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Active and honorary members of the American Academy of the History of Dentistry receive the Bulletin as a consequence of their membership. The subscription price for all others, domestic and foreign, is $10.00 per year. Foreign subscriptions must be paid for in United States funds. All copies sent to foreign countries by surface mail only. No arrangements can be made for air-mail delivery.

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The Bulletin is published semi-annually in April and October
ISSN: 0007-5132
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The American Academy of the History of Dentistry, a not-for-profit
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tistry, 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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LETTERS TO THE EDITOR  
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THE NEW PRESIDENT
of the American Academy of the History of Dentistry

CLIFTON O. DUMMETT,
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Professor of Dentistry, University of Southern California, Los Angeles, California.

An alumnus of Northwestern and Michigan universities, Dr. Dummett is a Diplomate of the American Board of Periodontology and a Diplomate of the American Board of Oral Medicine.

In 1947, he was appointed dean of Meharry's School of Dentistry, becoming, at 28, the youngest dental dean in the United States.

At Elmendorf Air Force Base, Anchorage, Alaska, he was chief of periodontics and oral medicine, preventive dentistry officer, and consultant in periodontics to the Alaskan Air Command.

Dr. Dummett was a member of the Committee on Dental Health of the Commission on the Survey of Dentistry in the United States, and wrote Special Studies, Number 14, Dental Health Problems of the Negro Population.

He was the ADA delegate to the National Citizens Committee for the World Health Organization in 1953; U.S. Vice-President and Host Representative to the 1962 Concurrent Technical Sessions on Dental Health of the International Conference on Health and Health Education; ADA representative to the 1963 Caribbean Dental Convention; the first Jamaica Dental Association Conference in 1965; ADA representative and principal clinician to the Australian Dental Association, N.S.W. in 1979.

In 1967, at the request of the Office of Economic Opportunity, he was appointed Dental Director of USC's South Central Multipurpose Health Services Center, and as professor of dentistry initiated the Department of Community Dentistry. In 1968, he was appointed Associate Project Director and Health Center Director of USC's Health Services Center, thus becoming the first dentist in the nation to be appointed head of one of OEO's Neighborhood Health Centers.

He was president of the International Association of Dental Research (1969); member Executive Council, American Academy of Periodontology (1969); president and chairman Board of Directors, American Association Dental Editors (1974); chairman, Dentistry Section, American Association for the Advancement of Science (1975); president and chairman Board of Directors, Los Angeles Dental Society (1977).
Honors include 1962 Wm. J. Gies Editorial Award; honorary member ADA 1969; 1971 Alumni Award of Merit, Northwestern University; 1976 Alfred C. Fones Award; 1976 Distinguished Service Award AADE; appointment as sole dentist to President’s Committee on National Health Insurance, 1977; 1980 Pierre Fauchard Gold Medalist.

In 1972, he was elected to the Institute of Medicine, National Academy of Sciences and has served as a member of the IOM’s Executive Council, Program Committee, Membership Committee, and the Committee on International Health.

We are indeed fortunate to have such an outstanding member of our profession as our new president!

One of the great dental editors of the past was John H. McQuillen who held that important post for many years managing the fortunes of the Dental Cosmos, long the world’s most influential dental publication. His editorials generally dealt with the great problems facing the fledgling dental profession: ethics; advertising; improperly trained practitioners. But he also had time to write simple advice, as witness this editorial in the Cosmos, Vol. 7, No. 10, May, 1866.

THE ATMOSPHERIC ODORATOR.

In the practice of dentistry a number of articles are, of necessity, in daily and constant use, which are calculated to impart to the atmosphere of the operating-rooms a very unpleasant, and, to many patients, an exceedingly disagreeable odor. Creosote, iodine, ether, etc. are among this number; and it is a duty that a professional man, as a gentleman, owes to refined and sensitive patients that they should have the least possible cause of annoyance or complaint in this particular. Such agents, when not in use, should be kept in tightly ground-glass stoppered bottles and under cover. To neutralize their presence in the room after being used, due attention should be paid to ventilation; by throwing open the windows, back and front, for a few minutes after exhibiting ether, much of the unpleasant odor of that material can be removed. The presence of bouquets of flowers in the rooms during the warm months, in addition to giving evidence of taste and refinement on the part of the occupant, will also impart to the air a delightful odor well calculated to obviate the unpleasant evidences that might otherwise prevail of the drugs referred to. In the wintertime, or when it is difficult to procure flowers, an instrument named “The Atmospheric Odorator” will be found of decided use. It consists of a short glass tube, placed at right angles with a longer tube. The end of the long tube is placed into a bottle of perfume, and the breath of any person, on being blown sharply through the short tube, will convert a few drops of perfume into thousands of minute particles, impregnating the surrounding atmosphere with fragrant odor. Attention to little matters such as these will not only evince a proper regard for the comfort of patients, but will also be duly appreciated by them.

J. H. M’Q.
Talma — The Dentist Who Became the Greatest French Actor of All Time

—Jacques Fouré, D.S.S.
Neuilly, France

Francois-Joseph Talma, the son of a dentist who also began his career as a dentist in both London and Paris, gave up this calling to go on the stage. A close friend of the Emperor Napoleon, Talma has been considered as the greatest actor France ever produced. Although he died in 1826, his grave in the Pere Lachaise cemetery in Paris is beautifully cared for, and even to this day is visited by hundreds of theater-loving enthusiasts.

The greatest French actor, perhaps of all time, began his career as a dentist. His father was a dentist as was his uncle and nephew.

Francois-Joseph Talma, who was to be called "The Immortal Talma", was to bring renewed luster to the French theatre and revolutionize the costume and the technique of acting on the French stage. He was to associate with the great men and women in the world of science, art and politics during the troubled period of the revolution and the reign of Napoleon.

Francois-Joseph Talma was the sixth of thirteen children born to Michel-Francois-Joseph Talma and Anne Mignolet. However, as was frequent in those days, only five of them survived through childhood. Francois-Joseph was born in Paris on January 15, 1763. His parents had come to Paris from the provinces where Michel hoped to improve his lot. He had become the valet of a wealthy Englishman, Sir Oliver Clinton, then later his confidential employee. But his ambitions led him to aim for a still higher situation. When he realized the possibilities that Pierre Fauchard had recently brought to the practice of dentistry, he became interested in the profession and was determined to enter it.*

FATHER AND SON BECOME DENTISTS

With the help of his employer he was able to undertake the study of dentistry, and when Sir Oliver returned to England he decided to follow him. The Englishman generously established him in practice in the heart of aristocratic London and, with his backing and recommendations, Michel soon acquired a thriving and fashionable practice. It is uncertain exactly when

*Pierre Fauchard (1678-1761), author of Le Chiurgien Dentiste ou Traite des Dents, commonly considered the 'Father' of modern dentistry. His son, Jean-Baptiste, was also to become a famous actor under the name of Grandmesnil, the name of his father's estate. Through the common profession of the fathers Jean-Baptiste and Francois-Joseph had an early and long relationship.(1)
Michel went to London; probably about 1768. In his well documented paper on the Talma family, R.A. Cohen locates him first at 55 Compton Street, Soho, then later at 13 Cavendish Street, where he seems to have been from 1770 to 1806.

In the meantime Francois-Joseph had been left in school in Paris. When he was sixteen his father had him come to London where he could work with him and obtain training in dentistry; he could then take up what Michel considered a lucrative profession.

Sir Oliver Clinton, Michel’s benefactor, was not only a wealthy baronet. He was also a cultured gentleman, member of the “Literary Club” where in the company of men such as Boswell, Fox, Johnson, Burke and Nugent, some of the most brilliant conversations of the eighteenth century were held. Sometimes Sir Oliver, who appreciated Francois-Joseph’s intelligence and quick and open mind, would take the young man to the meetings where he was enthralled by the discussions. Poetry, novels and the theatre were amply covered. As for the theatre, much was being made of the trend away from the stuffy dramas of Lillo and Moore to return to Shakespeare and the magnificent proliferation of plays of the Elizabethan era which David Garrick had revived. Garrick had died in 1779, but Fanny Kemble and Mrs. Siddons had continued his work, and the audiences were struck by the power and the simplicity of their art.

Theatre Vies with Dentistry for Talma’s Attention

Francois-Joseph became fascinated by the theatre and instead of concentrating on his father’s teachings, on the works of Fauchard and de Lacluse or on A Treatise on the Disorders and Deformities of the Teeth and Gums, (London 1768) by Thomas Berdmore, the dentist of George III, his thoughts wandered to the stage, to the talents of the actors, to their costumes and to the stage settings. He neglected his work and was being absorbed by a new vocation.

His father finally yielded to Sir Oliver who took the young enthusiast to Drury Lane and the Athenaeum. Since Sir Oliver was encouraging and advising the young man in what the father considered a “detestable” path, how could Michel oppose the wishes of his benefactor to whom he owed his establishment and the best part of his practice. Thus Francois-Joseph, assured of strong backing, was soon convinced that he was ready to go on the stage.

There was at that time in London a group of French actors who, together with some amateurs, were producing plays in a West End theatre and enjoying a certain vogue. They were greatly appreciated by the fashionable set, and the Prince of Wales, the future George IV, was delighted to come and would often lead the spectators in the applause.

It was with this illustrious public that Talma obtained his first outstanding success in the role of Othello. When later he was to refer to this episode he would add that “following this, Lord Harcourt, who had been struck by my possibilities, went to see my father to the end of engaging me for the English theatre. spoke English well enough to consider such an undertaking. However, particular circumstances turned me away from this project.” What these “particular circumstances” were remains uncertain but it is most probable that serious discord developed between his father and mother, which resulted in her return to Paris; Francois followed her.

Talma Resumes Dental Practice in Paris

He was now obliged to return to a reliable means of livelihood. His uncle, Michel’s older brother Philippe-Francois-Joseph Talma, who enjoyed a good
dental practice, took him in as an associate and for some time he resumed his first calling. The home had thus been broken up but Francois-Joseph main-
tained a correspondence with his sister who had remained in London, Anne-
Gertrude, so-called "Manette." In a long letter dated March 6, 1782 (and reproduced in extenso by R.A. Cohen) she tells her brother, among other things:

"...papa requests me to tell you that as you behave towards him he will behave towards you; thus my dear I see that your fate is in your hands and I advise you to not let it escape. He would like you to do what you can to get teeth for him, and if you can, enter the room of the dead to take advantage of it; if this is not possible you must try to make the acquaintance of the brother who is guardian of the said room and request him to get some for you that you will pay the big incisors and the little laterals papa paid them to his predecessor 12 (pounds?) the hundred the canines.

Don't forget... the small molars when they will be beautiful and white but much cheaper than the others." (Italics in the original.)

From across the Channel, Michel would send his son his recommend-
dations and advice:

"Your letter, my dear son, is badly written and without order and you tell me of none of the things of which I spoke. You tell me that you do well and that your masters are pleased with you. I desire it so; but as long as I only hear this from you it will not suffice for me to believe it. You do not tell me that you bleed, something you should have learned the first year. You tell me that you will be able to go to camp this summer; and how do you expect to have the employment if you do not know how to bleed?"

Francois-Joseph seems to have somewhat reassured his father. Early in 1786 Michel, continuing to give advice, wrote to say that he was happy to know that his son was following his counsels. He told him that he was pleased that he had been appointed a dentist to the Duc de Chartres* but insisted on the fact that it was an honor without much advantage if he was obliged to reside in the Duke's palace (Palais Royal).** However if there was no such condition in the arrangements he admitted it could later be to some advantage. And the father pursued:

"It is not titles which create confidence and talent but many years of prac-
tice. At your age only a known address can recommend you. You hope, you say, to have many foreigners (as patients) because they are abundant at the Palais Royal. Again you are wrong. Perhaps you may have a few but these and the title will not outweigh the advantage that is offered to you by the house and location of rue Mauconseil (the uncle's address); and do not fool yourself in thinking that it would be your shop sign and title that would engage strollers in the Palais Royal to come to you. Only your talent will entice them to have their mouth worked on."*

THE PULL OF THE STAGE TOO STRONG

Young Talma had not abandoned his thoughts of the theatre for all that, and at night would learn and practise the great classical roles: Britannicus, Cinna, Oedipus and others. In June, 1786, the Ecole Royale Dramatique was created. Losing no time, in July he gave up dentistry to enroll in it and to study with three of the outstanding teachers of the period, Mole, Fleury and Dugazon.

