to heal, the cicatrization tends to maintain, and even exaggerate, a deformed position of the fragments of the jaws. In the latter event, fixation of the fractured portions in their proper position by immediate methods is difficult or impossible, and therefore procurable only by some method of gradual reduction. It will be seen that the best results ought to be obtained by methods of immediate fixation, and that those devices which effect immediate immobilization are less complicated mechanically than those designed to bring about a slow and gradual reduction.

During the earlier part of the war the failure of the general surgeon and the dental surgeon to agree on the part which each should play in the treatment prevented the appreciation of the value of immediate fixation of the bony tissues, and many cases of gunshot wounds of the face and jaws became grossly deformed as they passed to and fro, now under the care of the surgeon, now under the care of the dentist, while each in his own way attempted to carry out a scheme of treatment. The better results were obtained only after genuine co-operation of the dental and general surgeon, and after one scheme of treatment made possible the application of splints immediately, while at the same time the general condition of the patient received proper attention.

There were critics of the early insertion of maxillary splints who maintained that appliances in the mouth greatly increased the sepsis, but their views gave way in the face of overwhelming clinical evidence to the contrary, and of better results which demonstrated that immediate immobilization was an essential factor in the reduction of inflammation. It is also important to note that with methods of early fixation the patient is more comfortable, takes nourishment with greater facility, and has a feeling of confidence and courage because a constructive step in his treatment has been taken.

Prior to the application of splints loose and detached spicules of bone, fractured alveolar process and teeth, and roots in the line of fracture must be removed, though the dental surgeon must use sound judgement in preserving small segments of bone which are displaced, yet vital and genuinely adherent to the soft tissues. In general this procedure is accepted and yet some dental surgeons wavered because of a keen desire to save sound teeth, not realizing that teeth in a severely comminuted area, or in a line of fracture, were nothing but foreign bodies which prolonged the suppuration. On the other hand, bold and extensive extraction involved an unnecessary sacrifice of teeth, and more especially meant the loss of the most valuable means of retention for splints and subsequent oral restorations. It seems advisable to adopt a middle course which admits of the removal of teeth which are obviously useless, but which retains the teeth while they serve a purpose and are not a menace to the progress of the case under treatment.

THE OCCLUSION OF THE TEETH AS A GUIDE FOR THE FIXATION OF SEGMENTS

Previous to the war if a surgeon was called upon to treat a fracture of the mandible, in many instances he approximated the segments with wires or metal plates without special regard to the occlusion of the teeth, while the dentist, in attending a similar injury, almost invariably applied intermaxillary ligation, or immobilized the jaw by some form of splint attached to the teeth which brought the jaws and teeth into natural occlusion. During the war dental surgeons as a rule regarded the normal occlusion of the teeth as the true guide for the reduction of a fracture, except for a few who questioned the procedure on the ground that the majority of fractures caused by weapons of warfare were attended by a distinct loss of bony tissue; a condition which would prevent consolidation if normal occlusion were restored. And so, following the same line of argument, this minority urged that an approximation of the
fragments was preferable, in order to in-
sure bony union at the expense of oc-
cclusion of the teeth.

The outstanding fallacy of this argu-
ment was the assertion that a com-
minuted fracture implies a loss of bony
continuity; a fact which is true in excep-
tional cases, but not in the vast majori-
ty. Even though teeth, alveolar process
and bone at the site of injury have
undergone considerable comminution,
there still remains in most instances an
osseous continuity.

After dental surgeons had gained in
clinical experience, it was demonstrated
that bony consolidation took place in
what were oftentimes regarded as un-
favorable cases, provided, of course, that
adequate immobilization was effected.
The regenerative power of the bone
following injury is something which
cannot in many cases be ascertained
during the earlier days of the treatment.
In the event that consolidation does not
result, it is better to have the remaining
portions of the mandible in satisfactory
occlusion, as this condition is more
favorable for the insertion of oral
restorations and for bone graft
operations.

The natural occlusion of the teeth has
served as a safe guide for the alignment
of the segments of the mandible, while
modifications of this practice are better
left for application in very rare and
peculiar cases.

EARLY SUTURING OF WOUNDS

In the treatment of gunshot wounds of
the face and jaws the soft tissues
deserve the same careful attention that
is given to the bony structure. Some
surgeons insisted that facial wounds
should be sutured as soon as possible,
while others were equally certain that
this procedure was wrong. The ad-
 vocates of early suturing pointed out
that if the lacerated borders of the facial
wounds were left unsutured, ugly scars
would result. Opponents of primary
suturing claimed that little progress in
the case could be made in the presence
of sepsis, and that the necessary
Drainage of the wounds could not be
maintained if attempts were made to
bring the borders together.

In brief, only such parts of a wound
may be sutured as are really clean. If
outlying lacerations are clean while the
deeper portions remain septic, then the
former parts in many cases should be
sutured. When flap operations are to be
carried out, it is universally conceded
that the tissues must be in a clean and
healthy condition, and must have prac-
tically their full contraction.

All the successive steps in the treat-
ment of a case of gunshot wound of the
face and jaws are directed toward the
control and elimination of sepsis, to the
best possible repair of the bony tissue,
to the return of normal facial ap-
pearance, and to a restoration of health.
When the methods of treatment do not
lead toward these ideals, then the
methods are questionable.

The following histories of cases il-
lustrate many of the problems
presented, and also outline certain
splints and appliances used in the
treatment.

CASE NO. 1

Pte. H.—was wounded on July 30,
1915, and admitted to hospital on Aug.
17th. There was a large wound of the
right cheek which extended from the
corner of the mouth nearly to the ear.
The tongue was destroyed anteriorly
as far as the frenum.

The maxilla was fractured into three
sections, and all the teeth, with the
alveolar process, were destroyed ex-
cept the third molars. These latter
teeth, however, were unerupted.
There were three fractures through the
mandible: (1) anterior to the left first
bicuspid, (2) at the left angle, and (3)
between the right bicuspid.

The patient was in a critical condi-
tion upon admission because of lack
of treatment. The wound was ex-
tremely foul, and the segments of the
fractured maxillae were greatly
displaced.

The following means were
employed to control the fractures: A
Kingsley bar plate, with headgear, was
fitted to the maxilla. A sectional band
and arch splint were adjusted to the
posterior teeth of the mandible. Inter-
maxillary elastics were applied be-
 tween hooks, attached to the upper
and lower splints to control the frac-
ture at the left angle.

On Oct. 18th the jaws were cleaned
of all useless roots and alveolar pro-
cess, so that the only remaining teeth
and roots were the upper third molars
(exposed for purpose of splinting), the
roots of three upper incisors, the right lower third molar, and the left bicuspids. By this time the segments of the two jaws were in a satisfactory position so that it was possible to apply upper and lower bands and arch splints for the immobilization of the parts of each, while the use of inter-maxillary ligation was continued.

On Oct. 25th it was necessary to open externally an abscess which had developed at the left angle. Consolidation of the fracture progressed favorably, and on Dec. 16th the splints were removed.

An upper denture was made which was retained by Roach attachments on a bar attached to the roots of the incisors. The lower denture was retained by ordinary clasps on the remaining teeth.

A plastic operation was performed to improve the right angle of the mouth. On Jan. 7, 1916, adhesions to the lower ridge were cut. On Jan. 22nd the frenum of the tongue was cut to give added length to the tongue.

The patient was evacuated to England on Feb. 5, 1916. The dentures were efficient and the fractures of the maxillae were uniting in a satisfactory manner.

CASE NO. 2
Pte. B. — was wounded on July 19, 1916, and admitted to the hospital on July 22, 1916. There was a large wound on the right side of the face which extended from below the right eye to the side of the chin. The cheek and both lips were severely lacerated, with some loss of soft tissue. The floor of the right orbit was fractured. The upper jaw was comminuted on the right side with considerable loss of tissue. The lower jaw was comminuted severely on the right side, with extensive loss of bony tissue and downward displacement of the remaining small fragments. (Figure 1).

On July 25th the patient developed a superficial cellulitis, which spread over the face and forehead. The inflammation had disappeared by July 29th.

On recovery from this complication the patient was supplied with an intermaxillary vulcanite splint, constructed in two sections to facilitate introduction into the mouth which procured a good alignment of the remaining parts of the maxillae and also supported the soft tissues.

On August 11th an operation was performed. Several small useless pieces of bone were removed, two large fragments of the mandible were approximated by means of sutures of silver wire, and the tissues of the face were partially sutured. On Aug. 20th the right antrum was opened to allow more adequate drainage. On Oct. 27th the patient developed cellulitis a second time, and of a more severe character. This was subsiding at the end of about ten days.

On Jan. 16, 1917, a series of plastic operations were begun for the reconstruction. There was a heavy scar extending from the right corner of the mouth toward the angle of the mandible, and the greater part of the upper lip was missing.

On Jan. 16th as much of the scar tissue as possible was removed, as a preparatory step for further plastic operation, and impressions were taken for a second splint of the type first inserted. On Feb. 2nd the lower lip was raised by a flap, which also served to fill the gap in the right cheek.

On March 6th the upper lip was reconstructed, utilizing a unilateral flap from the left side of face (Figure 2). At five subsequent dates, March 30th, May 21st, July 1st, Oct. 2nd, and Nov. 3rd, small operations were performed to make alterations and improvements in the facial appearance. Massage and the application of the violet ray were used during the period of convalescence to increase the
vascularity and softness of the soft tissues. The patient was evacuated to England on April 21, 1918. There was bony union of the mandible. Oral restorations were supplied, which gave the patient efficient mastication.

The bony tissues showed unusual vitality for repair in this case, in spite of the great destruction of tissue which was followed by extensive suppuration. There was complete bony union when the patient was evacuated to England. Great difficulty was experienced in the construction of artificial plates, owing to the elasticity of the cheek tissues and the distorted condition of the alveolar ridges.

CASE NO. 3

Pte. D. — was wounded on March 28, 1917, and admitted to hospital on March 30th. There was an extensive shrapnel wound of the lower lip, with considerable laceration and loss of the chin and sublingual region. The mandible was destroyed anterior to the bicuspids, and the only remaining lower tooth was the right second bicuspid (Figure 3).

On April 7th an operation was performed to remove useless pieces of bone and to suture minor radiating portions of the wounds. A splint was adjusted which maintained the correct anatomical relation of the remaining parts of the mandible.

On July 28th the soft tissues were sutured in the following manner: An appliance was made and adjusted in the mouth which fitted the alveolar ridges of the mandible and reproduced the mental contour. It was hinged at the median line to facilitate introduction to the mouth, and once in position, was retained by the occlusion of the upper teeth (Figures 4, 5).

Operation. The mucous membrane was divided along the buccal grooves as far as the second molar regions, and from these points the incisions were carried vertically upward through the buccal tissue. The corresponding superficial incisions were made along the lines of the lateral scars. The large rectangular flaps thus obtained were stretched forward and sutured at the median line, the underlying mucous membrane with catgut, and the skin with horsehair. The artificial appliance was placed in position prior to the completion of the suturing.

After healing had taken place, the middle of the lower lip was drawn slightly downward, and on Oct. 27th a second operation was performed. Incisions were made in the lower lip, first running downward, and then horizontally, to produce two small flaps, which were raised and sutured.
(Figures 6, 7, 8, 9). By Dec. 3rd a prosthetic restoration of the missing lower tissue was completed. This consisted of a hinged vulcanite denture giving good occlusion, and having the proper bulk to give a good mandibular contour.

The patient was evacuated to England on Dec. 10th.

Remarks. Since in this case there was a pronounced loss of the mandible anteriorly, it is obvious that bony continuity could not be restored. It is imperative, however, to keep the mandibular "stumps" in a position which permits of partial function, and to keep the alveolar ridges definite and free from adhesions.

The extensive loss of the mandible does not permit early suturing, and therefore all operations are limited to those designed to promote the decrease of sepsis, or to those approximating radiating parts of the wound.
Only after all parts of the wound are clean and after the remaining portions of the mandible are in good anatomical position, is a definite plastic operation for complete closure of the wound practicable; and then the construction and insertion of a prosthetic appliance is necessary to give the proper contour to the face.

Later an oral restoration is constructed of the same general form as the earlier appliance, serving as an efficient aid to mastication. A case treated in the foregoing manner is satisfactorily prepared for a bone graft if this seems advisable and likely to insure a more efficient mandible.

DR. HERSCHFELD is in private practice. His address is 2169 Galloway Road, Bensalem, PA 19020. Requests for reprints should be made directly to the author.

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The Historical Relationship Between Japanese Dentistry and the Fédération Dentaire Internationale

Tokyo, Japan

Although dentistry became recognized as an independent profession in the mid 1700's, following upon the work of the great Pierre Fauchard, an international meeting of dentists didn't take place until almost 140 years later. In 1889 the government of France sponsored a world's fair in Paris on the occasion of the centenary of the French Revolution. At the same time almost 400 dentists from 13 countries convened in that city to exchange ideas and information. Four years later in 1893 when the World's Columbian Exposition was held in Chicago, the 2nd International Dental Congress was convened there at the same time. The 3rd Congress was once again held in Paris from August 8 to 14, 1900.