---

*Duc de Chartres, cousin of Louis XVI and one of the highest ranking personalities of the kingdom.

**Palais Royal, so called because Louis XVI lived there for some time. He later gave it to his brother, Philippe d'O Orleans. In 1780 the Duc de Chartres, always in need of money, undertook a vast real estate operation and on three sides of the garden built flats and shops. The neighborhood became a fashionable and favorite strolling ground.
Michel at first strongly objected to this decision. He fulminated and, as befitted the times, sent his maledictions. But realizing that he could no longer oppose his son's desires he finally gave in and sent him the wisest of advice; "If I opposed your project it is because I was aware of the consequences; for unless you become a Garrick, a Dufresne, a Lakain or a Mole (the greatest English and French actors of the period), all you will accomplish will be to vegetate, always unhappy and little thought of by the public."

François-Joseph was to remain in the school for 22 months until May 31, 1788. Soon he began to act in the small but highly reputed Theatre Doyen. Then on November 21, 1787 he tried out for the royally subsidized and most eminent Comédie Française, where he was admitted to play third parts. As the French revolution approached Talma embarked on his theatrical career. Two events served to project him literally to the front of the stage.

First-day cover of French postage stamp issued to honor Talma, June 10, 1961. It shows him in the role of Orestes. It is affixed to a post-card bearing Talma's portrait.
First of all the initiative he assumed in "reforming" the costumes. Until then actors played their parts in their contemporary costumes and not in that of the character depicted. For instance the role of Nero would be played with a wig, knee breeches and buckled shoes. During his stay in England, Talma had been struck by the changes that had taken place on the English stage. With the help and advice of his friend, the painter David (who was later to become the official painter of Napoleon), he designed costumes so that he could appear on the stage to play the role of the Roman Proculus dressed in a toga, with Roman sandals and no wig. He was strongly criticized by some but highly praised by others. This was a first step in depicting more realistically the characters portrayed.

The second was the role he was to have in the creation of the play "Charles IX". As the revolution threatened, J.M. Chenier, whose ideas were considered radical, had written this work. The theme of it was the massacre of the Protestants at the time of the wars of religion during the reign of Charles IX. This atrocity had been ordered by the king's mother, Catherine de Medicis, on August 24, 1572. In the context of the current politically critical period, this play gave ample pretext to criticize the royalty as well as the clergy. During the troubled times they were going through, none of the principal actors in the troupe was willing to assume the role of the unpopular Charles IX. Talma, then still playing only minor parts, agreed to do so, and thus was able to show off his new-found talents. The play was immediately banned by the authorities but Mirabeau, one of the influential political leaders, arranged to allow it to be played in spite of the interdict. In the political climate of the time the actors were violently divided in opinion. Talma found himself the victim of the dissension and excluded from the troupe. However, following violent protests by the would-be patriots during and after stormy performances, Talma was recalled and found himself the great winner.

Endowed with a handsome physique, a powerful stage presence and an exceptional talent, Talma possessed an enormous popular appeal so much so that he would later be called the "Great" or "Immortal" Talma. As a young dentist he had already been described as "a handsome boy with a narrow waist, a Caesarian mask and mat complexion, dark brown hair, abundant and silky, with beautiful dark eyes, ardent and expressive, alternately tender or terrible."

TALMA ESTABLISHES SOCIAL LIFE

In spite of his success Talma, who was a free spender with fastidious tastes, was always in financial difficulties. His marriage to Julie Careau on April 19, 1791 came at an opportune time as she brought a sizeable dowry and a beautiful townhouse in rue Chantereine. Ten days later she was delivered of twin boys, Henri-Castor and Charles-Pollux, who were both to die young. Three years later she gave birth to another boy, who died when twelve days old.

Julie, seven years older than Talma, had also been an actress. Her talent on the stage was mediocre, but she possessed other attributes which had been appreciated by wealthy noblemen who had generously contributed to her welfare. The Comte de Segur had bought her the mansion where she entertained our impecunious hero. Her social life had been very full and she continued to use her charm and influence to receive all those who could be useful to her husband. Poets, artists, authors, painters, scientists and politicians were pleased to come to the rue de Chantereine.

As Talma gained assurance, he aspired to change the repertory of the
French theatre and to produce the plays of Shakespeare. Hamlet, Macbeth, Othello and King Lear had recently been translated — as would other plays later — and Talma produced and played them. The great momentum to his career had now been given.

**TALMA’S RELATION TO NAPOLEON**

Talma had met Napoleon Bonaparte, the young and poor general. Bonaparte had often come to the Talmas. A kindred taste for the dramatic arts had brought them together. Endless discussions about the antique world took place. They also compared the relative merits of the great classical French playwrights such as Corneille and Racine. Talma lent his new friend books from his library and also gave him free tickets to the theatre.

As the friendship between Talma and Napoleon increased, his relationship with Julie was fast deteriorating; they separated in 1795. Strangely, when Julie was obliged to sell her mansion on the rue Chantereine, one of her friends, Josephine de Beauharnais, bought it. It was there that Josephine and Bonaparte, then Commander in Chief of the Army of Italy, were to spend their first days of marriage. Talma often came back to his old home as a guest of the general whose star was rapidly rising. During the dinners the conversation often dwelt on the subject of the arts and Bonaparte freely gave his opinion on the new trends in the theatre which Talma was exploiting to the full.

When Bonaparte became First Consul he moved to the more spacious and beautiful “Malmaison” outside Paris. There he had a special room installed where theatrical performances could be given and, as a pastime, his guests, who were the leading personalities of the regime, would participate as actors in amateur performances which were directed by Talma. Bonaparte also encouraged professional theatrical tours in the provinces in order to promote the French theatre. As his ascension continued so did Talma’s, and when in 1804 the Empire was proclaimed and Bonaparte became Napoleon I, the “Comediens Francais” became the Comediens de l’Empereur”. The Tuileries Palace in Paris then was to be Napoleon’s residence and he again created a theatre where he lived. Talma was commissioned to put on numerous performances in which he played.

**TALMA’S STORMY MARITAL LIFE**

Divorce in France at the time of Talma’s separation from Julie was practically impossible due to religious dictates in spite of the revolutionary trends. But during his Consulate, Napoleon had a law passed which facilitated divorces. Thus in obtaining a means of freeing himself from Josephine, Napoleon gave Talma the possibility of divorcing Julie and marrying again.

Julie had long been aware that her husband was having an affair with Caroline Vanhove who would become his second wife. And Caroline in turn would one day have to put up with Madeleine Jacqueline Bazire who came into Talma’s life in 1811. Madeleine actually lived in the same house with Caroline for two years before Talma and Caroline were officially separated in 1815. Madeleine, who became his third wife, was to remain with him until his death and long outlive him. Two boys, Alphonse-Alexandre and Paul-Louis, would be born of this marriage (1814 and 1816) and were to have honorable but unspectacular careers in the army. A girl, Virginie, was born in 1823 and died at the age of three.

The handsome Talma was very sensitive to feminine charms and being married did not prevent him from having numerous extramarital love affairs. Illegitimate children were the result. Some of Talma’s mistresses have been identified but the trace of many has been lost. Among the better known was...
the beautiful but fickle sister of Napoleon, Pauline, Princess Borghese. The liaison lasted for some six months. When their affair ended Pauline asked Talma to destroy her letters — they were prolific writers in those days — which he did. But his own passionate letters still exist.

**DEATH OF TALMA, LOYAL TO THE STAGE TILL THE END**

These years were to see the apogee of both Napoleon’s and Talma’s careers. Talma’s creative genius was at its height and when he was not performing on the Paris stage he was enjoying an immense success on provincial tours or producing command performances before Napoleon, his staff and his guests as the Emperor traveled over Europe waging battles or drawing up treaties. In 1805, in Holland alone, Talma and his wife Caroline, who was also an actress, gave twenty-five performances. In September 1808, when Napoleon was to meet the Czar of Russia, Napoleon called upon him to perform, with the promise that he would have “an audience of kings”.

If Talma had not been a model husband or father, nor always a considerate lover, his sentiments and his loyalty to Napoleon, who was banished in 1815 and died in 1821, never wavered to his dying day.

Only his failing health obliged him to curtail his activities. He was tired and distressed by intestinal disturbances. Finally he was forced to cease acting as his presence on the stage became untenable. He played for the last time June 13, 1826 in the role of Charles VI, his latest creation. As his health worsened repeated bleedings and enemas did not help improve his condition. As one of his physicians, Doctor Tauchon observed, “...the great trouble for Talma was that he had many doctors attending him.” He died October 19, 1826 probably of cancer of the intestines.*

Thus ended the life of a dentist who had become the “king” of the French stage. As he himself once said: “One of the misfortunes of this (dramatic) art is that it dies, so to speak, with us. The other artists leave monuments in their works; the talent of the actor, once he has left the stage, remains only in the memory of those who have seen and heard.”†

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*Among the doctors who attended Talma during his last illness was his nephew, Amedee-Jules-Louis Francois, son of his sister Anne-Gertrude. Amedee first became one of the outstanding dental practitioners in Brussels then obtained a medical degree in 1819. He adopted the name of the Talma family after his uncle for whom he had a great attachment.(4)

†Among the doctors who attended Talma during his last illness was his nephew, Amedee-Jules-Louis Francois, son of his sister Anne-Gertrude. Amedee first became one of the outstanding dental practitioners in Brussels then obtained a medical degree in 1819. He adopted the name of the Talma family after his uncle for whom he had a great attachment.(4)
REFERENCES


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Wilhelm Conrad Roentgen
and other X-ray Pioneers

—OTTO C. FRANKE, L.D.S., F.I.C.D.
Stockholm, Sweden

After Roentgen made his epochal discovery of the X-ray, other intrepid pioneers refined and expanded the technique of intra-oral radiography. This is an account of their work and the problems that beset them, as well as their unfamiliarity, in the beginning, with the damaging effects of radiation.

When Wilhelm Conrad Roentgen late in the evening of November 8, 1895, made his discovery, it meant a revolution in science as well as in medicine. At that time Roentgen held a professorship in physics in Wurzburg, Bavaria. The Medical-Physical Society in Wurzburg was chosen to receive his brief Vorläufige Mitteilung über eine neue Art von Strahlen, dated December 28, 1895.

Roentgen had a German father and a Dutch mother and was born in Len- nop, Germany, not far from Cologne. When he was three years of age, his parents went to Holland and his father renounced his Prussian citizenship.

Roentgen went to school in Utrecht. When he was a pupil in the gymnasium he was expelled from school because of a conflict with a teacher. This implied that he never became an undergraduate, and in the future this would give him some trouble. He then went to Zurich, Switzerland, where, at the age of 23, he got a diploma in mechanical engineering, a profession that had very little attraction for him.

He then became an assistant to the famous physicist August Kundt at the University of Zurich. When Kundt became a professor in Wurzburg, Roentgen followed him.

In Wurzburg Roentgen tried to qualify as an associate professor. He failed because he had never become an undergraduate. When, later, Kundt moved to Strassburg, he demanded that his pupil, Roentgen, be employed as an assistant. In Strassburg, Roentgen succeeded in becoming an associate professor and in 1879 he was appointed professor of physics in Giessen, in the State of Hessen.

In 1888 Roentgen was in the enviable situation of being able to choose between two professorial chairs: one in Utrecht and one in Wurzburg. He preferred the Wurzburg one because it had a better equipped physical laboratory as well as the fact that his Swiss-born wife did not speak Dutch.

While in Wurzburg, and in the months before his discovery, Roentgen was engaged in research on cathode rays and had had a considerable scientific output. He had become a Dean at the university, and his laboratory experiments had to give way before his administrative duties.

THE DISCOVERY OF X-RAYS

Nevertheless, late in the evening of November 8, 1895, he was in his laboratory, together with a technician named Marstaller. The actual experiment concerned electrical discharges in gases and the room was in complete darkness. Suddenly Marstaller noticed that a piece of paper, coated with barium platinocyanide, had started to glow, and he drew Roentgen’s attention to the phenomenon. Roentgen was puzzled, but, after awhile, the methodically-working scientist started to act. Since his actual experiments dealt with the nature of cathode rays, he connected a so-called Lenard tube.
(The German physicist, Lenard, had proved that an aperture in the glass wall covered by aluminum left the way free for the cathode rays and this aperture is called 'Lenard's window'. In 1905 he won the Nobel Prize in physics.)

Because of his knowledge of cathode rays, Roentgen at once understood that the distance between the Lenard tube and the paper was too great for the Lenard tube to be the origin of the rays. The radiation must have come from

A rare photograph of Wilhelm Conrad Roentgen, inscribed and autographed by him just before he died in 1922. It was given by Roentgen to Professor Gosta Forsell, the Grand Old Man of Swedish radiology. (Photo courtesy of the Museum of Medical History, Stockholm.)
another source. Roentgen had noticed that a so-called Crooke’s tube was plugged into the circuit. By moving the paper and putting himself between the paper and the Crooke’s tube, and switching the tube on and off, Roentgen reasoned that some sort of radiation emanated from the tube, and that it was able to make the paper gleam in the darkness.

An interesting, but puzzling, problem presented itself. When he reached for the paper he saw a peculiar black line moving in the same way as he moved his own hand. Roentgen at first had no explanation of this most unexpected phenomenon. Roentgen then asked the physiologist, Professor Fick, to come over from the neighboring department. At first glance, Fick was able to tell Roentgen that this was a picture of the bones in his arm. A new kind of ray was born!

Roentgen remained all night in his laboratory. When one of his assistants arrived early in the morning, he complimented his superior on having arrived for work so early. Then he was informed about the strange things that had occurred during the night.

This is the classic outline of the discovery, somewhat abbreviated. It has to be considered that Roentgen was fairly reserved and laconic; during the days immediately after his findings he limited himself to answering questions only from colleagues and journalists. On the other hand, there is evidence that he became quite upset. The source for this is his adopted daughter Donges Roentgen. She has related that late in the evening her father rushed into the family flat and, in a tone of excitement, asked the 14 year old girl for her mother. She overheard a dramatic dialogue behind closed doors and when she asked what this was all about she got the answer that she would be informed in due time.

Roentgen made his first report of his discovery on December 28, 1895. On January 11 he sent reprints to his colleagues all over the world and on February 5, 1896, the Vienna newspaper, Die Presse, was the first daily paper to supply the world with news about the new rays. The news had now become known both to the scientific world and to the public at large.

The report itself is strikingly brief and at the same time very thorough, for during the night Roentgen had determined that the rays were without thermal effect, interference, magnetic declination or reflection. And, for his own epoch-making discovery, Roentgen, in 1901, was awarded the first Nobel Prize in physics.

KOENIG, AN EARLY PIONEER

One of the first to make dental X-rays was not a dentist. Professor Wilhelm Koenig of Frankfurt, Germany, in February, 1896, made a series of 14 dental radiographs. To his surprise, Koenig found that the rays were able to penetrate the jaws and to make the roots of the teeth visible. He also found that there was a relation between the thickness of the bone and the ability of the rays to penetrate. He was the first to be confronted with the difficulty in getting a correct picture of the teeth of the upper jaw. He found it easier to make X-ray pictures of the lower jaw. (However, for Roentgen the easiest part of the body to radiograph was the hand and so the first X-ray picture ever made was taken by Roentgen himself of the hand of his wife.)

Koenig’s equipment was quite simple: a so-called Hittendorf tube, an induction coil and a battery. Koenig found that if, instead of hitting the glass wall, he allowed the cathode rays to be reflected by a sheet of platinum set at an angle of 45°, the result was not only a harder, but also a more focused, radiation.
Koenig also recounted some of his practical experiences. He mentioned that the head of the patient had to be well fixed. In order to keep the film, wrapped in black paper, in proper position, he used his forefinger, but pointed out that the operator should avoid letting his own fingers produce irrelevant shadows on the film. The time of exposure suggested by Koenig was markedly shorter than that given by other X-ray pioneers. This was because Koenig managed to concentrate the rays by means of the sheet of platinum mentioned above.

WALKHOFF, A PATHFINDER

At that time there was in Braunschweig, Germany, a professor of chemistry and physics named Giesel. He had worked together with Otto Walkhoff, a dentist in that city. These two gentlemen together had carried on some research concerning the influence of cathode rays upon phosphorescent substances, and for that purpose had used a Hittorf tube, similar to that used by Koenig. As soon as Roentgen had published his discovery, Giesel began to make X-ray pictures of different objects, among them a canary. This picture was published in the Leipziger Illustrierter Zeitung.

This gave Walkhoff the idea to ask Giesel to make a radiograph of his, Walkhoff’s, molars. This was made only two weeks after Roentgen’s publication. The time of exposure was 25 minutes! In an article in Correspondentz-Blatt fur Zahnarzte in 1928, Walkhoff said that those minutes were a torture to him. Later, by using an improved Hittorf tube similar to that of Koenig, he managed to take pictures on his own. During a session of the Central Association of German Dentists in April, 1896, Walkhoff demonstrated a series of pictures. But the audience was skeptical. One of the dentists present agreed that the whole thing was most interesting, but added that he very much doubted this procedure could ever be introduced into dental practice. Furthermore he averred that the long exposure time, together with the high expense of the equipment would act as a deterrent. This dentist was concerned about the long time of exposure in relation to the loss of time in the office; the radiation risks were not known at that time.

Unconcerned about this lack of enthusiasm, Walkhoff continued his experimentation, and in April, 1898, succeeded in making extra-oral pictures, using exposure times of half an hour! However, he did notice loss of hair on the side which had been radiated among some of his patients.

UNHERALDED BRITISH PIONEERS

Across the Channel in the British Isles was William Crookes (later to be Sir William), who in the late 1860’s had become interested in the behavior of objects in a high vacuum. He had costructed the original vacuum tube, known as the “Crookes tube” and, in 1879, the result of his work was made public. Crookes spent all his time on his newly discovered “radiant matter” and its behavior within the tube. Crookes was not aware of the wonderful effects produced outside the tube. Nevertheless, it was William Crookes who was responsible for the “cathode rays” originating from the negative terminal of the vacuum tube; thus he prepared the ground for Roentgen and deserves recognition as one of the X-ray pioneers.

In January 1896, only two months after Roentgen’s initial report, an English dentist, Frank Harrison, reported to the British Medical Association that he had made a special vacuum tube for dental purposes. On June 26th he again appeared at the annual meeting of the Midland Counties Branch in Sheffield, and demonstrated what he called a “cryptoscope” for dental in-
vestigations. In the *Journal of the British Dental Association*, 1896, he wrote that he "... was gratified to see the first image of roots of the teeth gradually develop in the negative". It must be stressed that Harrison worked without any knowledge of Walkhoff’s procedures. Working independently, Harrison was considerably ahead of Walkhoff. Harrison’s exposure times were 25-30 minutes to start with, but soon he succeeded in reducing them to 10 minutes. He also made X-ray pictures in which pulp cavities were distinctly visible. And as early as July, 1896 — two years before Walkhoff — Harrison reported injuries because of the radiation.

THE CONTRIBUTIONS OF C. E. KELLS

In the United States of America one X-ray pioneer ranks above all others: C. Edmund Kells. Kells’ first confrontation with X-rays was through mediation of a daily newspaper. At that time he was a private practitioner in New Orleans and 40 years of age. He was struck with the idea that it might be possible to adapt Roentgen’s work to the oral cavity. Soon after reading the article in the newspaper, he was present at a demonstration of the new rays and witnessed an exposure of the human hand. He took steps to get the necessary equipment: a Tesla coil, a Crookes tube and an electrical machine. He soon was confronted with the difficulty of keeping the X-ray film immovable during the long time of exposure. Being inventive by nature, he prepared a filmholder of vulcanized rubber with impressions of the patient’s upper and lower teeth, and fitted it with a pocket for the film, thus making it possible for the patient to breathe and also to swallow, while holding the film immovable. This procedure was time-consuming, so Kells made his filmholders from impression compound, and these could be made in only a few minutes. The photographic material was made either of glass plate or film, that the operator had to cut himself and then wrap in black paper and cover with rubber dam.

In the beginning Kells did not try out his X-rays on patients; one of his female assistants served as the subject. The assistant sat in a chair, with her head resting against a board in order to keep it still. Years later Kells wrote that this board probably had protected the girl from radiation injury. Kells carried out these investigations in April, 1896, only a few months after the publication by Roentgen.

It is easy to imagine his enthusiasm; all these wonderful things had come out of his hands. He looked forward to the moment when he would be given the opportunity to demonstrate his findings to a professional audience. This occasion presented itself in the summer of 1896 at the annual meeting of the Southern Dental Association in Asheville, North Carolina. Kells had to bring his own equipment, nothing of the sort being available in North Carolina. He brought with him a hand-held fluoroscope and also an assistant with an individual filmholder.

The meeting was held during daylight hours at the Battery Park Hotel, which was supplied with electric current in the evenings only. Kells consequently had to provide himself with electricity. It was noised among the laymen staying at the hotel that an X-ray machine was installed there. Non-participants invaded the meeting, insisting on having a look at their hands. The meeting was a shambles and far from a serious demonstration.

EARLY PROBLEMS ENCOUNTERED

An X-ray exposure today is a fairly simple procedure. But three quarters of a century ago this was not an easy task. One of the problems was that the
evacuated tubes, holding a pressure of one millionth of an atmosphere, had
difficulty maintaining this pressure. The degree of vacuum was lessened
because of a few remaining air molecules adhering to the glass wall. In order
to restore the original degree of vacuum, an alcohol lamp was put under the
tube, thus forcing the molecules to leave the glass wall. Tubes with a com-
communicating pipe were also made, the pipe containing potash. When the pipe
became heated the potash was gasified and the degree of vacuum increased.

Another problem was that the tubes had a tendency to become red-hot
because of the bombardment of the cathode rays. The remedy was to connect
a pipe containing a circulating stream of water. Cooling air flanges were also
used for the purpose. In site of all these precautionary measures the operator
always ran the risk of having his tube punctured. A tube could last for several
months or for a few hours only! A vacuum tube was not cheap — the cost was
at that time about $45.00 which was a considerable sum of money!

Another procedure that the operators in those days had to deal with was
to time and temper the tube in order to make it ready for use. The constant
changing of the vacuum produced a need to set it before use. This was done
by means of the fluoroscope, since no meters of any kind had yet been devised
of even thought of. The accepted method of timing was to take up the
fluoroscope with the right hand and to put the left hand in front of it. The
machine then had to be moved until the bones in the operator's hand were in
full view. Then the patient could be placed in the chair and the exposure
made. This rather crude way of timing belongs to a very early period of
roentgenology. At the turn of the century so called "penetrometers" replaced
the human hand.

The first radiographs were made with any tube available, and much of
the early work was done with batteries to supply an induction coil — a
Ruhmkorff for example. Even where electricity was supplied from a power
station, it was direct current. A coil cannot transform low-voltage from a direct
source unless some device is provided to produce an alternating current. Two
significant developments appeared on the market: the mercury turbine, or
mercury interrupter, and the Wehnelt interrupter. In the mercury one, a
motor-driven turbine wheel was used to make and break a mercury contact.
The oxidation of the mercury surface, however, continually produced shut-
downs in this kind of interrupter. The Wehnelt variant was a far better solu-
tion. A conducting plate and a sharp conducting point were both immersed in
a bath of acid. When the primary circuit switch was closed, a current passed
through the acid between the plate and the point. Hydrolysis at this point
produced a non-conducting hydrogen bubble which broke the circuit. Con-
duction was immediately re-established by the collapse of the bubble and the
cycle was rapidly repeated.

When a dentist today takes an X-ray, the only sound comes from the
timer. During the early years there was the noise from the interrupter, the
hum of the coil and the crackle from the sparks as they crossed the adjustable
spark gap.

LEARNING OF THE HAZARDS OF RADIATION

Finally, a few words about the recognition of the hazards of radiation. As
time passed, dentists became aware of the danger. Operators were alarmed at
what appeared to be an inflammation of the skin. At first it was supposed that
this dermatitis, resembling a burn, was caused by the electricity. Because of a
series of experiments carried out by a Dr. Kienbock of Vienna, it became clear
that the X-rays themselves were the cause of the so-called "X-ray burn". In
order to protect the patient as well as the operator, the tube was put into a lead-leather container and the operator started to wear ordinary rubber gloves and aprons. Kells, however, did not believe in the efficacy of rubber gloves, and to prove it he made an X-ray of his hand with the glove on and got a picture where the bones were quite visible. Tubes made out of lead-containing glass were also manufactured.