Dr. Charles Godon, dean of the École Dentaire de Paris, who was attending that 3rd Congress, was interested in forming an international organization of dentists and succeeded in bringing together eight other dentists, all leading figures in the profession in their own countries. They met at the Paris school on the morning of August 15 and constituted themselves as the first executive council of a group subsequently to be known as the Fédération Dentaire Internationale, and plans were made to hold the first annual session of the F.D.I. in Cambridge, England on August 7, 1901. At that meeting Dr. Godon was chosen as president and Ernest Sauvez as secretary.

The new organization set itself a number of tasks among which were the preparation for the next international meeting; the drawing together with closer cooperation of the various national dental societies; and the setting up of various committees to further the work of the parent body.

The next international meeting of the F.D.I. took place in Stockholm in 1902 and at that time it was decided to sponsor the 4th International Dental Congress which was to be held in St. Louis, Missouri, in 1904 to coincide with the Louisiana Purchase Exposition. At this time, too, it was decided to hold the International Dental Congress (later to be called the World Dental Congress) at five year intervals.

JAPAN'S FIRST ENCOUNTER WITH THE F.D.I.

In 1893, Dr. Kisai Takayama

Fig. 1. Dr. Kisai Takayama
(Figure 1), founder of the first dental school in Tokyo, the Takayama Dental College (forerunner of the present Tokyo Dental College) was sent by his government as a representative to the World's Columbian Exposition in Chicago. At that time he attended the 2nd International Dental Congress. He was installed as one of the honorary presidents of the Congress and on August 15, 1893, he read a paper “Dentistry and dental science in Japan.”

He pointed out that in the Edo era (1615-1868) dentistry was held in very low esteem by the Japanese people, its practice being considered one of the lowliest of occupations. However, since the Meiji revolution (1868) Western innovations flowed into Japan with great rapidity. It was in this latter period that American dentists began settling in Japan, as well as a few Japanese who had studied dentistry in the United States.

Dr. Takayama stressed the advances made at that time, among which was the enactment of a law in 1883 providing for a national examination for licensure, with over 200 licentiates having passed the examination at the time he delivered his address. Nevertheless, he decried the fact that whereas the Japanese government was encouraging the study of medicine — with many medical colleges as well as medical academies in the provinces being established — there was only one dental school in the land, the one established by him in Tokyo in 1890, with 100 current students and 38 graduates.

Among his other accomplishments Dr. Takayama listed the seven dental textbooks he had published and the dental journal he had launched jointly with a trio of American-trained dentists, Drs. Isawa, Katayama and Suganuma. He concluded his address with these remarks.

Although the dental society of Japan is no doubt still in its boyhood, it is my unhesitating belief that it will soon grow up into one of the powerful influences in the civilized world . . . [although] the progress of the science must be ascribed to America . . . the Japanese dentists are, so to say, the children of American dentists. This is the reason why I have attended this grand assembly and spoken about dental science in Japan, [and] as a representative of our dental society, to express its gratitude.

Dr. Takayama’s address, which he had written in Japanese, needed to be translated into English and he had difficulty locating a translator. He found one in the person of a student, Morinosuke Chiwaki, who had formerly been a teacher of English, and the completed translation was turned over to Dr. Takayama only hours before his departure for Chicago.

JAPAN’S PARTICIPATION IN THE CONGRESSES

Louis Ottofy, a professor at the Chicago College of Dental Surgery and a co-editor of the Dental Review came to Yokohama, Japan in 1898 and helped organize the American Dental Society of Japan. Later, in 1920, he co-founded, along with Dr. Tsurukichi Okumura of Japan, the International College of Dentists. He also assisted in organizing the delegation from Japan to the 3rd International Dental Congress in Paris and served as the group’s secretary. The others on the committee were Einosuke Obata, the holder of the first dental license in Japan, who served as honorary president; Kisai Takayama as president; S. Ichinoi, S. Izawa, S. Tomiyasu, S. Enomoto, M. Aoyama and T. Suganuma as vice-presidents; and M. Araki as treasurer.

Although Professor Kawakami in his Outline of the History of Dentistry avers that those members attended the Congress in Paris, in truth none did attend and no papers were presented by them. This was probably due to the unsettled economic and social conditions obtaining in Japan at that time.
Two years later Dr. Morinosuke Chiwaki (Figure 2) authored an article "The recent progress and present condition of dentistry in Japan" which was published in the Dental Cosmos. This picked up the story of Japanese dentistry where Dr. Takayama had left off a decade earlier. In fact, Dr. Chiwaki succeeded Dr. Takayama as dean of the Takayama Dental College and was instrumental in having it renamed the Tokyo Dental College. However, deep economic difficulties with the college as well as his heavy administrative duties kept him from assuming a more active role in the new international organization.

In 1904 Dr. Takayama, as president of the organizing committee in Japan for the 4th International Dental Congress, received a letter from Dr. Edward Cameron Kirk of the United States, secretary-general of the Congress. Dr. Takayama was at that time the president of the Great Japan Society of Dentists (Dai Nippon Shikwa Ikwai.) As a result three papers by Japanese dentists were presented at the Congress: "Annealing gold," by Dr. S. Enomoto; "Dentistry in Japan," by Dr. Chiwaki; and "A case of odontome," by Dr. T. Fujishima. In addition several exhibits were prepared and sent to St. Louis, among them one titled "Ancient Japanese wooden dentures, the tools for their construction and the instruments for exodontia." Dr. Sueyasu Ohki also put on display ancient full upper and lower dentures, and Dr. M. Nakamura had an exhibit concerning full dentures.

Since the three authors did not attend the meeting in St. Louis, each paper was read by the secretary of the appropriate section, and they were published in Dental Cosmos in 1905.

THE DEVELOPMENT OF JAPANESE DENTISTRY

Of greater interest to us today is Dr. Chiwaki’s paper because it traced the growth of the profession from the pre-Meiji era when the characteristic wooden full dentures, which had been invented by Bunchu Sato, were still being constructed.

With the opening of Japan to the West by Commodore Perry of the United States Navy came a flood of western ideas and innovations which wrought enormous changes in the way dentistry was practiced. The coming of American dentists, such as Dr. W.C. Eastlake in 1868 and Dr. St. George Elliott in 1875 brought American methods and techniques, which were furthered by their pupils Drs. Hasegawa and Obata.

Other major developments included the introduction of examination for licensure in 1883, the establishment of the Takayama Dental College in 1890, followed by the founding of one in Nagoya, and the organization, in 1903, of the National Dental Association. By 1903 there were 766 licensed dentists practicing in the country, of whom 19 were licensed prior to 1883.
THE F.D.I. REORGANIZES

At the conclusion of the great 4th International Dental Congress the leaders of the profession recognized that if the F.D.I. were to be a viable force it would have to be reorganized so as to give representation to the various national dental societies rather than to individuals. Forty-nine people were chosen to form the new Fédération and membership was apportioned among the various countries on the basis of population as well as dental importance. Represented on the committee were the United States, Great Britain, France, Germany, Russia, Austria-Hungary, Spain, Italy, Switzerland and fifteen other nations. Japan was entitled to two delegates, but it is unclear exactly who served, for four dentists were recommended: Drs. Takayama, Enomoto, Izawa and Chiwaki. It is also reported that Dr. Enomoto was elected as a member of the F.D.I.'s Committee on Education.

Five years later, Dr. Schaeffer-Stuckert, the then secretary-general for the 5th International Dental Congress which was to be held in Berlin wrote to Drs. Izawa and Chiwaki and asked them to organize a Japanese committee for the Congress and report on the state of dentistry in Japan. They recommended Drs. Shimura, Ohya, Okumura, Nakahara, Takahashi, Enomoto, Tomiyasu and Harada as regents, with Dr. Izawa as president and Dr. Shimura as secretary.

Now, for the first time in the sixteen years since Dr. Takayama's first attendance, two Japanese dentists attended an international meeting. One was a student, Dr. Tohl Shimamine who had been sent by the Ministry of Education to study dentistry at the University of Berlin. The other was Dr. Fusasaburo Naega, dean of the Kyoto Dental College.

Although no Japanese delegates presented papers at the Congress in Berlin in 1909, Dr. Shimamine captured the interest of the participants of the annual meeting held in Stockholm in 1912. Although modern dental techniques were new to his country, said Dr. Shimamine, yet

... hygene of the mouth and teeth is perhaps older in Japan than in any other civilized country. This has its foundation less in the recognition of the importance of hygene than in old standing religious ideas. The first act of a Japanese upon arising is cleansing the teeth, for he may not utter his prayers without a clean mouth.

The delegates were also surprised to learn that every Japanese soldier in the Russo-Japanese War possessed a toothbrush and toothpowder.

INTERRUPTION BY WORLD WAR I

The first World War caused a cessation in the activities of the F.D.I. The 6th International Dental Congress was to be held in London in 1914 and many delegates left for that city even as their countries were mobilizing for the coming conflict. From Japan had come Dr. Shimamine and Dr. Wataru Yamada who had just graduated from the University of Chicago. Because of the disquieting international situation the meeting was adjourned after only three days. Thus when Dr. Kanae Hanazawa, professor of pathology at Tokyo Dental College, who was studying at Strasbourg, arrived in London, the meeting had already been disbanded.

After the war a revived Fédération held its international meeting in Madrid in 1922 and there were three delegates from Japan: Drs. Chiwaki, Endo and Terao. But at the 7th International Dental Congress held in Philadelphia in 1926, a total of 36 Japanese dentists visited the United States. Three were representatives of their government and six read papers.
BRINGING THE F.D.I. TO JAPAN

The 8th Congress convened in 1931, once again in Paris. At this time an enthusiastic campaign arose among the Japanese delegates to bring the 9th Congress to Tokyo. Nevertheless, there was some controversy over this in the Japanese dental press, and consequently the leader of the delegation, Dr. Nakahara, failed to invite the Fédération. Thus the 1936 Congress was held in Vienna.

In 1962 at the 13th International Dental Congress in Cologne the F.D.I. celebrated its Diamond Jubilee. At that time the name of the meeting was changed to the World Dental Congress and an Asian-Pacific Dental Federation was created as a counterpart to the F.D.I.'s Commission on Europe.

In November, 1983, the 71st annual meeting of the F.D.I. was held in Tokyo, realizing after 52 years the dreams of the Japanese delegates to the meeting in Paris in 1931 that this great world assembly of dentists be held in their native land.

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DR. MORIYAMA is in private practice; he is also a part-time lecturer in the Department of Microbiology, Tokyo Dental College and a Regent of the Japan Society of Dental History. His address is 5-3-12 Hakusan, Bunkyo-ku, Tokyo 112, Japan.

DR. TAKAZOE is Professor and Chairman, Department of Microbiology, Tokyo Dental College and a member of the Commission on Oral Health, Research and Epidemiology of the Fédération Dentaire Internationale. Requests for reprints should be directed to Dr. Moriyama.
Oddments in Dental History:
What Every Sea Surgeon of Around 1600 Ought to Know Concerning Treating Teeth

— Malvin E. Ring, D.D.S., M.L.S.
Batavia, New York

The competent practitioners of dentistry three hundred years ago were principally the surgeons. In fact, most of the advances in the field of medicine until modern times were made by the great surgeons such as Guy le Chauliac, Giovanni da Vigo, Ambroise Paré and John Hunter. These men learned their trade through apprenticeship and then by practical experience, often in the military. In addition, although they lacked the formal Greek and Latin education of the physicians who were their contemporaries, they nevertheless believed in transmitting their knowledge and experience to their peers by means of instructive writings which were always in the vernacular.

One of these surgeons was John Woodall, self-described as a “Master of Chirurgey” who authored a comprehensive text published in London in 1617 for the edification of surgeons who were going to sea. Titled The Surgions Mate it was “published chiefly for the benefit of young Sea Surgions imployed in the East-India Companies affaire.” Its title page also carried a statement that it was a “treatise discovering faithfully and plainely the due contents of the Surgions Chest, the uses of the Instruments, the vertues and operations of the Medicines, the cures of the most frequent diseases at Sea.” And given a very important place in these discussions were the methods of handling the dental problems of the crewmen as they arose while the vessel was on what was usually a journey of many months. This part of the text is reproduced in the original spelling and capitalization. And although the language was quaint, the treatment was obviously sound.

Pacis, Pullicans, Punches or forcees, Croesbills, stemes, Gravers and files for teeth.

All these recited instruments, and each of them are needful in the Surgeons chest, and cannot bee well forborne for the drawing of teeth, as also the clensing of the teeth and gummes, and the letting of the gummes bloud are no small things for keeping men in health at sea, and sometimes doe save the lives of men both at sea and land: For we see that from an Apostume (abscess) begunne under a rotten or hollow tooth for want of drawing of the same, sometimes proceedeth great swellings in the face, or in the Amigdalls (tonsils), and throate, and the party is suffocated and dieth: Likewise by undiscreet drawing of a tooth either the jaw is broken, or some other bad accident is provoked. Wherefore I hold none worthy to go for a Surgeons Mate to sea, who is ignorant of tooth drawing; and I esteeme him an unworthy Surgeon how high soever hee beares his head, that can draw a tooth well, and will upon neede at sea scorne or deny to do it.

For drawing of teeth the true manner is, first well to divide the Gumme from the tooth, in which work if you be wary you neede not launch or cut the gumme at all, but onely with the round sharpe pointed end of the phlme (a type of elevator) to compasse the tooth close, pearling by little and little still somewhat deeper, but ever keeping round and close to the tooth till you feel your phlme be as low as the jaw bone, in which time you may be, then consider well what kinde of instrument you will take to draw it, and if it bee the furthest tooth of the jaw either
above or below, or that it be a stumpe, except it bee of the foremost teeth, the *pullicans* (pelicans) are the fittest instruments to draw with; if it bee any other of the great grinders, and that there bee reasonable hold on the inner side, be it on the upper or lower jaw it is best done with the *pacis* (a type of forceps), but you must be wary you draw not a large tooth with a narrow *pacis*, for so you hazard the breaking thereof; wherefore two sorts of *pacis* are needfull in a chest, and the like of *pullicans* and *punches* (a type of elevator) or forcers, for you must fit a large tooth with a large instrument. Concerning the foremost teeth and the eye teeth they are safest done with the forcers, or punch, provided that they be upon the upper jaw, and for them of the lower jaw being strong, with narrow *pacis*. Note further that as well the eye teeth as also the foreteeth are very apt to break in drawing, for that they allway are deepe, wherefore there is great care to bee had in the placing your instrument of what sort soever it be, and you must in raising the tooth be very carefull for feare of breaking the same, or of offending the jaw. Wherefore for one generall rule ere you draw a tooth, forget not to thrust downe your instrument as low as you can possiblie towards the roote of the tooth, and that you gripe it steady and fast, that as you seeme somewhat to wrench your hand, that you may more intend to pluck the tooth upward according to the situation of the tooth, for saving the jaw. Also when your instrument hath hold on the one side of the jaw, you must with your other hand take hold and stay the jaw. Beware also you bee not too suddaine or rash in raising or drawing the tooth, but that you feele as it were the forme of the situation thereof in your plucking out of the same; for some great teeth, being farre wider in the lower end than else where, if you bee too rash in raising them from their place, you are sure either to break them or to damifie the jaw bone. And in trueth, in that I have often wondered at the goodness of God when I have viewed a tooth with three large stradling rootes or fangs, forced out at a round narrow hole, which fangs are no way flexible, so that it must follow of necessitie the jaw bone hath opened itselpe (though by force) to let them out, and yet without harme to the Patient, or helpe of Arte, closed again, and in three daies perfectly whole. Concerning the metall your instrument ought to be made of, the forcers or punches are best to be made of the hardest steele; the pacis and pullicans of steele softened that they may not pinch too sharpe. My selfe have to my paine proved experience in my owne head twice, namely the harme of steeled hard paces, which pinched off the heads of two of my owne teeth, and left the rootes behinde, which maketh me the more to comiserate others in that behalfe. After the drawing of teeth some put vineagar, and some put other liquors into the mouth, but vineagar I utterly dislike: I never use other thing but salt betwixt my fingers thrust into the place where the tooth stood, and then with my fingers close againe the gumme easily together. For in my opinion vineagar is hurtfull in such a case; but if sometimes the party be not in ease presently, then I use to heat a little of my ordinary lotion and give it to the party to keep hote in his or her mouth, holding it on that side where the griefe is, which for the most part bringeth present ease.

Concerning the Crowes bills, (a long narrow forceps) they are only used to take hold of any snagg of a tooth or bone loose in the jaws, or else where in the body where occasion may urge.

*Phlemes* have not only their uses in teeth drawing, but also to launch and cut the Gummes to let them bloud, or to cut oftentimes the superfluous fleshe of the gummes away, it being too ranke, as in cases of the scurvy, the cure whereof (God willing) shall in another place be spoken of.

And for *Gravers* (scalers) they are used to take scales of, a hard substance which use to fix themselves to the teeth, causing them to
become loose and stinke, or be blacke in the mouth, or to help to scrape or clense a bone in any other part of the body as just occasion is offered.

The small Files are used either to file a small snagg of a tooth, which offendeth the tongue or lipps, or to abate any end of a bone else-where in the body which is fractured.

POETRY AND THE DENTIST

DENTIST AT WORK
Mister, if I could illustrate this moment
What a refuse-pit you yawn under my hand,
What sliming heaps of calculus and sagging gums,
What richly stinking caries these bicuspids house.
You’d squirm in raw embarrassment, not pain.
No. 4 please, nurse. And a matrix band; upper jaw.
My arrogant professor would have rebelled:
“I’m no sanitary engineer. Chew pumice.
And come again.” A deeply arrogant man.
But I’ll scrape; clean; restore. Try to sweeten it.
Probe, please. Open wide. Perhaps you’ve a wife.
Christ, even my hardened stomach twitches
At that! Gingival rot, both jaws. Gums suppurating. Pretty.

These teeth bit solid once. No. 3 burr, nurse. Have a rinse
Wide up. Yes, pain. A kind of penance.
I’m cold now. Balancing forces; health; pain;
Filth. This toxin seeps to your toes, is drained
By your stomach. Headaches; listlessness; lose
Your spunk. A big man with soft hands —
Can’t run a dozen yards I’d wager. A flaccid
Thirty-year old, lounging about week-ends,
Inert as a cushion. Diet of whisky, cakes
And creamed potatoes. Sucks lollies in the train.

Open wide. Open very wide, mister. This is a fight.
You think me silent; cruel, perhaps. Nothing to say.
But if at some garrulous party you should ask
Why I pursue this trade, excuse my shrug
And my simple answer: health — even
In the place of eating — and of kissing — is still
A kind of health. Open up. Not long now.
—Keith Harrison
From New Poems, Edited by Patricia Beer,

From the collection of Professor Gardner
P.H. Foley, Baltimore, Maryland.
Walt Disney, Dentistry and the Armed Forces During World War II

— Kent G. Knudson, D.D.S.
Port Royal, South Carolina

The Walt Disney Studios which have contributed so richly to American culture had a large and important role in the production of training films for the armed forces during World War II. Little known is the fact that Disney got his start making educational films for dentistry.

On Monday, December 8, 1941, at 12:29 p.m., President Franklin D. Roosevelt opened a black looseleaf notebook, grasped the rostrum of the House Chamber, and began to address the Congress:

Yesterday, December 7, 1941 — a date which will live in infamy — the United States of America was suddenly and deliberately attacked . . . !

"BY YOUR LEAVE, SIR"

On the afternoon of December 7th, Disney received a call from his studio manager, mentioning that the Army had just given the studio notice that it was securing portions of its facilities for use as an anti-aircraft battery in case of a West Coast invasion.

"The Army — five hundred soldiers," said the manager. "They told me they're moving in."
"What did you tell them?" Walt asked.
"I said I'd have to call you."
"What did they say to that?"
"They said 'Go ahead and call him — we're moving in anyway.' "

And move into the studio they did — both literally and figuratively — after the declaration of war had been signed.

World War II transformed the Disney organization from an enterprise which used animation primarily as an entertainment vehicle into a multifaceted production force whose application of film techniques and its stable of "stars" allowed the studio to educate as well as entertain. Dentistry had played a role in this metamorphosis, giving Disney his only real practical "hands on" experience with educational films which later were to play such a large role in the studio's successful wartime activities.

Actually, the Disney Studio had been involved in various defense undertakings before the United States became officially engaged in the hostilities. The Canadian government had ordered four short subject films on topics ranging from the Boys' anti-tank gun to war savings stamps, and Disney had made initial arrangements for a series of films with the Coordinator Inter-American Affairs of the U.S. State Department staff. The Navy — which became the studio's first and biggest customer throughout the war — had been informed of the facilities the studio had to offer with mutual benefit to both organizations. Disney's first wartime contract was received on December 8th for a series of warship and aircraft identification films. Subsequently, government orders for Disney's services (both military and non-military) in the field of training/educational films came in such numbers that the studio eventually had to place priorities on production and had to redefine its goals and the direction of its future. Eventually, nearly 90% of the studio's
production was related to defense projects. Planning on films such as PETER PAN and ALICE IN WONDERLAND was delayed; animation on THE WIND IN THE WILLOWS was shut down entirely. Thus, the studio which had enchanted the world with such fantasies as PINNOCHIO (1940) and DUMBO (1941) placed this type of motion picture on hold “for the duration”. Instead it produced such films as VICTORY THROUGH AIR POWER (1943) and DER FUHRER'S FACE (1943) for a nation that was engaged in a desperate struggle.

LIFE BEFORE “THE MOUSE”

Walt Disney mentioned in a 1942 interview that “It's hard to say good things about a war, but this is a tremendous opportunity to show what our medium can do.” The roots of his interest in using his talents in an educational format reach back to 1922. In the spring of that year, Walt had quit his job at the Kansas City Film Ad Company — a firm which produced one-minute advertising films for motion-picture theaters — and by May had incorporated a company named Laugh-O-Gram Films. This was one of the first enterprises that Disney used to experiment with animation. However, by that autumn, Disney and his staff were burdened by financial woes that very nearly ended his operations. In December of that year, he was approached by Dr. Thomas B. McCrum of the Deener Dental Institute of Kansas City to produce a film promoting dental health. Years after he had found success in movie-making, Walt related how Dr. McCrum had telephoned him one evening, asking him to come to his home to discuss the project and the financial arrangements associated with it. Walt confessed to the dentist that he could not go to his house because his only pair of shoes was being repaired and he did not have the $1.50 to redeem them at the store. Dr. McCrum came to the studio and gave the animator the money for the shoes as well as $500 for a film which was eventually titled TOMMY TUCKER'S TOOTH (Figures 1 and 2).

This black and white silent film was a combination of animation and live action footage, a technique which was later expanded in such features as THE RELUCTANT DRAGON (1941) and SONG OF THE SOUTH (1946). The
film, characterized as “a paean for dental hygiene,” involved the home and school life of two boys — Tommy Tucker and Jimmie Jones. Tommy Tucker took pride in his appearance and very good care of his teeth while Jimmie Jones was unconcerned about his appearance and dental hygiene. Both boys applied for employment and Tommy was accepted for the job because of his appearance. Jimmie realized this and strove to improve himself, later obtaining a job because of his efforts. A copy of this film was donated to the Walt Disney Archives by the American Dental Association in 1971.\(^5\)

In 1925, a sequel was requested by Dr. McCrum and the Disney Brothers Studio, which had relocated to Hollywood, completed the film, CLARA CLEANS HER TEETH. In this effort, Clara is beset by various dental maladies, but refuses to consult a dentist. A nightmare ensues, with Clara becoming convinced to visit her dentist. It was released in 1926. Mickey Mouse and STEAMBOAT WILLIE, the first animated cartoon with synchronized sound, were still two years away.

Disney did not make another educational film until 1941. The Army and Navy training films were the result of his interest in pursuing this avenue of production, with titles ranging from AIRCRAFT CARRIER LANDING SIGNALS to RULES OF THE NAUTICAL ROAD. Of particular interest to the dental profession was the 1945 production of DENTAL HEALTH for the Army. (The Navy had earlier produced eight dental instructional films at the U.S. Naval Dental School at Bethesda, Maryland prior to March, 1943).\(^6\) This live action/animated film (Project #7280) unfortunately came to the same fate as many of the Disney productions of that period, and neither the studio nor the Defense Audio-Visual Agency has a print of it.

With Major Arthur H. Schmidt of the Army Dental Corps as technical advisor, DENTAL HEALTH was highlighted by nearly eight minutes of animation which allowed for visual effects that live-action filming would be unable to accomplish. The GI audience received a potpourri of dental information, including the reaction of the periodontium to tissue irritants, the role of nutrition in the upkeep of a healthy dentition (emphasizing the well-balanced Army meals), dental infection, an overview of tooth function, and instruction in the functioning of full and partial dentures. An animated continuity on this production is still available and provides some insight into the correlation of the dialog and the detailed scene animation format. The internal structure of the teeth and supporting structures were demonstrated as follows:

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**DIRECTOR'S NOTES**

Close up view of tooth set in cross section of jaw bone. On dialogue “the tooth is held there by a sort of membrane” scene darkens down as membrane is indicated both in area and by title. On dialogue “it acts as a cushion or shock absorber” the corresponding upper jaw tooth will move into contact compressing the membrane. Upper jaw bone tooth will then move out of scene. At this time membrane indication and lettering will FADE OUT.

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**FILM'S DIALOGUE**

THE TOOTH IS HELD THERE BY A MEMBRANE, OR TISSUE, MADE UP OF THOUSANDS OF TINY FIBERS HOLDING THE TOOTH TO THE JAWBONE. THIS MEMBRANE, INCIDENTALLY, SERVES ANOTHER PURPOSE, TOO. IT ACTS AS A CUSHION OR SHOCK ABSORBER WHEN BITING PRESSURE IS APPLIED TO THE TOOTH. NOW, LET'S EXAMINE THE TOOTH ITSELF, THE CROWN, THAT PART YOU SEE ABOVE THE GUMS, IS COVER-
The tradition of Disney-produced films for the dental profession has continued to the present time with the release in 1971 of "TEETH ARE FOR CHEWING" which was designed to explain the importance of good personal dental care as well as the functional role of the teeth, and the DISNEY'S DENTAL HEALTH PROGRAM series in 1982, four cartoons explaining different aspects of dental hygiene.