To us it is obvious that it was the extremely long time of exposure, combined with the accumulative effect and the use of the fluoroscope that caused the damage. The title of one of the saddest books ever printed is *Ehrenbuch der Roentgenologen und Radiologen aller Nationen*. In it are listed all X-ray operators from the early days until the nineteen thirties who have died because of their dealing with the dangerous rays. The cover is black. Among them is the American pioneer, Kells. In his last article, written in a New York hospital, he wrote: "When I think of the thousands of suffering patients who are benefited every day by use of X-ray, I cannot complain. That a few should suffer for the benefit of the millions is a law of nature."

REFERENCES


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How a Dental Museum —
Built and Staffed by Dental Students —
Helps Generate Interest in Dental History

—WILLIAM R. NORDSTROM, D.D.S.
Colby, Kansas

Dental students, led by a far-sighted faculty member, secured funds for, built and operated a dental museum, using a gross anatomy laboratory as its site. The experience of this group provides guidelines for others interested in developing similar projects.

It has been stated that dentists tend not to be culturally minded. Whether this is inherent in the type of individual choosing to enter the profession of dentistry, or a behavior learned once one has entered the profession is debatable. The curricula of most dental schools reveal a general lack of interest in using dental history as an aid in developing superior dental practitioners. Thus it would seem that dental schools are in part responsible for the initiation of, or the perpetuation of, a culturally deficient environment.

Evaluation of funding appropriations for space utilization of most dental schools shows there is a common trend to reduce or abandon all "non-essential" items. The focus is on "drill and fill". The author's survey conducted in March and April, 1982, showed that the majority of dental schools have no active museums; further, most schools lack a specific dental history course (Table 1).

TABLE 1.
Summary of Survey of 59 U.S. and Canadian Dental Schools.

<table>
<thead>
<tr>
<th>Active Museums</th>
<th>Limited Exhibits and Displays</th>
<th>Specific Dental History Courses</th>
<th>Teaching Dental History as a Component of Another Course</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Schools</td>
<td>6</td>
<td>20</td>
<td>14</td>
</tr>
</tbody>
</table>

Things are different in Nebraska! This is a young school compared to older dental schools, such as Baltimore's or Harvard's. Nebraska's had its beginnings in 1899 when it was called the Lincoln Dental College. In a catalog from the early 1900's of the Lincoln Dental College a reference was found to a "dental museum", specifically a large collection of instruments. Unfortunately, this collection was "picked apart" during the various moves which the College made between 1910 and 1930. To date, no portion of this collection has ever been recovered. A history of dentistry course was initiated in the early 1900's, but was completely eliminated from the curriculum in 1976 as "non-essential". Thus, it is quite easy to see the slowly progressing erosion that has taken place at Nebraska.

In 1976, Dr. Stanton Harn, gross anatomy instructor for the Department of Oral Biology, started the College of Dentistry Museum. It was founded with three ideas:

1. It would cost the College and University no money, since all monies and items would be received as donations.
2. It would cause no space problems for the College in terms of storage or display.
3. It would utilize dental students as the work force on a volunteer basis.

As a student, the author had the opportunity to work with the museum for three years, and had been the "student curator" of the museum for two years.

The initial plan was to avoid causing a space problem for the College; therefore a space had to be searched out which could be rearranged at special times during each academic year. The only area in the College which offered such flexibility was the gross anatomy laboratory (Figure 1).

The gross anatomy laboratory at the College of Dentistry, U. of Nebraska Medical Center.

The plan was to have the museum open for viewing twice each year: once at Homecoming, in October, and again during Commencement, in May. In this way the museum could cater to the greatest influx of people associated with dentistry as well as of the College of Dentistry, while providing ample opportunity for the students, staff, and faculty to view the exhibits. The plan for the first Homecoming showing, in October 1978, was to have a display of two period offices.

For many people the thought of having these exhibits in an anatomy laboratory was less than appealing! However, with time and planning, any negative thoughts were overcome. Partitions — constructed of 2 x 2's and one-half inch plywood covered with brown laboratory paper — and chalkboards, masked most of the laboratory from sight. The ventilation system also proved adequate in maintaining a pleasant atmosphere. Therefore one was hardly aware that he was in an anatomy laboratory. Highlights of the second showing were four period offices of the 1900's through the 1930's, as well as several other exhibits.

It soon became apparent that the use of the partitions with the brown paper, while inexpensive, detracted from the presentation. During the follow-
ing summer several students designed, constructed, and painted a system of moveable partitions. Particle board with 2 x 4’s for reinforcement provided the needed strength and stability for hanging heavy dental equipment, such as x-rays and wall-mounted handpieces. Additional money was made available through donations to purchase a large display case, which was placed in the hallway for public viewing. Two older display cases were also refinished and security-proofed to minimize the risk of loss of items, some of which had been stolen from earlier displays.

With the third showing of October 1979 there was a radical change for the better with new, white, walls to display the period offices (Figure 2). Special displays commemorated past presidents of the Nebraska Dental Association and a Hall of Fame of Nebraska dentists.

In May 1980 the Nebraska Dental Association (N.D.A.) held its annual meeting in Lincoln, Nebraska. The N.D.A. invited the museum to display an exhibit. In response, several students, utilizing their own pick-up trucks, set-up a 1920’s office exhibit for this meeting.

In the summer of 1981 following summer clinic, the author spent all his afternoons working in the dental museum. Some of the accomplishments were:

1. The wallpapering of two of the period offices (It is our intention to someday have period wallpaper, rugs, and other appropriate furnishings for the office exhibits).

2. A history of the University of Nebraska College of Dentistry, which was published in Kodak’s Dental Radiography and Photography.3

3. The procurement, cataloging, and restoration of many pieces of furniture and dental instruments.
4. A pictorial history and dialogue of the two social dental fraternities which were active in Nebraska (Delta Sigma Delta and Xi Psi Phi).

At the present time, we continue to strive to improve our five period office exhibits as well as work to develop new exhibits and improve earlier ones. Our museum continues to be a rather small-time operation, with emphasis placed on its utilization in education. We can never be a Smithsonian. But while the Smithsonian displays one superb office — that of Dr. G. V. Black — we can display five period offices and show the changes in the practice of dentistry through the years. Of course, our displays do not compare in quality with the Smithsonian's.

It is our hope to eventually expand the museum by featuring earlier offices, and perhaps someday find a permanent home.

As a senior dental student about to graduate, I was able to reflect on my education. I realized that space is a precious commodity for our school and most other dental schools. But I also believed that it was most unfortunate not to utilize a museum. And I felt it even more important that a course on dental history was essential as a learning resource. It is vitally important that the past be preserved!

As a student, my knowledge of dentistry had been enormously expanded through my experience with the dental museum. It stimulated a feeling of school pride in both students, faculty and alumni. Without such a facility as a dental museum, few students in future programs will have the opportunity to "touch" the roots of their profession. It is also to be hoped that more dental schools will reinstate, expand or institute courses in dental history.

The basic things which any institution interested in developing a museum must evaluate are:

1. Space — areas in the institution must be carefully evaluated to see if adequate space exists for both storage and display of museum items.
2. Interest — is there sufficient interest on the part of the student body and faculty to initiate and utilize a museum as an educational tool?
3. Implementation — can funds be secured by donations and can these be increased as interest grows?

The potential is unlimited! All it takes is determination, interest and imagination!
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The author wishes to express his special thanks to Dr. Stanton Harn of the University of Nebraska Medical Center, College of Dentistry, for his encouragement and support in the preparation of this paper.

A slightly different version of this paper was presented by the author at the annual meeting of the American Academy of the History of Dentistry at Kansas City, MO in October, 1981.

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THERAPEUTIC APPLICATION OF X-RAYS.

The therapeutic application of the rays in dentistry is still in its infancy, though there have been sufficient scattered reports of good results to justify its consideration. The author has seen marvellous results in the treatment of sarcoma of the bones and the sinuses of the face; and pyorrhea of the antrum that resisted all the other forms of treatment, including repeated curette and drainage, get well under the influence of the rays. A single case may be briefly reported. The patient was a woman, aged 47, who was referred to by the author, Dr. A. H. Cleveland. She had suffered with suppuration of the left antrum for three years, had had a tooth removed for drainage, and had the antrum curetted and irrigated repeatedly without success. Her antrum was treated with a penetrating light (Benoist 6) for fifteen minutes at a distance of 10 inches, using the leather filter repeatedly described. The treatment was administered three times a week, and seventeen treatments in all given within six weeks, at the end of which time she was well, and she has remained well for the past two years.

Pyorrhoea alveolaris has been treated with success. Dr. Weston A. Price made an excellent report upon this subject before the Cleveland Dental Society on January 4, 1904.

From a speech by G. E. Pfahler, M.D., of Philadelphia before the Pennsylvania Dental Society, June 30, 1908 as reported in the Dental Cosmos, September, 1908
The son of English immigrants, Norman W. Kingsley was born on October 2, 1829, in Stockholm, New York. He attended classes at Troy Academy in the winter of 1848. When the family moved to Pennsylvania that year, he entered dental practice in the office of his uncle, Dr. A.W. Kingsley of Elizabeth, New Jersey. Four years later he opened his first office in Oswego, New York.

Early in his career Kingsley became interested in the rehabilitation of cleft palate patients. In 1859 he fabricated his first obturator using an artificial velum of soft vulcanized rubber for cleft palate closure. He devoted much of his professional career to helping those unfortunates stricken with this congenital deformity and for that was lauded by both the medical and dental professions.

During the period between 1865 and 1866 he organized the New York College of Dentistry, of which he was Dean and Professor of Dental Art and Mechanism for three years. He served twice as president of the New York State Dental Society, which he helped found in 1868. He was a member of many dental societies some of which were the American Dental Society of Europe, the Odonto-Chirurgical Society of Scotland, the Odontographic Society of Philadelphia, and the International Medical Congress in London.

Dr. Kingsley was a prolific writer having authored over one hundred articles. His most extensive writings dealt with the subjects of orthodontics and cleft palate prosthetic corrections and therapy. From 1872 to 1876 Kingsley extensively investigated the causes of such irregularities and, in the process, collected all related materials printed up to that time. He then standardized the methods of procedures in the first book to be published containing information on this advanced specialty of dentistry.

This landmark work, *A Treatise on Oral Deformities* was published in 1880, having taken ten years of exhaustive research. It was the first textbook ever published on the scientific treatment of irregularities of the teeth. The book contains numerous designs of all metal fixed orthodontic appliances, and many tissue-borne vulcanite appliances, the forerunners of today’s ‘Hawley’ appliance, and other forms of passive and active mechanisms.

Kingsley dealt extensively with etiology, diagnosis and treatment and emphasized the importance of a clear understanding of basic principles as related to the biological and mechanical phases of orthodontics.

He discussed at length extraction of teeth, both justified as well as unjustified, and illustrated appliances for that purpose. Part two dealt with "Palatine Defects" both congenital and those acquired as a result of disease or trauma. He also described a number of splinting procedures for the immobilization of various kinds of jaw fractures. Most noteworthy were his means of splinting for the gradual reduction of displaced segments wherein fibrosis or partial union had occurred. He described and illustrated numerous designs of external prostheses for the artificial replacement of eyes, noses, ears
and sections of the face. He also described and illustrated a series of "superimposed profile charts" with angulations oriented similar to today's cephalometric roentgenogram.

In all there were over 350 illustrations, hand drawn mostly by Kingsley himself. This influential work was later translated into German and had a profound effect upon all later writers on the subjects of orthodontics and cleft palate therapy. It is small wonder that Kingsley has been universally recognized as the "Father of Modern Orthodontics."

Kingsley died on Washington's birthday in 1913. The life and works of this pioneer genius and progenitor were universally praised. A glowing tribute was made by Dr. Calvin S. Case, himself a giant in orthodontics and cleft palate therapy, when he said: "The longer orthodontia is practiced, the more respect the author has for the general teachings enunciated forty years ago and published in his inestimable text by that most ingenious man of his day, Dr. Norman W. Kingsley."

The following selection is taken from Chapter 10 of Kingsley's book _A treatise on Oral Deformities as a Branch of Mechanical Surgery_, New York, D. Appleton & Co., 1880. The chapter is entitled "Treatment of Acquired Lesions of the Palate."

Any unnatural opening from the oral to the nasal cavity which will permit the free passage of the breath will impair articulation. Any appliance which will close such passage, and can be worn without inconvenience, will restore articulation.

Obturators were formerly made of metallic plate, gold or silver being most commonly employed, and many ingenious pieces of mechanism were the result of such efforts; but latterly vulcanized rubber and celluloid have almost entirely superseded the use of metals. These substances have been found preferable to metals, being much lighter and more easily formed and adapted, particularly when of peculiar shape.