**DISNEY DESIGNED ARMY/NAVY INSIGNIA**

While the Disney films were important to the overall war effort, the 1100 military insignias that Disney's artists designed for Allied units soon became one of the studio's most significant and popular programs. *LIFE* magazine reported that "Disney and his artists had created a whole new system of heraldry, comparable to the ancient knightly arms." A five-man staff was eventually assigned to accomplish the requests that bombarded Walt's office. Hank Porter and Roy Williams were responsible for many of the designs that eventually appeared in all theaters of the war. When asked about Disney and the military insignia, Williams replied that "...nothing was ever created at the Walt Disney Studio without the blessing of Walt Disney." Williams, himself, is most famous for his design of the insignia for the 23rd Fighter Group, The Flying Tigers.

The insignia program began in 1939 when Burt Stanley, USNR, sent in a request for the "Fighting Seven" Naval Air Squadron. However, the activity really accelerated in March 1940, when Lt. E.S. Caldwell of the Washington Naval Operations office asked for and received an emblem appropriate for the new Navy PT boats — the "Mosquito Fleet." As soon as word got around the fleet and posts as to what the studio had provided, these stations wanted emblems of their own. Many of these designs were based on the popular Disney characters. Donald Duck appeared on about 20% of the insignia, followed by Pluto and Mickey Mouse. Donald was so popular because he reflected the image of the "gutsy, fists-up fighting spirit of the American soldier." Other characters were used appropriately; the villainous alligators from FANTASIA's "Dance of the Hours" sequence adorned a bombardment squadron's emblem; Mickey Mouse highlighted the crest of the Junior Victory Army; Flower, the skunk from BAMBI,
symbolized a chemical corps unit, while Owl from the same movie, represented a night-flying unit. Even Jiminy Cricket, Pinocchio’s conscience, joined up to adorn the design of a chaplains unit.

Dental units were represented by two designs, both for the Navy Dental Corps. The first emblem (Figure 3) was requested on December 20, 1941 by LT (j.g.) Francis A. Sines, who was assigned to the Naval Operations Base at Norfolk, Virginia. The munching, gold-toothed goat with the slogan, “Let’s Go! Keep ’em Chewing!” was readily completed and sent to the unit. A second (Figure 4) was requested by Richard T. Street for the dental reserve students at Loyola University. The USNR insignia was requested on July 5, 1942, and shows a frustrated Donald coping with an oversized molar. Each design cost approximately $25.00 and Walt donated each one to the Armed Forces free-of-charge. Afterward, Disney mentioned that “I had to do it . . . Those kids grew up on Mickey Mouse. I owed it to ’em.”

Walt Disney gave the gift of a constructive and creative life that enriches us far beyond his age and time. During World War II, he echoed the fighting spirit of wartime America and contributed to the folklore of the era. And part of his success was due to a dentist!

The author would like to thank Mr. David R. Smith and his staff at the Walt Disney Archives, and Judith Jakush of the American Dental Association Editorial Department, for their technical assistance and encouragement. All designs are copyrighted by Walt Disney Productions and are reproduced with permission.
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This paper was the winner of the 2nd prize in the 1983 Bremner Essay Award Competition conducted annually by the American Academy of the History of Dentistry among dental students of the United States and Canada. At that time the author was a fourth-year student at the University of Texas Dental School at San Antonio.

DR. KNUDSON is a Lieutenant in the United States Navy Dental Corps and is stationed at the Naval Dental Clinic at Parris Island, South Carolina. His address is Stuart Towne, Apt. 20-D, Port Royal, SC 29935. Requests for reprints should be made directly to the author.

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Early Dental Charlatans and Quacks

— John D. Jago, L.D.S., M.D.Sc., Dr.P.H.
Queensland, Australia

Medical quackery in its various forms has undoubtedly been part of the human scene for thousands of years. Today the main areas of quackery involve fraud and deception in nutrition, drugs and supposed healing devices, where billions of dollars are spent in the United States alone every year. Dental charlatans were rampant in the pre-professional era and side by side with them were honest practitioners who decried their methods.

Dental quackery has not formed a large part of the history or historiography of quackery, probably for two reasons: first, dental diseases and disorders have never caused high mortality, and second, they do not lend themselves too readily to self-medication. Yet dentistry has had its own particular varieties of quackery which are of interest not only to the historian but also to the modern dentist as well as the layman concerned about getting an effective, efficient and appropriate system of dental care.

Dental care, like other forms of medical care, is characterized by uncertainty. Neither our knowledge nor our remedies are perfect, even after all the enormous advances of the past century, and there are still many occasions when conscientious treatment using the best available knowledge fails. In such a situation, the possibility exists that the patient will succumb to the ministrations of a quack, especially where he or she has a serious disorder or feels particularly vulnerable. Quackery in dentistry exists in our own day and may well persist for a long time into the future. However, the focus of this paper is on the historical period leading up to the early 19th century, when dentistry as an occupation began to be professionalized and when scientific knowledge and technical procedures started to be pooled, codified, improved and applied on a large scale.

THE HISTORICAL EVIDENCE

Our knowledge of dental quackery, as of dentistry in general, in the pre-professional era may be gained from three sources: literature and art; legal, governmental and commercial sources; and the writings of dentists themselves.

It is to art and literature that we first turn for evidence. About the middle of the 16th century in Europe there began to appear paintings depicting itinerant “tooth drawers” and “tooth breakers”. These actors on the dental scene usually operated at places like county fairs where the population gathered periodically and where there were likely to be several available
customers as well as an audience from which future customers might be gotten.

Most chalatans operated at the annual village fair, usually held just outside the town (Figure 1). In this painting of the mid-1600's by a Belgian painter one can see the expressions on the faces of many of the people. Some of the bystanders are intently observing the action of the "toothbreaker" and the patient; some are watching the others standing around; some are supremely uninterested; and in the left foreground a woman is debating with herself whether she ought to have a tooth out. Just behind the patient is a diploma hanging down, and on a perch is a monkey, there to attract attention and amuse people.

Fig. 1. "The ambulant toothbreaker." Painting by Antoni I. Goubau (1616-1698). Meibauer Collection, New York.

Fig. 2. "The toothdrawer" by Jan Victors (1620-1676). Cologne Collection.
The famous painting by the Dutch artist Jan Victors (Figure 2) shows the well-attired toothdrawer operating in front of a small crowd; some of the boys in the audience are toying with the operator's pet monkey which is on the table. The standing patient is grasping his cap but not too tightly, so apparently the treatment is not too uncomfortable. The young woman in the right foreground is either recovering from or about to undergo an ordeal. The tables of these itinerant operators often contained instruments as well as bottles containing drugs and leeches. The medicines were intended for a variety of ailments, including toothaches. Many of the charlatans wore lavish clothing and presented a fascinating sight as they triumphantly held high the extracted tooth, as can be seen in the painting by the Venetian artist, Pietro Longhi, done in the late 18th century (Figure 3). In some of the paintings and engravings the toothdrawer can be seen wearing the extracted teeth as a wreath on the upturned brim of his hat, or as a garland falling across his chest.

An essential element of the charlatan or quack of those times was theatricality. In addition to the monkey, other trained animals became the backdrop to his routines. Grete de Francesco in his book *The Power of the Charlatan* has commented on the use made of the parrot. He drew attention to a picture by the mid-17th century Roman artist Michelangelo Cerquozzi, who painted a series of imaginary incidents in a world populated only by dwarfs. Figure 4 shows a popular festival with the little people moving from place to place on snails or in carriages drawn by mice or rabbits. In the midst of this fantasy is reality, for in the foreground on a platform is a toothdrawer and a patient who is kicking with pain and fear. Behind him the woman of the show is making a stereotyped gesture which in de Francesco's words...
transforms the patient into what he appears on every booth — an object for demonstration, a part of the advertising scheme. But he has already served his turn and the management has diverted the attention of the crowd from him again, lest he should cry out too loudly, or even burst into tears, and so spoil business. The public accordingly has forgotten all about the poor fellow and is now gaping at the parrot instead. All the grotesque little faces are lifted toward the gigantic bird elevated above them like a monstrous idol. Through a huge speaking tube, the parrot is foretelling the future in the ear of a diminutive nobleman, who has come in a carriage, sitting beside an elegant midget lady. The expression of tension, sensuality, and fear, the greedy lust for sensation upon the face of this female companion, are rendered with uncanny skill. The whole scene is so fascinating that one who views the picture is himself in some danger of forgetting that teeth are being drawn here; he too falls under the spell of the parrot and feels that atmosphere of impending doom which has so enchanted the little dwarf lady.

By trial and error over the years the charlatans and quacks had observed and learned a great deal about human nature, and in particular they had learned to exploit the emotions, particularly of people gathered into groups.

There are many engravings and paintings that portray an association between the charlatan and the theater. In the anonymous “Market crier” of about 1670 the well-dressed charlatan is doing the extracting on an uncrowded stage with a canopy above while a buffoon performs on the sidelines. A shill down among the crowd points upward and exhorts them to secure dental treatment now. Again we see the woman on stage making the traditional gesture (Figure 5).

A detail from the 18th century painting by Pieter Angillis shows an even more highly developed connection between quackery and the theater at an annual fair (Figure 6). Here we see what appears to be a fairly permanent stage and wings faced with motifs, in contrast to the earlier primitive and temporary structures. Finally, many of the itinerant toothdrawers and dentists obviously had acting talents, one of the most notable of whom was the dentist-cum-actor Johann Ferdinand Beck, from Hamburg. To help drum up business in those days many itinerant tooth operators travelled about with an entourage of clowns, musicians and animals and gave theatrical performances themselves.

In a somewhat separate category were the everyday toothpullers. They also were itinerant but they did not resort to theatrical effects or deception.
after the manner of the charlatans and mountebanks. They were basically street sellers or hawkers, trudging from house to house and carrying their instruments with them. They were part of a group of street criers which included comb-makers, letter-carriers, booksellers, and hay dealers. Many of these men were self-trained operators and many would have done other things besides extracting teeth, one of them being described as an expert in the removal of fleas and lice and an exterminator of mice and rats. 3

A toothpuller of a different type was Giuseppe Colombani who was busily engaged in extracting teeth on St. Mark's Square in Venice for 24 years (Figure 7). Grete de Francesco says that Colombani travelled widely throughout Italy and as far as Spain while he was a mercenary soldier, and became an excellent player of the trumpet, flute, oboe and guitar as well as a dancer to castanets and a brilliant fencer with the foils. In Malta he suffered at the hands of a swindling charlatan and decided thereafter to combat the ruses of the charlatans. In 1724 he published a book to expose the tricks and deceits of the mountebanks, including the claims of surgeons to perform all operations painlessly. Colombani, styling himself onorato Cavidenti, an honorable toothpuller, said that there are some teeth that may be extracted without a twinge but that others will not come out without pain. De Francesco assessed Colombani's standing with his colleagues in these words:

It is hardly surprising that his colleagues on the Piazza, watching him collect the crowds with a minuet skillfully played upon the trumpet, became his furious enemies. Among them were some gentlemen with
the habit of handling patients while they were mounted on horseback; if they broke a tooth in the act of pulling it, they would blame the horse for stamping its foot at the wrong moment. No doubt they were displeased when Colombani . . . declared that the relatives of the injured patients were justified in attributing the guilt, not to the horse or the unlucky accident, but to the clumsiness of the toothpuller.⁴

GOVERNMENT AND DENTAL SOURCES OF OUR KNOWLEDGE
Possibly the first recognition by a government of the need to regulate the activities of dental operators occurred in 1685 in Brandenburg, Germany. The Elector Frederick William issued an edict requiring an examination before a government commission in order to practice dentistry. A sharp distinction was made between qualified practitioners and "meddlers, frauds and quacks . . . not one of whom belongs to the medical world. These persons should be tolerated nowhere, and suppressed with unrelenting harsh punishment"⁵. So was laid the basis for the professionalization of dentistry. This was followed by a broadly similar law in France in 1699, but such laws were not effective in Europe and North America until well into the late 19th or even 20th century.

The professional literature has many references to quacks and charlatans, but great caution is necessary in interpreting it, because dentists are naturally seldom impartial witnesses. Most of the dental authors writing about quacks were either their active opponents during the struggle for professionalization, or those of recent times who have looked back on the earlier centuries through the screen of professionalism. That the struggle historically between quacks and more professional practitioners is not a simple case of black versus white can be seen in this selection from the book *Investigations on the True Anatomy of the Teeth* written in 1582 by the French physician Urbain Hemard:

*It is necessary for a surgeon to understand the art of tooth extraction, lest he disgrace himself if there is no toothdrawer available. Although this part of surgery has always been left to the itinerants who are called charlatans, . . . precisely because these operations are dangerous, they ought to be performed by an educated operator and not by an ignorant one, which is what most of the charlatans are . . . In fact, people speak in general of lying like a toothdrawer because they promise a successful result to all.*⁶

SOCIAL ORIGINS OF QUACKERY
No doubt many different factors account for the existence of dental quackery in different historical periods.
First and most obvious is public ignorance, in this case of the causes and effects of dental diseases. People were susceptible to quackery because they lived within a culture of religious superstition, and were surrounded by apathy, folklore and ordinary human fear.

There is evidence that the incidence of dental caries was low until sugar became cheaper and more plentiful in the late 17th century but there has always been some toothache in most communities involving abscessing and cellulitis. This led to a desperate search for an effective cure, and gullibility, ignorance and desperation allowed many to fall victim to one who confidently claimed to provide such a cure.

Second, in the pre-professional era there was a low level of scientific knowledge and technology in dentistry, even among those practitioners who were well-trained and qualified by the standards of those times. What little
we know or can deduce from the sparse sources of information is that by
the end of the 15th century the state of the art was such that the best practi-
tioners (by whatever title they were known in their own country) were able
to fill teeth with non-adhesive gold leaf, to clean teeth with crude scalers
and coarse abrasives, and to extract teeth with various types of instruments.
It was not until the second quarter of the 18th century that Pierre Fauchard’s
*Le Chirurgien-Dentiste* was published which heralded the dawn of the sci-
cific era of modern dentistry. However, it is questionable how widespread
such knowledge actually was among even the qualified practitioners of that
time.

In any event, the qualified practitioners were capable of only a limited
number of procedures and all of them were either painful or unpleasant to
the patient in those pre-anesthetic days. At that time artificial lighting had
not yet been invented and the operators were dependent on a relatively small
number of daylight hours (especially in winter months) when dental work
could be done. It is no surprise, therefore, that by modern standards dental
work was grossly unproductive and inefficient, and thus very expensive. It
was, for all practical purposes, available only to the wealthy, as is illustrated
by the advertisements in the newspapers of the time where dentists announc-
ed their skills to the *gentry* of the district. A good example, among many
that could be given, is an advertisement by Charles Rahn in *City of Toronto
Directory* where he “... respectfully offers his services to the Ladies and
Gentlemen of Toronto.” In addition, in much of Europe at least, the patronage
system operated whereby the practitioner was the employee of the aristocrat,
who, because he was the patron, made many of the important treatment
decisions which the professional alone makes today.

The number of trained and qualified practitioners in the pre-professional
era was very small and very few persons were full-time practitioners of the
dental art. Such practitioners were invariably in the metropolitan centers
where the largest populations and the wealthier people lived. The great ma-


majority of the people in both Europe and North America at that time had a
standard of living which would compare with that of many “third world”
countries of today. Thus, for all practical purposes, they had no access to
qualified dental practitioners, and to meet this need came the semi-qualified
and the quacks — the toothpullers and the toothbreakers.

The basic ingredients in quackery are incompetence and fraud, carried
out with a measure of style. It is conventional to contrast the incompetence
and criminality of the quacks with the competence and ethicality of the
regular dentists, but this is an over-simplification. The dynamics of history
has shown that regular dental surgery over the centuries has had long periods
of scientific and technological incompetence, and often failed to meet the
needs of great numbers of human beings. Conversely, not all the quacks were
crooks, as the example of Giuseppe Colombani so nicely illustrated.

Wherein lies the power of the charlatan? De Francesco asserted:

> The charlatan achieves his great power by simply opening a possibility
> for men to believe what they already want to believe ... With the im-
> mense growth of knowledge ... the mass of the half educated, the eager-
> ly gullible prey of the quack, also increased, became indeed a majority;
> a real power could be based on their wishes, opinions, preferences, and
> rejections.

> If the difference between the regular and the quack is one of degree,
> as the mass of historical evidence compels us to conclude, it is clear that
quackery in dentistry will only finally disappear when the education of the
general public about dental matters has reached a high level.

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Battle Creek, Michigan.

DR. JAGO is a Reader in Dental Health, University of Queensland, Brisbane,
Australia. Dr. Jago's address is Dental Care Research Centre, Indooroopilly
School Dental Clinic, Taringa Parade, Indooroopilly, Queensland, Australia
4068. Requests for reprints should be made directly to the author.

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1983).

Dr. Alexander Hamilton was a physician who received his medical edu-
cation in Scotland before emigrating to America. In 1744 he travelled from
Maryland to the northern colonies, keeping a diary as he went. He record-
ed the following in his entry for Trenton, New Jersey:

At an inn I met a greasy-thumbed fellow who professed phy-
sick and particularly surgery in the drawing of teeth. The man
practiced on the housemaid who made a murderous screaming
and squawking until the fellow finally got the tooth out, with a
great clumsy pair of blacksmith's forceps.
Dentists of Chicago
Before the Great Fire

— Aletha Kowitz, M.A.
Chicago, Illinois

Starting with a handful of residents in swampland on the shore of Lake Michigan around 1800, the city of Chicago grew to a population of about 300,000 when it was virtually destroyed by the Great Fire. The number of dentists, meager at first, grew with the population, and these dentists moved their offices to keep up with the changes in population.

As a relative newcomer to the field of dental history, but as a long time resident of Chicago, the author became interested in whether dentists follow patients or whether patients follow dentists. By studying the available records of the area covering the period from soon after 1779 when the site was settled, to the time of the fire in 1871 when the population numbered some 300,000 people we noted some trends in where dentists located their offices. In general, dentists tended to locate where the population was centered, but as the city grew and the people moved into outlying areas so did the dentists. Thus services tended to keep pace with demand.

EARLY CHICAGO HISTORY

Sometime after 1779 Jean Baptiste Point du Sable started a trading post at Chicago. He built a 40' x 22' house, a horsemill and a bakehouse, and when he sold out and left in 1800 he owned 30 cattle, 2 calves, 38 hogs, 2 mules and 44 hens. This was the beginning of community life, because from that time on, a nucleus of French engagees, traders and Indians stayed on as permanent residents. In 1803-4 the first Fort Dearborn was built and garrisoned with about 68 men. In 1804 John Kinzie came to the area and in 1805 opened his well-known trading post. Records of the time show a total of 14 taxpayers and $8000 in taxable property. In the first election on August 7, 1826, there were 35 voters. In 1832 $148.29 in taxes were collected but there was $16.50 outstanding in delinquent taxes.

In 1830 James Thompson surveyed the area for the State of Illinois and plotted what would be the county seat for Cook County, incorporated as...
the village of Chicago in 1833, and later designated a city in 1837. The area was bounded by present day Madison Street, Desplaines Street, Kinzie Street, and State Street. No lake frontage was included and it is probable that the land east of State Street was swamp. The 1835 census lists as residents 100 merchants, 35 lawyers, and 25 physicians, but no dentists. It is interesting to see how Chicago's population grew, slowly at first and then at an explosive pace:

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1829</td>
<td>30</td>
</tr>
<tr>
<td>1833</td>
<td>about 350</td>
</tr>
<tr>
<td>1834</td>
<td>about 2,000</td>
</tr>
<tr>
<td>1839</td>
<td>4,200</td>
</tr>
<tr>
<td>1850</td>
<td>29,963</td>
</tr>
<tr>
<td>1859</td>
<td>109,260</td>
</tr>
<tr>
<td>1869</td>
<td>298,977</td>
</tr>
<tr>
<td>1879</td>
<td>503,185</td>
</tr>
</tbody>
</table>

According to Moses and Kirkland, Dr. Edwin Judson is the first dentist known to have come to Chicago, but he was more likely the third. He was born in East Hartford, Connecticut on February 22, 1809. He studied dentistry in New Haven, and practiced from 1832 to 1840 at Glastonbury, Connecticut. In November 1840 he moved to Chicago with his family and opened a temporary office in the Tremont House on Lake and Franklin Streets, from which he moved to a permanent office at 94 Lake Street, according to Moses and Kirkland, or 98 Lake Street (over S.W. Goss & Co.'s Store) according to Du Souchet in a Dental Review biography. He practiced dentistry until 1857 when he retired because of ill health; he died March 3, 1889 at 85 years of age. An advertisement of his in the Chicago Express of October 21, 1842 states that he “... will insert from one to a set of silicon, metallic teeth which are incorruptible, do not absorb the juice of the mouth, and can be inserted so as not to produce fetid breath.” The ad also announces restoration of the teeth with gold fillings which “... rendered them less likely to decay than those still remaining sound.” Treatment of tender teeth with a substance he called “lithodeon,” and prevention and remedy of irregularities were all part of Dr. Judson's advertised science and art.

According to Du Souchet in the Dental Review, and Andreas' History of Chicago, Dr. William H. Kennicott began practicing dentistry at the Eagle Tavern in Chicago on May 25, 1834. Dr. Kennicott was born February 7, 1808 in Albion, New York. In 1832 his father moved to the Chicago area with 12 of his sons and daughters. Another son, John A., who studied medicine in Buffalo joined the family in 1836. In the Chicago Express of October 21, 1842 Dr. Kennicott promised” “... to restore teeth to health (even where nerves and blood vessels are wholly exposed) and with little or no pain at moderate charges.” He also would insert one or an entire set of “incorruptible” teeth at the shortest notice, and families resident in Chicago could engage his dental services by the year. Also in this issue of the Express there is an advertisement by a Dr. Bradley who announces his connection with Dr. Kennicott in an office on “Clark Street over the Land Agency office of J.B.F. Russell near the Post Office.” Dr. Kennicott's oldest son, however, stated that his father had opened an office at Clark and Lake Streets over Wheeler's tin store, where he practiced until his death on October 9, 1862. This may or may not be the same address because the Chicago Fire of 1871 destroyed all records.
It is probable, however, that the first dentist to arrive in and practice in Chicago was Dr. Peter Temple who came in 1833. He was born September 20, 1812 in King William County, Virginia and studied medicine and dentistry in Philadelphia. He was fearful of his health (possibly having had tuberculosis) and came to Chicago because he felt that outdoor living would help him. In advertisements in the Chicago Democrat Dr. Temple announced that he was permanently established in Chicago, had studied medicine and dentistry, and practiced dentistry as a branch of his profession. His office was on Franklin Street near Lake Street. A silver denture, made by Dr. Temple for his wife before their marriage in 1835 in Chicago, was in existence in 1911 at the Chicago Dental College (now Loyola University School of Dentistry). The denture base had no teeth attached and it is theorized that he used them for a subsequent denture. Dr. Temple stayed in Chicago until 1839 when he left to settle in St. Louis where he practiced homeopathic medicine. He died there March 18, 1884.

So much for our earliest dentists. How many dentists were in the city over the years is difficult to ascertain, because all records were destroyed in the Chicago Fire which burned out an area roughly bounded by 12th Street (Roosevelt Road), Halsted Street, Fullerton Avenue and Lake Michigan. City directories were reconstructed after the fire, but were done from the accumulated memories of survivors, and although their accuracy is questionable, it is better than nothing. The directories are also deceptive. Dr. Temple, for example, is listed with "real estate" after his name. He was vitally interested in his real estate investment and was in fact a wealthy man from these investments until the panic of 1837, and its accompanying bank collapse. The directories and histories give no hint that he was a dentist. How many times this kind of information is hidden is impossible to know, but from the information available some conclusions were reached.

On a survey map by James Thompson in 1830, several dentists' offices can be plotted. Four offices are known for 1839. That of Dr. Temple is the farthest west; those of Dr. J. Oldham Sweetser (who is not reported in the local histories) and Dr. Judson and Dr. Kennicott are on Lake Street. All are well within the city limits and the center of the population of 4,200. The dentist to population ratio was about 1:1050 if all dentists in the city are actually known.

By 1849 the number of practicing dentists has dropped to three. Dr. William Kennicott is still practicing on Lake Street; his brother Dr. Jonathan Asa Kennicott also practicing on Lake Street between State and Dearborn and Dr. Elijah Wells Hadley has an office near Dr. J.A. Kennicott on Lake Street, but somewhat further east. Using available data the dentist-population ratio is about 1:10,000 but in reality it was probably somewhat better because of dentists who are not accounted for.

By 1859 the number of dentists had grown to at least 24, all still practicing within the center of population. Of these 24, 12 were practicing in partnership or at least sharing office space with another dentist. Census figures in that year show a dentist-population ratio of 1:4550. In 1859 too, the first dental supplier, Jones, White & McCurdy, is listed at 59 West Randolph Street. This is obviously a branch of the Philadelphia firm of that name.

In 1869, only 17 dentists are listed in the city directory, but this is obviously incorrect because such prominent practitioners as Dr. Truman W. Brophy and Dr. J.O. Farnsworth, his cousin, who were practicing in the office at 25 East or 55 West Washington Street (depending on the information
source used), are not among them. With the addition of their names the dentist-patient ratio is about 1:15,735. By 1869, also, two dentists have moved outside the city center to a site on Van Buren Street near Plymouth Court.

**EFFECT OF THE GREAT CHICAGO FIRE**

With the Chicago Fire of October 8, 1871 almost everything was reduced to rubble. Dr. Truman Brophy somehow managed to get his dental chair and equipment on an Illinois Central railroad car and saved all of it, enabling him to start a temporary office at 18th Street as soon as the fire was over. Unfortunately, city records of all kinds were lost, but within months the city was rebuilding and by 1879 had a population of 503,185! By this time there were about 141 dentists for a dentist-patient ratio of 1:3,570.

After much mapping and remapping it is obvious that dentist’s offices in Chicago for at least the first forty years were at the population center. By 1879, the 141 known dentists had spread out. Similar mapping shows their offices all over the area later termed the “Loop,” but also spreading south to at least 37th Street to Prairie Avenue, where the homes of millionaires like Potter Palmer and Marshall Field were located. By 1890, there were dentists in the Jackson Boulevard and the budding Medical Center areas, along Milwaukee Avenue (the plank road to Milwaukee), and along north Clark Street into the area now called “Lincoln Park.” By 1879 that which we now know as medical-dental buildings were starting to appear. Addresses such as 125 State, 126 State, 108 Dearborn, and 169 Clark appear for dentists in the directories three to five times.