From the preceding history of obturators we see that the makers have in most instances sustained the apparatus by passing into or through the opening, and by pressure upon the surrounding tissues. As early as 1756 Bourdet recognized the impropriety of such a procedure, for he says: "Before considering the cicatrazed perforations of the palate as being of a nature incapable of diminishing in diameter, practitioners should satisfy themselves thoroughly and beyond a doubt that such is the case. We do not think that this condition of permanency can exist, for positive facts attest the contrary; and as holes made in the cranium with the trepan close almost entirely, in like manner those of the palate constantly diminish."

Numerous examples might be adduced to prove the impropriety of sustaining an obturator by any fixtures which act upon the lateral parts, as they necessarily tend to increase the dimensions of the opening in the palate. In a case recently in the author's practice, the patient closed a small perforation of the hard palate with a wad of cotton, the swelling of which tended to enlarge the opening and necessitated a still larger plug, until the entire roof of the mouth and teeth were carried away, leaving but a narrow rim along the alveolar border. Cases have also occurred in the author's practice where palatine openings, resulting from disease, have been carefully bridged over with a plate without entering the perforation or cavity; healthy granulations were stimulated, and the opening eventually closed, thus doing away with the necessity of an obturator.

It is of the greatest importance that all such instruments should be executed in the most perfect manner, and made to fit accurately all the parts with which they are to be in contact, so that they may not produce the slightest irritation or exert undue pressure upon any of the surrounding parts. This is even more essential than in fitting denture in a healthy
mouth, as in the latter case the tissues recover their tone often in spite of the irritation of a badly fitting denture; but, in palatal lesions resulting from disease, the system is generally in such condition that a slight irritation may be followed by alarmingly inflammatory symptoms.

In simple perforations of the palate, a plain plate of vulcanite, celluloid, or metal, covering the gap and fitting close to the adjacent palatal surface, without any attempt to enter the opening, and sustained by the natural teeth, is all that is required. Fig. 171 represents such an obturator, sustained in its place by impinging upon the natural teeth with which it came in contact. Accuracy of adaptation and delicacy of form are all that are essential in such cases, and restoration of the speech will immediately follow.

Fig. 171.

Fig. 172.

Fig. 172 represents a more complicated obturator, adapted to an opening in the soft palate. The necessity for variation in the plan will be found in the constant muscular action of the soft palate, which would not permit without irritation the presence of an immovable fixture. This is contrived, therefore, with a joint, which will permit the part attached to the teeth to remain stationary, while the obturator proper is carried up or down as moved by the muscles. The joint, A, should occupy the position of the junction of the hard and soft palates. The joint and principal part of the appliance is made of gold, the obturator of vulcanite. The projection B lies like a flange upon the superior surface of the natural palate and sustains it; otherwise the mobility of the joint would allow it to drop out of the opening. It is readily placed in position by entering the obturator first, and carrying the clasps to the teeth subsequently.

Figs. 171 and 172 will illustrate the essential principles involved in all simple obturators. The ingenuity of the dentist will often be taxed in their application, as the cases requiring such appliances all vary in form and magnitude.

The steps to be taken in the formation of an obturator are not unlike those used in making a base for artificial teeth. It is essential that an accurate model be obtained of the opening, the adjacent palatal surface, and the teeth, if any remain in the jaw. For this purpose, an impression taken in plaster is the only kind to be relied upon. Care must be used that a surplus of plaster is not forced through the opening, thus preventing the withdrawal of the impression by an accumulated and hardened mass, larger than the opening through which it passed. To avoid this, beginners or timid operators had better take an impression in the usual manner with wax. If this is forced through, it can be easily removed without injury to the patient. From this wax impression make a plaster model, and upon this plaster model form an impression-cup of sheet gutta-percha, using a stick, piece of wire, strip of metal, or any other convenient thing for a handle. This extemporized impression-cup must not impinge upon the borders of the opening, neither should it enter to any extent. With a uniform film of soft plaster, of from one sixteenth to one eighth of an inch in thickness, laid over this cup, a correct impression can be taken without any surplus
to give anxiety. If the desired obturator is to be only a cover of the opening, the impression can be readily taken in plaster by placing a small bit of damp paper over the opening, which will adapt itself to the border of the cavity and prevent the plaster from entering it.

Upon a correct plaster model, taken from such an impression, the obturator should be molded out of gutta-percha or other plastic substance; the subsequent steps being in principle the same as making any other piece of vulcanite. If it is desirable that it should enter the perforation to restore the lost portion of the palate, it must not protrude into or in any way obstruct the nasal passage. The entire freedom of the nasal passage is essential to the purity of articulation. That portion of the obturator which occupies the oral cavity should be made as delicate as possible, consistent with its strength and durability.

There are many cases of accidental lesions of the palate, generally the result of syphilis, where the loss is confined entirely to the posterior part of the soft palate, and where an obturator would be inadmissible, or at least objectionable. In such a case an unyielding appliance is undesirable; the constant activity of the surrounding parts might not tolerate it without discomfort. The material used for a substitute should be soft, flexible, and elastic; and elastic rubber is admirably adapted to the purpose. (Where there is) a defective palate belonging to this class, the uvula and a portion of the contiguous soft palate (have been) destroyed by disease . . . a portion of the soft palate along the median line remains, and consequently there will be considerable muscular movement, which must be provided for, and which may be taken advantage of. It is desirable to make this movement available in using an artificial palate, as thereby more delicate sounds are produced than otherwise. This case presented some extraordinary difficulties in the fact that all the teeth of the upper jaw had been extracted; and it was necessary therefore to adapt a plate which should not only sustain the teeth for mastication, but bear the additional responsibility of supporting the artificial palate.

In the choice of material best adapted as a base for teeth in such instances, it is preferable to choose that which will prove the most durable. There are too many interests involved to risk the adoption of anything but the best. In the case under description the patient desired duplicates, and two sets of teeth were made, one on gold and the other on platina, with continuous gums. The plates were made like other sets of teeth, with the exception of a groove located on the median line at the posterior edge, to receive the attachment for the palate marked C, in Fig. 174, which shows the set of teeth with palate attached. The wings, marked A and B, are made of soft rubber; they should be made about one line in thickness in the central parts, tapering off and thinning out to attenuated edges wherever the edge comes in contact with soft tissues. But, in an emergency, pieces of the proper shape might be cut from sheet rubber. The objection to the latter plan is, that the edges are not so delicate nor so comfortable as when the flaps are especially made. The frame to support them is made of gold, with a joint to provide for the perpendicular motion of the natural palate. When the artificial palate is in use, the joint and frame immediately contiguous lie close to the roof of the mouth; the rubber wing A bridges across the opening on the inferior surface or side next the tongue.
The wing B bridges across the opening on the superior or nasal surface, and is also prolonged backward until it nearly touches the muscles of the pharynx when in repose. Both these wings reach beyond the boundary of the opening, and rest on the surface of the soft palate for a distance of from one eighth to one fourth of an inch, thus embracing the entire free edge of the soft palate. This last provision enables the natural palate to carry the artificial palate up or down, as articulation may require.

When the organs of speech are in repose, there is an opening behind the palate sufficient for respiration through the nares. When these organs are in action, a slight elevation of the palate or a contraction of the pharynx will entirely close the nasal passage and direct all the voice through the mouth. The palate thus becomes a valve to open or close the nares, and will be more useful when made with thin, delicate edges, which will yield upon pressure. An instrument thus made will restore, as far as possible by mechanism, the function of the natural organ. No attempt need be made to restore the form of the uvula; nothing would be gained by such an effort, as its function in articulation is doubtful.

(In) a more extensive palatine defect, the entire soft palate is gone, together with a small portion of the hard palate at the median line. Although this defect is greater in extent, the means for its remedy are more simple. The muscles of the palate are entirely gone, and consequently no perpendicular movement need be provided for. The appliance in this case will resemble an elastic obturator more than the valve-like palate of the preceding one. The principle here adopted is substantially that recommended by Mr. Snell fifty years ago, and subsequently used by Mr. Sercombe, and consists of a plate with a set of teeth in the usual form, and attached to its posterior edge an apron of soft rubber, which will bridge the opening on its inferior surface extending nearly to the pharynx.

Fig. 177 represents the set of teeth with the palate attached. In Mr. Sercombe's appliance, this apron was made of the common sheet rubber in the market, prepared for other uses, and is objectionable for two reasons: 1. A want of purity in the materials of which it is compounded, in many instances substances being used in its manufacture would be deleterious to the health of the patient; and, 2. Its uniformity of thickness. It is preferable, therefore, to make a mold in which to form a palate of pure and harmless material — one which shall be of sufficient thickness in the central part and at its anterior edge to give it stability, and yet shall have a thin and delicate boundary whenever it comes in contact with movable tissue.

Such a palate may be made in a mold by substantially the same process as hereafter described. It may be secured to the plate by a variety of simple means. One which will give as little trouble to the patient as any other is to make a series of small holes along the edge of the plate, and stitch it on with silk, or fine platina, gold or silver wire may be used . . .

A little thought will show that in this case the patient must educate the muscles of the pharynx alone to do the work of shutting off the nares, which in the former case was performed by them in conjunction with the muscles of the palate. Perfect articulation will depend upon the success of the patient in this new use of these muscles. In cases of acquired lesions of
the palate, such as are under consideration, this education of the muscles to a new work will not be difficult. The patient at some former time has had the power of distinct articulation; his ear has recognized in his own voice the contrast between his present and former condition; the ear will therefore direct and criticise the practice until the result is attained. It is astonishing to what an extent muscles may be trained in this way to the successful performance of an unnatural function. In the case illustrated by Fig. 177, the defect had existed for twenty-eight years, the patient at the time of the introduction of the artificial palate being nearly fifty years of age. The effect upon the speech was instantaneous. Articulation was immediately almost as distinct as in youth; and this remarkable distinctness can only be accounted for upon the assumption that the pharyngeal muscles had undergone a thorough training in the vain effort to articulate without a palate.

An account of this case appeared in the *Argus* of Bainbridge, Georgia, August 1, 1868, written by the patient himself, who was editor of that paper.

These two cases, chosen to illustrate the application of artificial palates in accidental lesions, required, as will have been perceived, entire upper sets of artificial teeth in connection with the palates. This selection was purposely made because the difficulties to be overcome are much greater. In cases where there are natural teeth remaining in the upper jaw, the palate and its connection with the plate would be substantially the same, and the plate could easily be secured to the teeth by clasps in the same manner as a partial denture.

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Mr. Commissioner Kerr has had a novel case to decide in the Sheriff’s Court. Mr. Wainright, a surgeon-dentist, brought an action against Mr. Galpin to recover his fee for extracting a tooth. The defense was, that the plaintiff administered chloroform, and pulled out the wrong tooth, a perfectly sound one, leaving the real offender still in its place. The defendant swore that this was the fact, and Mr. Kerr told the plaintiff that it was clear he could not recover, and the defendant must be allowed his costs.

— From the *Lancet* (Great Britain) as quoted in the *Dental Cosmos*, Vol. 7, No. 2, September, 1865.
Oddments in Dental History:  
A Case of Tooth Implantation by the Patient.  

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

With the interest being shown today in implantation of metallic and other alloplastic materials into the bone as a means of establishing an abutment for a fixed prosthesis, it is interesting to find that a patient a century-and-a-quarter ago did just that, although quite inadvertently!  

All practicing dentists are familiar with cases where teeth have become exfoliated because of bone loss in severe periodontoclasia; many a dentist has extracted a tooth with his fingers.  

However, for a patient not only to have a tooth with no bone support remain in situ for many years, but to have it serve as anchorage for a partial denture for those many years, is odd, indeed. The following case report is culled from the pages of Dental Cosmos, Vol. 6, No. 9, April, 1865. It was in the form of a communication from Dr. Edward O. Peck of Morristown, New Jersey to the editor of Cosmos:  

Mr. B. called to have me put a tooth on a silver plate. The plate was a clasp plate, and had upon it the four superior incisors and a bicuspid. The clasps were two in number — the left clasp embraced the first molar of that side, and the right clasp embraced the second bicuspid of that side, which was standing alone. The curious part of the affair was, that the clasp on the bicuspid being tight about the tooth, when he took the plate out of his mouth, he took the bicuspid out from its socket with it, the tooth coming out clean and leaving a clearly-defined cavity just its shape. The depth to which the tooth was imbedded while in place was nearly to its neck, it not being denuded more than two lines of the gums from its normal state. The process was absorbed but very slightly. Mr. B. told me it had been in that condition for some years, and said that when he — as at times he did — left the plate out over night, he found it somewhat difficult to replace in the morning. I fixed the plate for him, and he wore it in that condition some year and a half longer, when the molar tooth came away, necessitating him to lay the plate to one side. The displacement of the tooth was evidently due to the encroachment of a very thin film of tartar, aided by the working of the clasp, caused by the use of the artificial teeth. The molar came away also from the encroachment of the tartar, and exostosis caused by hypertrophy; the points of the roots being very much enlarged.
Ancient References to Dentistry and "Biblical Bites"

—MELVIN DAVIDSON, M.A.
Amherst, New York.