Although it cannot be proved with certainty, it is obvious that the dentists’ offices were where the patients lived. Part of the problem is the inaccuracy of records because of the Chicago Fire; part also because street numbering was changed in 1879 and then again in 1907. Some confusion was also caused by omission of the designation north and south for streets such as Clark, Dearborn and State in directories, and by duplication of names such as Indiana and Michigan and omission of the terms, street or avenue.
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MS. KOWITZ, the president of the American Academy of the History of Dentistry, is the Director of the Bureau of Library Services of the American Dental Association. Her address is care of the A.D.A., 211 East Chicago Avenue, Chicago, IL 60611. Requests for reprints should be made directly to the author.
This drawing from Harper's Bazaar of October 24, 1874 was one of a number showing scenes in New York of that day. The elderly woman is looking longingly at the grotesque teeth displayed while the man appears to be skeptical about using them to fill his edentulous gums. What must the child have thought of dentistry when she gazed at those mannikins?

—BERNARD S. MOSKOW, D.D.S.
Ridgewood, New Jersey
WHAT IS IT?

This interesting item was pictured in an advertisement by the Boston firm of Codman & Shurtleff in *The Independent Practitioner*, Vol. 5, No. 3, March 1884.

It is the size of an ordinary pair of scissors and is made of steel. The point marked A in the illustration has a sharp edge while part B is blunt. It was priced at $3.50, which, for a century ago, was a fairly sizeable amount.

It couldn't cut as an ordinary shears does, so just what was the purpose of this interesting piece of workmanship? The answer will appear in the next issue of the *Bulletin*.

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The poser picture in the April issue of the *Bulletin* was, as most of you probably guessed, a method of wiping off an excavator or scaler without leaving unsightly debris on the patient's napkin. In the words of the fastidious dentist who devised it over sixty years ago:

When excavating cavities containing soft decay, or when scaling the teeth, the spreading of septic and otherwise unpleasant matter over the serviette has often seemed at variance with modern asepsis. Even in an industrial practice patients cast a downward glance which is more eloquent than words, and if they have to wipe their mouths after rinsing, have often to look carefully for a clean corner of the serviette.
The October 1983 issue of the Bulletin carried a Letter to the Editor from a Mrs. Faubian who asked if some reader could give her information on Danielle Casanova, a dentist who was featured on an East German postage stamp. Although the information was relayed to Mrs. Faubian, it was felt that it would be of interest also to the general readership.

A street in Paris has been named after Dr. Casanova because of her role as a resistance fighter against the Nazis. It was, however, difficult to track down information regarding her life, research at the Administration Library of the City Hall of Paris, the central library of the City of Paris and the library of the dental school from which she had graduated all yielding meager results. The break came in the Communist Party headquarters in Paris where several issues of L'Humanité, the Communist daily newspaper carried articles about Dr. Casanova. This in turn led to research at the organization of former resistance fighters and survivors of the concentration camps where most of the material about this gallant dentist was uncovered.

DANIELLE CASANOVA (1909-1943)

Danielle Casanova was born Vincentella Perini January 9, 1909 at Ajaccio, Corsica. Her parents were both teachers. She went to grade school in Corsica then obtained a scholarship to go to high school in Marseilles before going to Paris where her brother was a journalist. There she entered the École Odontologique, one of the better ones of the five then existing in Paris.

Soon after her arrival in Paris in 1927 she became a member of the Union Fédéral des Étudiants, a leftist student organization, and participated in the Communist youth movement under the name of Lella (a diminutive of her Corsican name Vincentella). She became the secretary of the student organization of the Faculty of Medicine and secretary of one of the Communist Youth Sections. In 1932 she was elected to the Central Committee of Communist Youth. She was an ardent and active militant and headed a campaign to help the Spanish Republican children during the Spanish civil war. She herself participated in taking a convoy of supplies — mostly condensed milk — to Madrid. In 1938 she attended a World Youth Congress in New York.

This activity did not prevent her from leading a full professional life. In school she seems to have been a good student in class work but short on technical laboratory procedures. She practiced in a dispensary at Bellevoise, near Paris, and also at Villejuif, the latter now bearing her name. A Paris street also bears her name since 1944.

It has been advanced that she participated in a violent manifestation against the German occupation in Paris on November 11, 1940. However this is questionable for at that time the attitude of the Communist Party vis-a-vis the Germans was still that imposed by the conclusion of the German-Soviet pact of 1939. The French Communists were then in a very difficult situation caught as they were between patriotic French feeling.
against the Germans and their idealistic thinking inspired by the Soviets, then allies of the hated occupation forces. Thus the Communist Party of which Danielle was then an outstanding member did not enter into active hostility toward the German occupiers until June 22, 1941 when the Germans invaded Russia.

Danielle then had an unquestionably active role by participating in the formation of groups of French Tireurs et Partisans, the Communist guerilla partisan groups. She also directed the publication of a clandestine paper, \textit{La Voix des Femmes}. It was during a meeting with another resistent, G. Politzer — who was to be executed — that she was arrested February 15, 1942, by the Vichy police and then turned over to the Gestapo.

She was incarcerated at the Santé prison where she was questioned, tortured and kept in solitary confinement. She was then transferred to the Fort of Romainville where she organized a short-lived revolt. The director of the prison assured her that she would be the first to be chosen to face a firing squad the day that women would be thus executed. But she was to be deported to Auschwitz January 24, 1943 in a convoy of 231 women packed into cattle cars of whom only 40 would eventually return to France. On the eve of her departure she was able to write: "Victory is in progress . . . our beautiful France will be free and our ideal will triumph. We will never bow our head. We live only for the fight. The times we are living are grandiose."

At Auschwitz she was the camp dentist. In that capacity she was able to alleviate some of the suffering of fellow internees by obtaining some remission of the hard labor on the road, by getting some of them to work in the kitchens or workshops. Occasionally, she was able to obtain some scarce but much needed medicaments.

Typhus was rampant in the camp. She cared for and nursed her campmates and finally contracted the disease of which she died on May 10, 1943.

I have seen little mention of her husband, Laurent Casanova. He too was a militant Communist. He was mobilized at the outbreak of war (Sept. 1939) and was a corporal on the Maginot Line. He came on leave to Paris in March 1940 which was the last time he saw Danielle. He was taken prisoner at the fall of France in June 1940 and twice attempted to escape. He finally made it back to Paris in September 1942 and learned that Danielle was then at the Santé prison. It is not known what happened to him after that but it is most likely that he joined the Communist guerillas.

If we do not share Danielle's political convictions we cannot deny however that she was an idealist who gave all to her ideals. Surviving campmates have testified unanimously to her great devotion in helping her fellow sufferers as well as to her attachment to high humanitarian principles. She was a genuine patriot and an unquestionable heroine.

THE DENTAL MUSEUM OF STOCKHOLM, SWEDEN

Sharing quarters with the medical museum, the dental profession of Stockholm, under the competent curatorship of Dr. Otto Francke has built an outstanding display of the history of the profession. The building housing both museums dates from the early days of the 19th century, and although it presents the same appearance from the outside, the inside has been thoroughly modernized to allow for comfortable research in the well-stocked library or for ease of browsing through the exhibits. Situated at number 146 Asagatan, the museum has some excellent reconstructions of period dental operating rooms as well as an outstanding collection of old instruments and
equipment. Visitors are very welcome and the museum is open from 1:00 to 4:00 Monday through Thursday; Telephone 08-42-41-66 for further information.

The early 19th century building in Stockholm which houses the dental and medical museums.

A Swedish dental operating room in the days before electricity as displayed in the Stockholm dental museum.

W.D. MILLER AND THE BEGINNINGS OF OCCUPATIONAL HYGIENE IN DENTISTRY

— CHARLES B. MILLSTEIN, D.M.D., M.P.H.
Staff Associate, Department of Endodontics Forsyth Dental Center Boston, Massachusetts

W.D. Miller was the renowned American scientist who spent most of his professional life in Berlin, Germany. He earned his dental degree at the University of Pennsylvania in 1879 and his medical degree at the University of Berlin in 1887. Through his arduous bacteriologic research, he formulated the acidogenic theory of dental decay. He held a number of important positions one of which was as presiding officer of the Fédération Dentaire International from 1904 to 1907. He returned to the United States in 1907, at the age of fifty-three, to become the Dean of the University of Michigan Dental College. That summer his life was unexpectedly ended by complications arising from a ruptured appendix.¹

It was in 1891 and 1893 that W.D. Miller wrote two now forgotten articles in the Dental Cosmos. They were “The Disinfection of Dental and Surgical Instruments”² and “Asepsis and Antisepsis in Practice”? In the first paper he published the experimental findings of his one thousand tests using chemical antiseptics such as carbolic acid, trichlorphenol and bichloride of mercury for the cold sterilization of dental instruments. None of the chemical antiseptics met the requirements for a rapid, convenient and sure mode of sterilization. He also realized that the use of dry heat for disinfection required so much time that it was impractical. By using boiling water for three to five minutes, with one or two percent of sodium bicarbonate added to prevent rusting, he could sterilize the instruments both rapidly and effectively. This became the method of choice.

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Since he realized that the concept of bacteriology had not been universally accepted by the profession, his second paper in 1893 was a practical treatise that was to be used as a guide by the modern-thinking dentist. The first half of the communication gives definite instructions that take the reader step by step through the process of the care and cleansing of the dentist’s hands and nails before and after dental operations. The second half concentrates on the actual cleansing of dental instruments by first mechanically removing the visible infectious matter and then placing them into the boiling water and soda solution for three to five minutes. If the room temperatures became too intense during summer, he advocated substituting a cold sterilization method that consisted of a five percent solution of carbolic acid and lysol for thirty minutes. Sterilizing soiled napkins by boiling them in soapy water for ten minutes, discarding rubber dam after use, and sterilizing the patient’s drinking glass in three percent solution of lysol for twelve hours became prerequisites for good occupational hygiene.

These concepts are as valuable to us in dental practice today as they were a century ago. A modern day example of how these teachings are being followed is the recent article “Occult Blood Accumulation Under the Fingernails, a mechanism for the spread of blood-borne infections”\textsuperscript{4} which appeared in the Journal of the American Dental Association in 1982.

It was the few far-sighted dental scientists such as W.D. Miller who were responsible for the fine standards of hygiene our profession can be proud of.

REFERENCES
1. Thorpe, B.L., “In Memoriam, W.D. Miller,” Dental Brief, 12: 584-593, 1907

It has been well publicized that Dr. Robert Tanner Freeman was the first black person in the United States to earn a Doctor of Dental Surgery degree and that he graduated with Harvard’s first dental class in 1869. What has not been so widely circulated is that Harvard also graduated another black American in its second dental class. Dr. George Franklin Grant was graduated in 1870, thus becoming the second Black in America to earn the D.D.S. degree.

—From the Newsletter of the Society for the Study of the Negro in Dentistry, Foster Kidd, D.D.S., Editor and President.
To the Editor:

I enjoyed the April issue of the *Bulletin of the History of Dentistry* very much. I found especially interesting “The Rubber Denture Murder Case.”

If I am not mistaken, Dr. Taggart attempted to do somewhat the same with his casting process for the making of inlays. I can remember my father telling me about Taggart trying to collect from the dentists in Buffalo for the use of his investment, burnout and casting techniques.

Sincerely,
L. L. Mulcahy, Jr., D.D.S.
Batavia, New York

To the Editor:

A friend and patient of mine, Dr. Setrag Zacarian, a local dermatologist is writing a book on the history of anesthesia. He is having trouble locating any educational background information on Dr. Thomas Green Morton. When he asked me for help, I immediately thought of your organization.

I also saw this as an opportunity for us to properly present some of our proud historical heritage. Not being aware of what reference sources are available to the Academy, I thought you might be able to help Dr. Zacarian.

Sincerely yours,
Douglas G. Spink, D.D.S.
Longmeadow, Massachusetts

To the Editor:

I would like to become a member of the American Academy of Dental History. I have gotten your name from the top of the February Newsletter and would appreciate any information that you can provide me concerning membership. I have a collection of antique dental cabinets and membership in your group would be mutually beneficial.

Warmest regards,
Dr. Robert E. Davies, D.D.S.
Waukesha, Wisconsin
To the Editor:

I have found myself constantly referring to old issues of the Bulletin of the History of Dentistry. They offer a fascinating review of dental history and items of interest.

I wonder whether a jacket to enclose a number of issues has ever been offered to the Academy members, and if not, whether they are available? Sincerely,
Frederic P. Hollander, D.D.S.
New Britain, Connecticut

(Editor’s note: If there is sufficient interest in the idea, a handy plastic binder, which would hold about eight issues of the Bulletin, can be made available at a nominal price. Please address such letters to the editor.)

To the Editor:

Many thanks for the April issue of the Bulletin, which I always find so interesting. I do appreciate your keeping me on the mailing list. Although I am now nearly 91 I still retain my interest in the history of dentistry.

You will be glad to hear that we now have an annual lecture in Glasgow University — two on history and I think there is even one on Prevention, one of the branches of dentistry in which my late husband was particularly interested. He both wrote and lectured on the subject, but of course his main interest was the history of the profession.

I much enjoyed reading the biographical notes about Aletha Kowitz and I know she will make an excellent president.

With all good wishes and my thanks
Dr. Margaret W. Menzies Campbell
Glasgow, Scotland

To the Editor:

Very distinguished Sir and appreciated colleague. Before anything else I want to express my appreciation for your having sent me the Newsletter for February, 1984 and also for the April Bulletin. I appreciate also receiving the reprints of the article by Dr. Ben Swanson about my dental museum in Gandia.

I would appreciate it if you could send me several extra issues of that Bulletin so that I may display them in the showcases of the library of the museum.

Through our mutual friend, Dr. Swanson, I know also that you will be in London. I hope that if you travel in Spain you will come to Gandia to see the museum, for in Gandia you have a home as well.

Receive these lines with the cordial and warm good wishes from your colleague and friend
Pedro Borja de Guzman, Baron de Zafra
Gandia, Valencia, Spain

To the Editor:

I read and enjoyed your article on the Vulcanite rubber scam in the latest Bulletin When I saw the reproduction of the license to T.G. and A.C. Lewis, I couldn’t believe it was correct, as I knew my grandfather was in practice with his father, John, but not with any A.C. I checked the family geneology,
though, and sure enough, my grandfather had a brother Angelo Corrello Lewis — so that was answered. Could I have a reprint of the article? Thanks.

Sincerely yours,
T.G. Lewis, President
Buffalo Dental Inc.
Buffalo, New York

To the Editor:

I am in the process of completing my Ph.D. at the London School of Economics. The thesis is a comparative study of the professionalization process of dentistry in the UK, USA and France in the 19th century. I have a few points that need clarification and I am hoping that you will be able to help me with them. Perhaps you have the answers at your fingertips or possibly could direct me to articles or literature. I would be extremely grateful for any help that you can give me.

1. Why was it that the dentists in the 1860’s were able to introduce licensing and to establish Dental Boards at a time when both those of the medical and legal profession had been abolished, albeit some 10-15 years earlier.

2. Could you specify what the functions of the Dental Boards were in 19th century.

3. Membership of the Boards seems to vary by state. Do the Boards consist of dentists only, or a mixture of laymen and dentists? The literature seems a little unclear.

4. There seems to have been little concern to enforce the licensing regulations in the last century. Am I correct? I gather that the Dental Boards were not initially responsible for enforcing the legislation and that this responsibility was farmed out to educational, public welfare and legal bodies, but I am unsure as to where there were any cases of unlicensed practitioners being sued etc., i.e. how truly ‘closed’ was dentistry to the non-qualified after the introduction of the legislation.

5. Are there any figures on malpractice?

I need the above information rather urgently and would therefore appreciate an early reply. Many thanks for your help in advance.

Your sincerely,
Marlene Spero
10 Turner Close
London NW11 6TU
England

To the Editor:

We are pleased to inform you that our Company has just launched our Journal Subscription Services in the Philippines. We are still looking for more sources of journals in Dentistry and we are interested in including the above title in our list.

The market in the Philippines for journals in Dentistry is quite considerable. There are more than 10,000 active Dentists and 17 Dental Schools in this country. About 1,500 students graduate from Dentistry annually.

Besides selling by mail and door-to-door, we will also be participating in Congresses and Conferences of the different Dental Associations in the
country. We wish, therefore, to find out whether we can receive promotional materials and sample copies of the said title for this purpose.

Sincerely yours,
Deo C. Reloj, Manager
Eastern Book Service Corp.
Diliman, Philippines

To the Editor:

I noted in the April issue of the Bulletin that Dr. Asbell is seeking information concerning dentists and the Civil War. In his listing of the various dentists it states that John Stark King was a member of the Confederate Army. I have reason to doubt that.

In 1981 I authored The First Hundred Years: A History of the University of Missouri-Kansas City School of Dentistry. According to my research Dr. Stark, who was the first Dean of the Kansas City Dental College which opened in 1881, had been mayor of Independence, Missouri in 1862. During the war he was arrested as a southern sympathizer. Friends arranged an amnesty for him, and he spent the rest of the Civil War in South America.

In 1865 he made the first Vulcanite dentures in Mexico for the president of the country, for which he was paid $500 in gold.

Sincerely,
Howard H. Dukes, Sr., D.D.S.
Leawood, Kansas

To the Editor:

Presently I am engaged in research concerning the history of dentistry in the United States with particular emphasis on the Civil War period. The work performed and the advances in dental science by surgeons in both the Union and Confederate armies is of major importance in my treatment. The development and application of techniques and appliances during the period 1861-1865 is of very special interest.

According to reference sources I've consulted, it appears your library has existing historical holdings for this period. Do you have a printed listing of your collection in the Civil War medical/dental area? If so, how may I obtain such a listing?

I am also interested in any writings of, by, or about the following individuals:

James Bean (Atlanta)
Leigh Burton (Richmond)
John Greenwood (New York)
Horace H. Hayden (Conn.)
Thomas W. Evans (Phila.)

Thank you for your attention and consideration.
Chris J. Petersen, C.D.T.
San Rafael, California
When Josiah Flagg, one of America's great dentists of Colonial times took an ordinary Windsor chair and fastened to it a headrest of his own making he started what was to become a major trend in dentistry: specially designed equipment to make the work of the dentist easier and better and the lot of the patient more comfortable.

Pierre Fauchard, in his immortal classic *Le Chirurgien Dentiste* advised his colleagues that it was wrong to have the patient seated on the floor — as was the current mode — but instead should have the patient seated "... in an arm chair which is steady and firm, suitable and comfortable, the back of which should be of horsehair or with a soft pillow raised more or less according to the stature of the patient and particularly to that of the dentist." It took about a century for the profession to heed his advice, for the first chair truly adapted to the size of the patient and the comfort of the operator wasn't developed until 1832 when James Snell made one with an adjustable seat and backrest.

Dental equipment has become so much a part of the dentist's life that he scarcely gives much thought to its evolution and history. But it is through a study of this evolutionary development that we can gain an insight into the great changes that have brought dentistry from a trade plied by the charlatan in the marketplace to the position of eminence and respect it enjoys today.

Dr. Glenner has done an admirable job in showing us this development. An avid collector of pictures, drawings, catalogs and anything else pertaining to dental offices and dental equipment — he probably has the world's foremost assemblage of this material — he has shared a portion of this priceless collection with us in this handsomely produced book.
Published by the same firm that brought out Dr. Damann's very fine book on Civil War surgical and dental instruments, Dr. Glenner's book is a bargain for it is full of wonderful old photographs of dental offices from before the turn of the century as well as dozens and dozens of illustrations taken from old catalogs and advertisements. For one who has been in practice for a number of years browsing through this book is like a trip down memory lane. I found in it the first unit I owned, the wonderful cabinet with the amazing number of drawers and the three little glass-door cabinets on the top, the early Doriot handpiece with which I struggled to make my cavity preparations and the first turbine I owned — the Turbojet, run on water, a marvelous piece of equipment invented by one of our Academy members, Dr. Robert Nelsen.

Dr. Glenner has arranged his work into sections, each dealing with a particular aspect of the office, such as the interior furnishings, the dental chair, the unit and spittoon, the light and so on. Besides an abundance of wonderfully clear and sharp photographs, each section is introduced by a lucid discussion of the historical development of that particular segment of the office, which is at once entertaining as well as educational.

One doesn't have to be a dental historian to enjoy this book. It would be of interest to every practitioner of dentistry, and its low price brings it within reach of everyone. Its large format and clear illustrations make it eminently suitable as reception room literature since it can only help to acquaint patients with the strides dentistry has taken.

— Reviewed by Malvin E. Ring, D.D.S.
Batavia, New York


A tremendous amount of information on lead and lead poisoning has been compacted into this text. Perhaps more than most of us want to know, but certainly more than most of us can easily assimilate. The whole world of ancient times is covered, and information is provided both on the western world and the Orient.

Chapter One covers lore about lead and theories of its materiality. Passages from the classical literature and other anecdotes are quoted and the nomenclature of lead in many languages is discussed in depth. In this chapter too, the development of alchemy and its continued influence for so many years is presented along with the great influence of lead in alchemy. Chapter Two describes in detail prospecting for lead, mining procedures, and the handling and smelting of lead ores along with a discussion of the separation of lead and silver from their ores. The chapter on lead resources of the ancient world is more speculative, and is derived in large part from the literature of numismatics and from the documentation of the history of silver, since mining sites do not yield much archeological information as they necessarily are changed during the mining process. Another difficulty with the search for information in mining sites is that of location, as ancient geography was often vague, and place names were variously spelled so that it can be difficult to relate two different pieces of documentation, and places have disappeared. This chapter also includes archaeological discoveries and evidence of trade in silver and lead. Chapter Four presents resources and production figures for lead around the ancient world and a discussion of use.
of the metal. These include such mundane uses as lead water conduit or coins but also use as stationery, in architecture, and as standard weights. Much more detail on the use of compounds of lead is given in Chapter Five. The final chapter is the most interesting from the medical and dental point of view since it touches on the manner in which people were and are exposed to lead and its compounds, and the symptoms, effects, and therapy for lead poisoning. A section of this chapter presents the idea which has been put forth by historians that the Roman Empire fell at least partly because of the effects of lead poisoning on the aristocracy, and their consequent probable sterility.

The author is a geologist by training, and it shows in much of the text. Every historian of science, however, should know of the existence of this reference work whether he is a geologist, metallurgist, physician, or dentist.

It is not an easy book to read, partly because of the distraction of the many footnotes, and most readers will not peruse each chapter with equal interest. Each of the chapters has a list of hundreds of references which have been cited, and these are supplemented by an appendix which lists the ancient texts cited. Information once read may be difficult to locate since only the main discussion of a subject is indexed. The information which appears outside the major discussion is not included. This scholarly work is of great value to the historian, but more as a reference book than one to be read.

Reviewed by Lloyd E. Church, D.D.S., Ph.D.
Bethesda, Maryland

_Hunger Disease: Studies by the Jewish Physicians in the Warsaw Ghetto._

This book, well written and carefully edited, reports observations of the clinical, metabolic, and pathological consequences of starvation in the Jewish ghetto of Warsaw, 1940-1942. Organizer of the studies, Israel Milejkowski, was the physician in charge of public health in the ghetto. Calling upon the best medical minds whom the Nazis had sealed from the rest of the world along with several hundred thousand others of Jewish extraction, he produced a manuscript to which 28 physicians ultimately contributed. It was smuggled from the ghetto and prepared for publication by Emil Apfelbaum, who in captivity was the chief of cardiology at the Czyste Hospital, the largest and best known Jewish hospital in Poland.

The reported information is remarkable considering the deteriorating condition of those who garnered it, the dearth of hospital equipment, and the incredibly adverse circumstances under which it was obtained. Certainly, nutrition and medical science are indebted to the authors and their captive patients, who, cognizant of their inevitable demise, persevered in the project. Though studies of quantitatively food-deprived populations have been documented, notably by Keys and his co-workers at the University of Minnesota (1950), the Warsaw studies are unique in that they embrace a cross-section of a population being starved to extinction, rather than patients being semistarved and recovering from the effects. The two studies are complementary and together present a more complete picture of starvation than either project alone.

Human beings subjected for months and even years to an 800-calorie diet of "dark bread, rye flour, kasha, potatoes, traces of butter, lard, oil, sugar,
and a plateful of soup,” mostly carbohydrate and grossly vitamin deficient, are notably beset with insatiable thirst, polyuria, nocturia, diarrhea, dry mouth, rapid weight loss, and constant craving for food. Relentlessly deprived of two-thirds of the minimum necessary intake of calories, most of the 70 adults, 40 children, and some 30 private patients seen and studied in the departments of medicine and pediatrics at the Czyste Hospital, were in withering, premature aging stage of emaciation: skin dry and scaly, dark brown in color, the face resembling a mask, adipose tissue nonexistent. Perleche was observed in some, but surprisingly, the oral mucosa generally appeared normal. However, the tongue was almost invariably coated and elicited complaint of a burning sensation, the papillae atrophied, the surface smooth, in some cases pigmented a “dirty brown”. There was some gingivitis, due to poor oral hygiene, but no sign of scurvy; atrophied tonsils, but no tonsilitis. The lymphatics of the oral cavity were uniformly atrophied, but salivary glands were seemingly enlarged. The teeth were in bad condition, caries extremely prevalent with apical pathology; people as young as twenty years unable to masticate their food.

Osteomalacia and spontaneous fractures were frequent, and healing slow, though in children the bones appeared normal, without evidence of rickets. Vital organs and muscles were generally atrophied, flexors dominating over extensors at every age. Sluggish circulation, low blood pressure, and diminished cardiac output, were cardinal findings; hemoglobin somewhat reduced, but the ratio of blood volume to body weight increased, and anemia relatively rare. Body temperature was consistently below normal, fevers blunted. Marasmus edema, found in a third of the subjects, usually involved the abdomen, less so the extremeties, head or neck. Half were plagued by a pseudodysentery arising from edema and necrosis of the large intestine, apparently unrelated to edema elsewhere. Caseous tuberculosis was rampant, at times involving even the skin. However, the cooped and isolated population became immune to contagions such as chicken pox, measles, and scarlet fever as well as common allergic reactions.