Dentistry in Talmudic times has been well documented in the Bulletin of the History of Dentistry. The era in question may be termed as encompassing the period from late Old Testament times to early New Testament times. The concerns expressed in the articles are characteristic of mankind as they pertain to dentistry: alleviation of pain; removal of infected teeth and their replacement with false ones; the control of bad breath; and maintaining the teeth's whiteness. The experience of the practitioner is also discussed.

The question of the doctor giving treatment on the Sabbath occupies a good bit of space as well, a matter this writer recalls as still being relevant in the small Lithuanian town in which he lived (circa 1930's). The dentist, a Jewish woman, was called upon on the Sabbath to treat a prospective patient. She refused to leave the synagogue upon hearing the symptoms. Perhaps a quarter of an hour later the same messenger returned saying, "So and So is in great pain. He said to tell you his tooth cannot differentiate between the Sabbath and an ordinary day of the week." Whereupon the dentist made a house call to treat him. However, she would not open her office on the Sabbath.

From the references it is obvious that false teeth have been part of the artifacts of some civilizations for at least several millenia. Yet artifacts, as one well knows, do not spread uniformly. Medieval Europe knew little of dentistry as practiced in the Talmud. Eventually, Europe did learn about dentistry from the Arabs. Even in the 20th century, there were surprising areas of ignorance. This writer's cousin, as a case-in-point, was sent to the central part of the Soviet Union upon being freed from a concentration camp by the Red Army during World War II where she made inquiries about obtaining a false tooth. She was laughed at wherever she went; no one in the area had ever heard of such a thing!

Housdorff deals with dentistry among the people of Israel. He quotes the ancient texts as follows:

1. The structure of teeth differs in herbivorous and carnivorous animals (Talmud — "Chullin").
2. The health of the body depends on the teeth (Midrash — "Yalkut Shimony").
3. Scraping is a means of cleaning the teeth (Talmud — "Kiddushin").
(4, p. 123, 137, 148.)

Rosner stated how "... teeth also played a role in the legal sphere ... in the Bible". He correctly discussed the Biblical "tooth-for-a-tooth" laws. Teeth and eyes were viewed as two essential parts of the body. The laws in question indicated that the punishment should fit the crime. It may also be added that no exception was allowed. Thus royalty was just as subject as commoner to the application of the law. However, laws should also be understood in terms of what they leave unstated as well as what they proclaim. So important were teeth considered to the person that the loss of one by an indentured servant could result in his early release. Perhaps too many contemporary people consider the teeth merely as a means of chewing food. But teeth are also weapons! King Hussein the "moderate" of Hashemite Jordan reportedly ex-
horted his troops to kill all the Jews of Motza, a Jerusalem suburb, during the 1967 war, by using all weapons at their disposal, including the teeth!

The Bible goes further than using the example of a tooth for a tooth to promulgate equal justice for all in its literary imagery. When Israel is told not to loan money at usurious rates to kinsmen, the word *neshekh* is used. The verb-form means to bite in the sense of "You will not put the bite on him." Later, Moses urged his people to teach the Law diligently to the children. Actually, he said "impress." The etymology of the Hebrew verb is "tooth." Hence when one teaches properly or diligently, one "puts one's teeth into it."

Finally, one would be remiss in omitting the saying from Talmudic times which signifies some one who lost something in a venture but got out of it without further damage: "He came out with tooth and eye!"

REFERENCES

5. Rosner, op. cit., page 27.
8. Ibid, page 408.

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We recently heard of a novel method of securing a gold crown to a root. After completing the crown, it was found that it fitted none too well, and did not quite reach the margin of the gum. As the patient was about to leave town, and the dentist was extremely anxious to complete the operation and obtain the money therefor, he adopted a new and original expedient. Setting the crown in the usual manner, he took a drill and made a hole through the cap and into the tooth, near the gum line. Into this hole he fitted a piece of gold wire, which he forced into place, heading it slightly with his automatic plugger — thus literally *nailing* the cap on.

— *Dental News*, Vol. 1, No. 1, Feb. 1902
Cyrus Fay, A Pioneer in Forceps Design

Warwick, England

The letter from Dr. Bernard Moskow in the April, 1982 issue of the Bulletin of the History of Dentistry in which he stated that he had acquired a portrait of Cyrus Fay, and that he was seeking some documentation of his life, has prompted me to do some investigation into the life of this inventive and prominent individual.

Cyrus Fay was born at Harwich, Mass. on April 15, 1778. He was the son of Captain Stephen Fay who was born on February 19, 1739 at Westborough, Mass. According to his grandson, M.J. Fay, who published a paper, "Le veritable origine des daviers", in La Revue Odontologique, no. 12, December 1929, Cyrus Fay was practising his profession in New York in 1808 and in 1822 in England, living at 7 Sackville Street, London and later at 7 George Street, Hanover Square. He died in Liverpool on February 11, 1839.

In the Lancet for August 20, 1825, Cyrus Fay “Surgeon Dentist, and Lecturer on the Structure and Diseases of the Teeth, Operations &”, states he he “... continues to give PRIVATE INSTRUCTIONS to Medical Students, and other Members of the Profession.” He went on to state that he operated with instruments of a new construction by which teeth are extracted perpendicularly. His address was then 8 Dover Street, London.

In 1826 Fay received the large silver medal for his forceps from the Society of Arts, and they are described in the Transactions of the Society for that year. They consisted of extraction forceps for the vertical extraction of teeth with beaks formed to fit accurately around the necks of all types of teeth, and excision forceps to amputate the crowns of teeth. The material in the Transactions was reprinted in 1827. The title was “A description of the mode of using the forceps invented by Mr. Fay for the extraction and excision of teeth”, 16 pp, two plates containing 38 figures. On the last page is stated “… Mr. Fay has been induced to prepare a little work, containing his opinions on certain practical points of dental surgery which will soon be ready for publication.” Whether this was ever published I do not know, but I have never seen or heard of a copy. Menzies Campbell lists (103)”On a pretended new surgical operation called excision of teeth, London, 1827”, but the fact is that it is an unsigned vitriolic attack on Fay in the Lancet, II, (no. 162), October 7, 1827, pp. 734-5. It reads as though it was written by the editor, Thomas Wakley. I think it unlikely that he ever published a book with the title Fay’s Dental Surgery quoted by Dr. Moskow in his letter to the Bulletin, but there is no doubt that he was the first to design forceps with modern, accurately fitting, beaks, although all his forceps were right-angled, except the straight forceps for the extraction of incisors.

A work entitled Les dents, leur eruption, leur entretien et leur remplacement, Bruxelles and Leipzig, 1860, by Fiske Fay, who was the son of Cyrus, gives a little more information: Professor Benjamin Silliman, the scientist, while in Montreal, Canada, suffered severe toothache and visited “M.le docteur Fay, de Vermont (Etats Unis)”. This visit must have taken place before 1820 as Silliman published an account of his journey from Hartford, Conn. to Quebec, Canada in that year. It appears therefore that Fay once practised in Vermont.

A translation into French of the communication of Cyrus Fay to the
Society of Arts is included both in the book of Fiske Fay and in the paper by M.J. Fay.

In the British Journal of Dental Science, 24:805, 1881, is a letter from T.W.W. Fay, M.R.C.S., surgeon dentist, of Canning Street, Liverpool, regarding the priority of the invention of 'modern' forceps. He claims, quite correctly, that the principle of adapting the beaks of forceps to the tooth was originated by his grandfather. He also says that he has in his possession the silver medal awarded to his grandfather and bequeathed to him by his father, T.P. Fay, “Dentist, of this town”. In the same volume is an article in two parts entitled “Forceps”. It deals with the history of modern forceps and is unsigned, and says that Cyrus Fay has not received the due credit for his instruments.

Tullius William Ward Fay was registered in the first British Dentists Register of 1879 as being in practice before 1878. He had qualified Member of the Royal College of Surgeons in 1868 and practised in Liverpool and later in London.

Tullius Priest Fay, a son of Cyrus, was in practice in Liverpool in 1839. Another member of the family, Arthur Louis Fay, presumably grandson of Cyrus, was listed in the 1879 Dentists Register as being in practice in Cannes, France and was later in London. In 1881 he obtained the Irish dental qualification of L.D.S.R.C.S.I.

This interesting family is worthy of an extended and detailed study.

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INTIMACY BREEDS CONTEMPT — The relation of dentist and patient — as it is with physician and patient — is so close that nothing but a dignified reserve can prevent an intimacy which breeds contempt. Because patients come to us for professional work is no reason we should expect to become their friend and acquaintance and yet many dentists, before they have completed their professional engagements, seem to think they must pry into all the private affairs of their patients — their failures and successes in business, their likes and dislikes in society, and even their more private concerns. If their patient is of the gentler sex, this intimacy too often includes a maudlin sentimentality and repulsive improprieties. It is astonishing such dentists are tolerated with in any society. They certainly lose the respect of their best patrons. Intimacy breeds contempt.

The newly-installed officers of the Academy. From left: Dr. Ernest Beerstecher, vice-president; Ms. Aletha Kowitz, president-elect; Dr. Clifton O. Dummett, president; Everett H. Jackson, historian; Dr. H. Berton McCauley, secretary-treasurer. Missing at the time the picture was taken was Dr. Malvin E. Ring, editor.

Past-presidents Maynard Hine and Gardner Foley in a discussion with Dr. Roger Scholle (right), editor of the Journal of the American Dental Association.

Drs. J. Carr, A. Christen, R. McDonald and M. Hine
Members of the Academy admiring the excellent table exhibit mounted by Dr. Gary D. Lemen of Sacramento, California.

Dr. William J. Carter, chairman of the Bremner Essay Award Committee, congratulating the third-place winner, Miss Salma Ramji of the University of British Columbia.


Dr. Jack Gottschalk (left) in rapt conversation with Dr. Ben Z. Swanson.

President-elect Dummett (left) being congratulated by president Edward Leone.
A Short History of Dental Advertising

—HEIDE MEINKE, D.D.S.
Sherman Oaks, California

The eradication of advertising by dentists was a goal of the early leaders of the newly developing profession. It was felt that advertising would have the effect of lowering professional standards as well as the public’s attitude toward the profession. Organized dentistry had succeeded in achieving this goal until the Supreme Court’s decision overturned a hundred and forty year’s work.

A study of dentistry’s past shows that advertising has always existed among dentists. Acceptance of it by the profession, however, has varied with the times. In order to understand and appreciate the reasons our professional forefathers advertised or disagreed about the propriety of advertising, one must look carefully at the era concerned.

Fig. 1. A contemporary advertisement which appeared in the Miami Herald, March 25, 1979, not much different in content from one almost a century earlier.

![Advertisement](https://example.com/advertisement.png)

Today, newspapers are taken for granted. Our attitude toward the advertisements in them is less than casual. (Fig. 1) However, this was not the case during the Revolutionary period. The newspaper then occupied a position of dignity, since the people then depended completely upon the newspaper to keep them informed. Newspapers were seldom thrown away. They were read and passed on to others.¹
DENTISTRY.

J. H. Holliday, Dentist, very respectfully offers his professional services to the citizens of Dodge City and surrounding country during the summer. Office at room No. 24, Dodge House. Where satisfaction is not given money will be refunded.

Mr. R. P. Edwards, boss hairdress for Henry Stevens, came up from the Can-

Fig. 2. Even "Doc" Holliday advertised, as witness this ad which appeared in the Dodge City, Kansas Times, June 8, 1878.

education material that existed at that time. (Fig. 2)

Not only was advertising common, but testimonials as well. As an example, the eminent Edward Jenner, discoverer of Small-Pox vaccination, did not hesitate, in 1803, to give Dubois de Chemant, the developer of porcelain dentures, a laudatory testimonial concerning the merits of his "patented mineral paste teeth."