Unprecedented observations included the dirty brown tongue and a syndrome of apical lung atony, muscle tone failure, and impaired ventilation. In addition to the clinical aspects, much of the work is directed to the metabolism, circulatory patho-physiology, blood and marrow changes, eye disturbances, and pathological anatomy of hunger disease, documented by test results, case histories, and postmortem findings. The book summarizes what is known, and much of what is yet to be learned or substantiated, about many aspects of the denial of nutrients convertible to energy, and the changes, physiological and pathological, that occur in the process of self consumption. It is a classic in its field, worthy of the attention of all health professionals and academicians in any way concerned with nutrition and its effects in health and disease.

— Reviewed by H. Berton McCauley, D.D.S.
Secretary-Treasurer,
American Academy of the History of Dentistry,
Baltimore, Maryland

Abnormal Aging: The Psychology of Senile and Presenile Dementia.

When greater than 7% of a country’s populace is over the age of sixty-five, it is classified as having an aged population. Geriatric percentages have
steadily increased because of a decreased fertility rate (nearly 15% of the child bearing adults in North America are infertile) and an improved medical prowess that is keeping people alive for a longer time. However, longevity has created certain medical, social and psychological dilemmas, not the least of which is the emergence of a significant number of diseases, which until now, were not too great a problem because of their late onset. Confusing the situation further is the assertion by some clinicians that at least some of these illnesses are abnormal manifestations of the aging process itself.

The term “dementia” implies that the patient has incurred a general deterioration in intellectual functioning. “Senile”, on the other hand, may signify either a general reference to aging, arbitrarily using sixty-five as the reference age, or may specifically describe a disease, notable by the presence of accelerated mental deterioration in an elderly patient. Dementia can be categorized as either “presenile” (pre-sixty-five) or “senile”. The presenile group traditionally includes Huntington’s Chorea, Alzheimer’s Disease and Pick’s Disease, while the senile group is limited to Senile Dementia and Arteriosclerotic Dementia. Regardless of the name all have in common a patient with cerebral atrophy who clinically manifests a progressive loss of recent memory, loss of intellectual learning, certain mood and personality changes, and various neurological signs.

According to the author, however, a diagnosis of “dementia” should be the result of information gathered not only from the traditional spheres of clinical medicine, radiology and pathology, but also after considerable psychological assessment. Yet psychological research in this area has been extremely varied and superficial, with few series of interrelated research results sufficient for a clinical basis of assessment. Thus, the underlying nature of the change that creates reduced intellectual powers, or the reasons for abnormal behavior patterns that bear little systematic predictability have escaped detection and possible utilization in management of the dementing individual.

Edgar Miller, himself a clinical psychologist and well aware of the “Catch 22” predicament his diagnostic demand creates, has written a carefully structured book, identifying the psychologic changes in dementia as well as the failings in investigative research that seem to leave, at present, very few questions satisfactorily answered. He predicts that the future management of these cases will center around the modification of the patient’s environment to better support his quality of life.

This is a book primarily written for psychologists. In fact, the final line is an appeal to his confreres to look “more closely than is usually the case” at dementia. There are many aspects of this text however, that would be beneficial for any health sciences practitioner who realizes that caring for our aging population is becoming an increasingly more frequent responsibility.

— Reviewed by John H. Gryfe, D.D.S., F.R.C.D.(C)
York Finch General Hospital
Downsview, Ontario, Canada


S. Josephine Baker, who is a physician, has written an exciting and powerful autobiography. Originally published in 1939 it was reprinted in 1980. A pioneer in directing the first Bureau of Child Hygiene in the U.S. which was
established in New York City in 1908, she realized from the outset that preventive medicine was the basic concept that had to be pursued in order to improve the health and life span of all infants and children living in a city in the twentieth century.

Baker graduated from the Women's College of the New York Infirmary which was founded by Quaker support and Elizabeth Blackwell. As a medical student Baker took a course on "The Normal Child" taught by Dr. Annie Sturgis Daniel to whom Baker's biography is dedicated. Dr. Daniel taught this course at a time when the emphasis was on the abnormal and diseased human being. Baker remained skeptical of the value of the course and failed it though lack of attention. Since it was a required course she repeated it and during her second exposure became thoroughly grounded in the physiology, anatomy, and psychology of the normal child and spent her career as a physician finding ways to introduce and promote preventive medicine programs to keep children normal. Her gratitude to Dr. Daniel remained undiminished to the end of her life.

In addition to her medical education Baker learned the immense value of managing colleagues, staff, politicians and patients in her efforts to halt epidemic diseases and teach everyone the merits of a satisfactory diet and cleanliness. Her exposure as an intern to unusual disease carriers such as Typhoid Mary demonstrated the unusual resourcefulness she would display all her life in accomplishing the unexpected in public health reform. Baker took on all health related challenges which beset the growing population of New York City and conceded one failure — the lack of effectiveness of school medical inspection programs. However Baker credits daily school inspection as the method which allowed the New York City schools to stay in session during the flu epidemic of 1917 without spreading the disease among the children. New York was the only city school system to remain open during this epidemic. Baker singles out the dental hygiene program as being especially inconsequential in preventing tooth decay among school age children and adults. The toothbrush and lessons on how to use it had little effect, she felt, on the incidence of tooth and gum disease.

Baker's successes were numerous and included a wide range of methodological and scientifically grounded endeavors. Among them were programs that resulted in reducing the paper work related to data gathering by her staff; improving the skill of the midwife through enforcement of laws; discovering that abandoned babies survive better when cared for in foster homes rather than when left in foundling hospitals; modifying a system of preparing milk for infants to provide them with germ free milk; and constructing a program of teaching young girls who had to care for younger siblings how to do their tasks in a sanitary, psychologically sound and healthful way. Each of these programs is deeply entrenched in modern American society today; however their roots go back to the early twentieth century when the planning and scheming of a dedicated woman physician in her capacity as public health bureaucrat brought them into reality.

Described with wit, clarity and honesty, Baker's career offers clues to the organization of medical care in larger American cities during the first half of the twentieth century and the roles which outstanding women practitioners followed as pioneers in the development of state medicine. Baker's description of a three month trip to Russia in 1934 points up the progress made in Russia and the U.S. toward major reforms in preventive medicine and medical care for infants and children. It is a compelling book to read.
in this period when state supported health programs are being reviewed and scrutinized.

— Reviewed by Audrey Davis, Ph.D.
Curator Medical Sciences
Smithsonian Institution
Washington, D.C.


When the dust jacket of a book pronounces “the need for radical revision in the history of ancient medicine — bound to create controversy . . .” and is written by a Classicist, three questions leap to mind: Does the author achieve his purpose? Does the work contribute to academic learning? Is it of value to the readers of the Bulletin?

Wesley Smith looks upon his work as a contribution to the long preface of a learned work — a prolegomenon. The book achieves what it sets out to achieve — controversy. It may lead the unwary into depths which should be avoided. If the audience hoped for by the author is a broad one, then is it wise to announce in the preface “scholarship can become the factory of evidence for the current faddish view.” The author admits his work is “constructively intellectual” and “highly speculative.” It constantly appears that there are too many blanks in the Hippocratic story; in spite of the 50 references in the Bibliography.

There are two ways to approach this work. If one is a time-absorbing post-graduate, with no concern for tomorrow’s medicine, he should start at the beginning. But if one is a historian who has need to evaluate the past, only because of concern for the future, he should start at page 177.

Professor Smith insists that the book is intended for those already well informed on the Hippocratic Corpus. The section before page 177 will tire the reader. It is a veritable flood of references, becoming an academic exercise. Popping up throughout the text are the academic signals of the lecturer, rather than the writer.

The discussion of the Dogmatics, Empirics, Methodists, Pneumatics, would have gathered in the broad audience if Professor Smith had enlarged on the views of each. In the current need of the healing arts, it could have been a help to enlarge on the statement, if true, that Hippocrates (who was a student of Democritus) — “first separated medicine from philosophy.” With this statement the author starts another hare running. First of all it is questionable. However, if it is true, then we ought to be sorry that it happened so early in the history of our profession. Asking the right questions is part of tomorrow’s world.

Wesley Smith’s account of Galen presents a picture that makes it surprising that medicine has the reputation it has today. Is the man who became the standard of medicine for fourteen centuries the conceited man presented? Nevertheless, a flash of the stature of the man appears. Galen’s extensive training in philosophy made him peculiarly capable of contributing to discussion of the important philosophical questions of the day: how is the universe constructed and does it have a purpose; how should we describe the nature of the human soul and what is its relation to the body; what makes the body work and where is its controlling factor?

The real importance of a book lies with the overall contribution it makes to the central question of our time — what is the destiny of the human race?
Here we return to what the dust jacket said — "focuses on the ways of thinking and talking about medical history."

There is a magic about Hippocrates and Plato. I think the author, a Classicist and not a physician, could have made more of Plato and the Phaedrus. Socrates wrote nothing; Plato did the writing. How about Hippocrates? Why are there virtually no students of Hippocrates on record? (Incidentally, the principal quotes from Plato, pages 44 and 48, are missing from the index).

There is a feeling that Wesley Smith has written a 'pot-boiler' when he produces four different 'firsts' in the field of recording Hippocrates: Bacchius was the "first person known to have dealt with the works of the Corpus." Apollonius — "Earliest extant commentary." Dioscorides and Artemidorus — "First scholarly editions". Capiton — "First scholarly literary editions of Hippocrates."

For those who have the time, there is plenty to occupy them in this book. A study of the many aspects of Galen's life requires a lot of patience since he is described as giving a "precocious and selective interpretation of Hippocrates"; that is, his own version of the Hippocrates' science.

To return to the dust jacket, which is what the book-shop browser will read — "... it suggests the need for the radical revision in the history of ancient medicine." I think it leaves the reader with too much work to do. But that may be the objective.

— Reviewed by James M. Dyce, D.D.S., L.R.C.P., L.D.S.
London, England

Beyond Sixty-five: The Dilemma of Old Age in America's Past.

The premise of this research study is that "over the course of a century demographic and economic realities have combined with professional policies to enforce the powerlessness of old age. Once over sixty-five, most persons are bureaucratically characterized as diseased and dependent". In the introduction the author discusses classification of persons, and assigns to persons over 65 the term "superannuated." She goes on to present a picture of the older person in colonial America who generally lived in a rural setting. Those without family or means lived on charity; they were either boarded out or placed in almshouses. Early in the 19th century America began to change to an urban society and industrialization came at a faster rate than before. Now there was the need to care, not only for the destitute, but also for the middle class aged who could not support themselves in old age. Provisions for the aged introduced at this time were homes for "aged gentlewomen," and later for "aged gentlemen" and couples.

About this time, too, the author contends, the medical profession came to the realization that it could not return old persons to the vigor of their youth or middle age, that the physiological state of the aged was different from that of youth or the middle aged and that the "vital energy" with which each person was endowed at birth could be used up by the age of sixty. The aged were treated as though aging was a pathological disease, and as if they needed separation from the rest of the community. This viewpoint was reinforced by professional social workers, and led to more and more institutionalization of the elderly. The evolution of pension plans from the earlier charitable inclinations of employers again reinforced this view of the elder-
ly, and by the turn of the 20th century the idea that a person who was old was virtually useless to society, was imbedded in the American way of life. Early in the 20th century it was obvious that the elderly were removed from industrial society by the combination of benevolent asylums, pension plans, geriatric medicine, and sweeping age-based regulations.

This study reads as though there is no other side to the story. It takes no account of the fact that at least some of this outlook on aging is the result of the individuals themselves. Apparently no thought was given to the many individuals who by their own choice have been old, and no thought is given to those who by their own choice have stayed young by continuing to be active even though they have been forced by society into the economic world of the elderly. The point is made and repeated that homes for the aged set the age of admission at 65. Apparently, the author has not worked in the field of homes for the aged when it is necessary to convince a person that just because he or she is 65 is not reason to enter a home.

This reviewer would like a study including the other side of the story of aging. The book provides much information, and much food for thought. It is ponderous to read and one sided in its choice of material but perhaps that was forced on the author by her graduate school.

—Reviewed by Aletha Kowitz, M.A.
President, American Academy of the History of Dentistry
Chicago, Illinois

Internal Medicine for Dentistry. By Louis F. Rose and Donald Kaye.
1427 pages, $43.95, St. Louis, C.V. Mosby, 1983.

Congratulations are in order to the authors and the C.V. Mosby Company on the issuance of this book. This effort will most certainly rank as number one in every category of book production. Finally, after years of neglect, there is now a book dealing with internal medicine and its relation to dentistry. The authors, along with one consulting editor, twelve section editors and 164 contributors have compiled a monumental classic. Each of the sixteen sections has its own editor, illustrations and bibliography. Dental considerations are presented at the end of each organ system, and on every page in every chapter, one will find useful information. This book is an excellent source of reference regarding the dental relationship to diseases of the various systems. It provides the main information relevant to internal medicine and, where appropriate, the oral manifestations and dental management of patients with medical disorders. This is a text that should be on the desk of every dentist, no matter what his specialty. It is an outstanding contribution to dentistry and to dental publications.

—Reviewed by Lloyd E. Church, D.D.S., Ph.D.
Bethesda, Maryland