During the late 1700's, there were innumerable advertisements for powders and tinctures guaranteed to cure or prevent toothache. It was very easy to sell these to the public for one would try almost anything before submitting to the ministrations of a tooth drawer in those pre-anesthetic days.

Studies from London in the 1770's showed that printers fared well financially from dental advertisements. The newspaper printer frequently inserted notices for patent medicines which he himself sold when the newspaper business was poor or when there was too little paid advertising copy that week to fill the paper.

The importance of advertising is demonstrated by the autobiography of James Blair, who was born in Edinburgh in 1759 and became a noted provincial dentist in the 1790's. So widely dispersed were Blair's potential patients that, like other dentists, he was obliged to travel to find them. His first advertisement in a new town followed a common pattern. He would describe how he removed tartar and scurvy from the gums and how he fitted artificial teeth "without the least degree of pain and in such a manner as not to be distinguished from natural ones." Once he had established a clientele, such advertisements ceased and only details of dates and attendance in the town were given. Sometimes, too, he listed the names of local agents for his toothpowder.

In the period from 1800 to 1835, leaders of the dental profession were concerned lest dentistry be taken over by the unscrupulous and the unqualified. They determined, therefore, to organize, in order that the progress of dentistry might continue unhampered. Mr. Horace Kimball in 1834 divided the practitioners of dentistry of his day into three groups: the first group consisted of dentists who were qualified through studying the principles of medicine and surgery and who practiced with a view not only to earn a living but to raise its status; the second group were those who had a course in medical studies but began to practice without acquiring the necessary practical techniques; and the third consisted of all those unqualified persons who

Dentists frequently advertised. It was considered good professional form, and was customary among all health practitioners. Not only was advertising an essential tool in starting a practice, but it also served an educational purpose as well. One could learn about the advancements in dentistry, how it was performed, and the accompanying costs. In fact, it was the only published patient
practiced dentistry, such as shoemakers, ostlers, locksmiths, watchmakers, bakers, and sailors. It is obvious that many people took advantage of the unprotected state of the dental profession, giving rise to the need for supervision, conformity, and organization.

THE DEVELOPMENT OF PROFESSIONAL ETHICS.

The matters of ethics and advertising had been under discussion when an association of dentists was first organized. This was the American Dental Association, founded on August 3, 1859, at Niagara Falls. Soon afterward, state societies were founded. By-laws from the Dental Society of the State of New York in 1868 indicated the organization's position on advertising:

In order more effectively to promote the honor of the profession, as well as to preserve good feeling and learning among the members, it shall not be deemed honorable for any member, by means of advertisements, handbills, circulators, or in conversations with his patients, to claim to be the exclusive manufacturer or possessor of good incorruptible or other teeth; or to claim any superiority over any other member, either as to his mode of performing any operation or the quality or kind of teeth, or other material or instruments used by him.

Despite the ethical objectives of the various state societies, advertising by dentists became widespread throughout the United States. Edgar Rudolph Parker, of Brooklyn, opened an office in 1895. He is said to be the "father" of advertising dentists; his slogan was "Nervous people swear by Painless Parker." Organized dentistry attempted to secure laws against display advertising and the incorporation of dental claims known as dental parlors; however, the effort was unsuccessful. Testimony to Dr. Parker's success was dangling from his neck in the form of a 357-tooth necklace, all of which were extracted in one day at his office.

NERVOUS PEOPLE

If you need dental work and you are nervous and do not want to be hurt, come in and see how we do all branches of dentistry absolutely without the least pain or discomfort. Better still, if you need a tooth crowned or extracted, let us do that one for you. An actual experience will convince you that we do exactly as we say.

Our best guaranteed set, with patent suction, this week only...... $7.50
Gold crowns (22-kt. fine)......$3.00
Bridge work (22-kt. fine), a tooth......$3.00
Gold fillings......$1.00
Painless Extracting with Nervene Free.
A written guarantee for 10 years with all work.
We will tell you exactly what your work will cost by a Free examination. No waiting. All skilled dentists constantly in attendance. Hours 8 to 6 P. M. Sundays 10 to 1.

THE AMERICAN DENTAL PARLORS,
378 Main Street (Over Tanke's Jewelry Store.)
Look for the Big Tooth Sign on the Corner.

Fig. 3. An advertisement appearing in a Buffalo, New York newspaper of 1909.

At the turn of the century, dental advertising, instead of disappearing, increased. (Fig. 3) A column of five dental ads in the St. Louis Daily Globe-Democrat on January 16, 1900 illustrated the violation of practically every in-

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juncture in the book — soliciting, price-cutting, claims of superior services, guarantee of success, etc.*

**UPDATING OF CODES OF ETHICS.**

The Code of Ethics of the American Dental Association, which had been adopted in 1866, remain unchanged through 1886, and only a few minor changes were made in 1922 when a new code was adopted. The code of 1922 was revised several times, once in 1934 and again in 1951. Section 12 on advertising in the 1951 code states:

> The dentist has the obligation of advancing his reputation for fidelity, judgment, and skill solely through his professional services to his patients and to society. The use of advertising in any form to solicit patients is inconsistent with this obligation because it reflects adversely on the dentist who employs it and lowers public esteem of the dental profession.  

In May, 1933, a bill (Bill 721A) was passed by the Wisconsin legislature, which allowed the State Board of Dental Examiners to punish those guilty of unethical practice. So the members of the Dental Examining Board spent hours clipping and answering ads, writing letters of complaint, chasing down offenders, and seeking warrants from local district attorneys. During the Great Depression, advertising took on a new character. A Milwaukee newspaper in 1934 carried ads for the bartering of services. Dentists would barter their skills for household services, used cars, tailoring services, house painting, or even corporation stocks.

**THE SUPREME COURT CHANGES THE RULES.**

In 1977, a very important ruling by the Supreme Court changed the traditional ban on advertising by professionals. In its ruling in the case of Bates vs. State Bar of Arizona, the Court declared that an Arizona disciplinary rule against advertising by attorneys violated the right of free speech by lawyers as well as the public's right to information. The Supreme Court felt that advertising by lawyers would not have an adverse effect on the professionalism of a lawyer, or the quality of service, or the administration of justice. As a consequence, both medical and dental leaders, convinced that the high court ruling applied to them as well, started reviewing long held positions and reevaluating time honored beliefs about the role of advertising in their professions. Thus, the new Section 12 of the A.D.A.'s code of ethics states:

> A dentist may advertise the availability of his services and the fees that he charges for routine procedures. No dentist shall advertise, in any form of communication, in a false, misleading, deceptive or fraudulent manner.

Accord was publicly reached on dental advertising when the Federal Trade Commission announced it had reached agreement with the American Dental Association on April 27, 1979. The accord stemmed from the Federal Trade Commission charge, first made in 1977, that the American Dental Association was using its Principles of Ethics to prevent consumers from getting information on the cost of dental services. In a like manner an FTC law judge, in 1978, had accused the American Medical Association of using its ethics code to illegally restrain trade. The ADA agreed to be bound by the final commission order against the American Medical Association, following judicial review.
The direct degree of the change of attitude can be contrasted with the old Section 12 which stated:

Advertising reflects adversely on the dentist who employs it and lowers the public esteem of the dental profession. The dentist has the obligation of advancing his reputation for fidelity, judgment, and skill solely through his professional services to his patients and to society. The use of advertising in any form to solicit patients is inconsistent with this obligation.¹²

Today, dental advertising, in its worst forms, has been considered a violation of canons of ethics and codes of professionalism by professional organizations. In addition, the vast majority of dentists, especially those with established practices, tend to stereotype those dentists who advertise as offering low quality work in high volume "dental mills."

CHANGE IN THE NATURE OF ADVERTISING MEDIA.

Dental advertising has evolved from simple handbills, circulars, posters, or newspapers to include radio commercials, television commercials, and other mass media forms of communication. (Fig. 4) The foremost change in technique comes from the use of radio and television advertising. With the advent of mass communication come one minute television commercials promoting easy credit terms, convenient office location, and acceptance of most dental insurance policies, as well as major credit cards. The emphasis appears to be on high volume patient turnover rather than quality care or the use of modern techniques.

Perhaps in the future, dentists who have to start their own practices will be influenced by economic factors which may lead them to advertise out of necessity. Among the major factors are: the increasing price of gold and silver; the high cost of labor; the rising cost of dental equipment; the high number of dentists concentrated in specific geographical locations; the growing number of dentists who specialize; the rising cost of business — including malpractice — insurance; the reduced need for dental services because of fluoridation, as well
as a decreased caries rate because of consumer preferences for sugarless products. In addition, the number of dentists has steadily increased. In the decade just ended, the number of active dentists jumped 21 per cent, to 124,000, while the population of the United States increased only 8.8 per cent. "There is an increasing number of dentists, but the demand has not increased," said Dr. Lawrence Kerr, former president of the American Dental Association. The ADA's most recent figures indicate that the average dentist's patient load has declined by about five patients a week in recent years and that new patients stand a 25 per cent better chance of getting a non-emergency initial appointment with a dentist in six days' time or less, than they did formerly.16

ORGANIZED DENTISTRY'S "EDUCATIONAL" ADVERTISING CHANGES.

Gone from the current ad campaigns by the ADA are the old-fashioned "toothbrushing education" public-service messages of the past. The aim now is to get 100 million Americans who don't regularly visit a dentist into the idle dental chairs across the country. The current theme of the $2 million ad campaign that the American Dental Association is running nationally in magazines and locally on television in Buffalo, Cincinnati and Kansas City is "Dazzle." The ads include an attractive female flight attendant and a sophisticated model, both with sparkling smiles. The text reads: "Dazzle. When your teeth have it, you have it. So go get some at your dentist's."

One practitioner's answer to advertising is reflected in the efforts of Dr. William Schmidt, a 34-year-old general practitioner of San Jose, California. He has almost turned his office into a spa. Adult patients are served wine or coffee while they wait and are offered a soak in Dr. Schmidt's hot tub after the treatment session is over. He raffles off prizes such as turkeys or phonograph records every few months, and for the delectation of children, he occasionally dresses up as "Plaque Vader" when he treats their teeth. There are Santa Claus and Uncle Sam costumes hanging in his closet also. Children who go for a year without cavities are given a membership in Dr. Schmidt's "Cavity Club" which holds periodic picnics and dispenses T-shirts, bumper stickers and buttons. Even with all this "razzmatazz," Dr. Schmidt concedes that if you called today, you probably could get an appointment with him three days hence — down sharply from the two month wait that was typical three or four years ago.

REFERENCES
7. Ibid., page 78.
Stringent New Law Regulating Dental Practice in Paris. — Ever since Dr. Evans made fame and fortune in Paris “American dentists” have been padding their bank accounts with easy money, got from royalty, nobility and American residents or visitors. It used to be that almost any incompetent who knew how to pull a tooth could come to Paris, hang out a sign “American Dentist,” and proceed to be comfortable for life.

But by a law recently passed a man must know his profession thoroughly in order to practice dentistry in the French capital.

It is required in the first place that he be a bachelor of arts. Then he must not only be a graduate dentist, but must have made all his studies in a French university and be able to show that before he took up dentistry he had completed a three years’ course in medicine.

The result is that no Americans are being admitted to practice as dentists. Together with all the other requirements, the young American who would qualify must first make himself master of the French language and must then, whether he has studied before or not, matriculate at a French college and start his education all over again.

Naturally the younger men who have turned their eyes to Paris have turned them away again, and all the American dentists that remain are men who were in practice before the new law went into force.

But a way may be opened to worthy American practitioners by a test case that will shortly be brought before the Conseil d’Etat in an endeavor to get that body to make a ruling as to whether the new stature is not too severe.

Maitre Georges Barbey, a celebrated advocate, has just lectured on the subject before the American Dentists’ Club, and the hopes of many gloomy men are going up.

This post-card, which dates from about 1914, is fairly typical of those in which dentistry, as well as other professions and occupations, served as the butt of humor. Post-card collecting is a very popular hobby in this country and abroad, but cards with dental themes are rare and highly prized by collectors.

—From the Collection of
Malvin E. Ring, D.D.S., Batavia, New York
What Is It?

The poser for this issue was pictured in a price-list of the S. S. White Company which appeared in *Dental Cosmos* in 1873.

The instrument is about seven inches long. The handles were made of a variety of materials, the most expensive being of ivory at $3.00, with others being made of bleached bone and ranging in price from $1.62 to $2.50. The remainder of the instrument was constructed either of steel or German Silver.

The "fork" at the end was notched on each extremity and the "button screw" on the superior surface was essential to its functioning.

For those who can't fathom the purpose of this item, a full description will be given in the next issue.

* * *

Last issue carried the description of an instrument of 1922 sold under the name "Crownograph." In case you didn't guess its purpose, it was to scribe the gingival line onto a shell gold crown. It had two special leads, one on each end and angled so as to allow for tracing in any position of the tooth, and these leads wrote on the gold even under the action of saliva or blood. One point was used to trace the gingival line on the lingual and the other on the buccal. The description of its application said that "... after having soldered the collar in the usual manner, we place the collar upon the tooth and push it home, up to gentle contact, without pushing it too far. This having been accomplished, we take the "Crownograph" and by means of the appropriate extremity, we mark upon the gold the line of contact with the gum. We withdraw the collar, and with a scissor we cut it following the very clear tracing left by the instrument."
Professor Gardner P. H. Foley (left) presenting the 1982 Hayden-Harris Award of the American Academy of the History of Dentistry to Dr. H. Martin Deranian at the Academy's annual meeting in Las Vegas in October, 1982.

REMARKS BY PROFESSOR GARDNER P. H. FOLEY ON THE PRESENTATION OF THE 1982 HAYDEN-HARRIS AWARD TO DR. H. MARTIN DERANIAN.

I have strong reasons for being particularly pleased with the assignment to present the 1982 Hayden-Harris Award. In my presidential address of 1963 I urged the creation of the Award. In 1969 I was presented the Award by then-President Deranian. Now I have the honor of presenting the Award to Dr. Deranian, who is a graduate of my alma mater, Clark University.

In my brief remarks I shall give certifying evidence that Dr. Deranian has a record of deservance in both quantity of participation and quality of contribution. Born in Worcester, Mass., in 1922, he received his A.B. degree from Clark in 1947 and his D.D.S. degree from the University of Pennsylvania, also in 1947.

He has demonstrated over many years a devoted interest in the areas of Cleft Palate and Maxillo-Facial Prosthesis. He was the organizer of a Cleft Palate Team associated with the Rehabilitation Center of Worcester and has lectured extensively on the subject to professionals, dental students and auxiliary personnel.

Since 1949 Dr. Deranian has served on the faculty of Tufts University with various titles. In 1979 he was given a plaque in recognition of thirty years of "dedicated teaching and services."

Fortunately for the governing logic that contributions of a sterling nature should be significantly rewarded, Dr. Deranian has been the receiver of several honors and awards. A Fellow of the American College of Dentists, he was chairman of the New England Section in 1973-4. He is a stalwart member of the hallowed American Academy of Dental Science, and has served as its historian-editor and as president.
I will insert at this point an exceptionally applicable observation made by Montaigne, the great French essayist:

Our chiefest sufficiency is to know how to apply ourselves to diverse employments. 'Tis to be, but not to live, to keep a man's self tied and bound by necessity to only one course; those are the bravest souls that have in them the most variety and pliancy.

So I do now recognize Dr. Deranian as one of the "bravest souls", who has given not only an abundant measure of professional contributions but also an impressive accumulation of services to his community in addition to lectures. A member of the Board of Directors of Big Brothers/Big Sisters of Worcester, he received the Big Brother of the Year Award in 1967. Let us also appreciate the work of these other community activities of Dr. Deranian: chairman of the Health Committee and member of the Planning Council of Community Services of Greater Worcester; member of the Professional Advisory Committee of the Visiting Nurses Association of Worcester; and member of the Central Massachusetts Health Planning and Coordinating Committee.

Somehow the busiest members of the dental profession manage to attain reputations as "dental truants". Dr. Deranian is a leading member of the Armenian Brotherhood in the United States. He is the founding president of the Armenian-American Dental Society, and a member of the editorial board of Ararat, a literary quarterly, since 1974. He has written several articles about his ancestral background.

I have saved Dr. Deranian's status as a dental historian as the climactic element of my testimonial to his worthiness as the recipient of the Academy's Award. As a founder of the Academy, I am proud to acknowledge his variant participation as a granitic propagator of interest in the history of dentistry. He served as president of the Academy in 1968-9. Well regarded as a dental historian in his home state, he has been persistently active in promoting the historical observances of the Massachusetts Dental Society as chairman of its Dental Library and Museum Committee and as the prime mover and editor of its 1964 Centennial publication. For many years he has lectured on the history of dentistry, as a segment of the indoctrination series given to the entering class at Tufts University. Inspired by his strong feeling of recognition of the disseminating values of exhibits, he has used his collection of antique dental equipment and other kinds of objects illustrative of dentistry's past for three notable displays of professional and general interest: at the Massachusetts Centennial Meeting in 1964; at the 1976 A.D.A. meeting (an award-winning effort); and at the Museum of the National Heritage in Lexington, Mass., in 1981. The Lexington exhibit titled "In Sickness and Health — American Patients and Doctors (1700-1900)", was continued for several months.

Besides several lectures on dental history, Dr. Deranian has contributed dental history articles to the Journal of the American Dental Association, The Journal of the American College of Dentists, Aesculapius, the journals of the Massachusetts, New York and California state societies, and to the Harvard Dental Alumni Bulletin.

Now, Martin, with a large measure of pleasure, I present to you the Academy's Hayden-Harris Award of 1982. Sursum corda!
A very fine portrait of the immortal Pierre Fauchard, the "Father of Dentistry" is being offered for sale by an art dealer in Paris. It was painted by J. Le Bel, and although undated, was probably commissioned between 1723, when Fauchard completed the manuscript of his classic Le Chiurgien-Dentiste, and the date it was published in 1728. This painting by LeBel served as the model for Scotin when he engraved the frontspiece for the book. Along with the reversal of the image, which normally takes place when an engraving is made after a painting, the engraving exhibits other variations indicative of its different purpose. The frontspiece of the book was designed to impress the reader, and so there are booklined shelves in the background to emphasize the
author’s erudition. His upraised hand illustrates the traditional gesture of the teacher. His dress — without collar, tie or lace — is strictly fitted to his calling, that of a professional exercising his art. The dress shown in the original portrait, on the other hand, is luxurious as befits one of position and stature, while the bookshelves have been obliterated. The painting emphasizes Fauchard as a well-to-do upper middle class man, elegantly embroidered and with lace trimming, posing for his family and friends.

This painting has always been in the possession of the descendants of Pierre Fauchard. Although Fauchard had been married three times, he had only one son, Jean-Baptiste who was born in Fauchard’s estate Grand Mesmil, some 20 kilometers southwest of Paris. The portrait hung at Grand Mesmil through succeeding generations until Paul Flury-Herard, great, great, great grandson of Fauchard sold the house after World War I. Upon his death, his estate was divided among his seven children and the portrait was inherited by his daughter, Solange. She died in 1982 and the picture was put up for sale by her executors.

The dealer selling the painting is M. Georges Martin du Nord of the company Societe B. G. Verte, 8 Avenue Saint Honore d’Eylau, 75116, Paris, France. The telephone number is (011-33-1) 727-3246. The selling price of the painting, including the carved period wood frame is $100,000 f.o.b. Paris.

IN MEMORIAM: LEO KANNER, M.D., 1894-1981
Author of Folklore of the Teeth.

Dr. Leo Kanner died on April 4th, 1981 at his home in Fairhaven, Sykesville, Maryland. He was born June 13, 1894 in Klekotow, Austria, near the Russian border of the Austro-Hungarian empire. He began writing poetry at the age of 10, but was never able to have his poems published. An award was given to him for graduating first in his class: the privilege of attending an opera with the Kaiser! He remembered it only as a place to sleep soundly. During World War I, Dr. Kanner served in the Austrian Army, and later received his medical degree in 1919. In 1924 he emigrated to America and joined the staff of the State mental hospital in Yankton, S.D.

In 1928 he published his first book: Folklore of the Teeth which had been compiled from his lectures to German dental students. The first edition was published by Macmillan and re-issued in 1968 by the Singing Tree Press.

In 1928, Dr. Kanner was asked to join the Johns Hopkins Hospital, in Baltimore, by the then professor of psychiatry, Dr. Adolph Meyer. Kanner published his first book on psychiatry, Child Psychiatry in 1935, and became known by his colleagues as the "Freud of Hopkins". This book is currently in the 14th printing of the 5th edition! In the process of writing, Dr. Kanner became fluent in Polish, German, French, Lithuanian, Yiddish, Hebrew, Ukrainian, and English.

Dr. Kanner laid the groundwork for much of our current knowledge. The affliction of infantile autism is now known as the "Kanner syndrome", and he wrote numerous articles on childhood schizophrenia and autism. There are several European and American hospitals named after him, as well as numerous streets. The child psychiatry department of the University of Leiden in the Netherlands, a school for mentally ill children in the Netherlands, and a town in Brazil are also named in his honor. He was fond of quoting a Latin aphorism, vis medicatrix naturae (the healing power of nature), and his unpublished biography was to be entitled "Freedom is Within: To be successful in this life, you must have inner security with your fellow man and with yourself."

—WILLIAM J. CARTER, D.D.S., M.S.
Overland Park, Kansas

(I wish to thank Mr. Joseph E. Jensen, Librarian of the Medical and Chirurgical Faculty, State of Maryland, for his assistance in preparing this tribute.)

CHINESE DENTAL STAMPS ISSUED

The Republic of China (Taiwan), in recognition of Dentists Day, May 4, 1982, issued three postage stamps as part of a government campaign to promote better oral hygiene among the population. Five million of the lowest denomination stamp and two million of each of the other denominations were issued.
DR. WALTER HOFFMANN-AXTHELM HONORED

On December 14, 1982, Dr. Walter Hoffmann-Axthelm of Freiburg, West Germany, was honored with the prestigious Paul Diepgen medal. The medal, named after the long-time director of the Institute for the History of Medicine of the Friedrich Wilhelm University of Berlin, is awarded only once every three years by the Berlin Association for the History of Medicine.

Dr. Hoffmann-Axthelm, one of the world's leading dental historians and author of the acclaimed Geschichte der Zahnheilkunde (and which was re-issued in an English translation) was chosen for the honor because of his pioneering work in the founding of the Institute as well as for his extensive studies in the field of dental and medical history. Dr. Hoffmann-Axthelm on that occasion read a paper on the historical development of plastic and maxillo-facial surgery as it related to the work done at the historical institute.

ACADEMY HAS EXHIBIT AT ADA ANNUAL MEETING

Beginning what is hoped will be a long tradition of holding an exhibit on some phase of dental history at the annual meeting of the American Dental Association, the American Academy of the History of Dentistry had an outstanding display at the meeting in Las Vegas in October, 1982.

The brain-child of Dr. Ben Z. Swanson, and implemented by him, the exhibit dealt with antique post-cards with a dental theme. This subject was chosen because post-cards, being both colorful and informative, catch the eye, and serve well to introduce the passing dentist to the Academy as well as "the wonderful world of dental history."

Dr. Swanson, who was chairman of the Exhibit Committee, solicited un-
usual dental post-cards and trade cards from members of the Academy who are collectors in this field. The booth was manned during the days of the ADA meeting by volunteers among the Academy members, with the lion’s share of the time being put in by Dr. Swanson and his wife.

The exhibit was a great success in introducing ADA members to the Bulletin of the History of Dentistry as well as to the benefits deriving from membership in the Academy.

Poetry and the Dentist

THE VILLAGE TOOTHSNITH

— by Longbellow —
(with apologies to Henry Wadsworth Longfellow)

Under the spreading gum-tree’s shade
The village smithy stands,
The smith a busy man is he,
For when frail flesh demands,
He cups and bleeds and pulls out teeth
With his large and sinewy hands.

Week in, week out, from morn to night
You may see his clients there,
Bound hand and foot to the anvil —
For he owns not any chair —
Squealing, squirming, as he swings
The pelican in air.

Its beak is sharp and hooked and strong
To stir the stumps of man;
You shall not see so weird a thing
From Crewe to Matapan;
They look the whole world in the mouth,
He and his pelican.

The children coming home from school
Look in at the smithy door;
They love to see the pelican
And hear the patients roar,
And catch the double teeth that fall
Like hailstones on the floor.

— E. V. Lucas in Reading, Writing and Remembering (1932)

From the collection of Professor Gardner P. H. Foley
Baltimore, Maryland
To the Editor:

I am presently writing a paper on "mirror-rotation (m-r) symmetry," also known as "rotary-reflection" and "inversion." It is a symmetry that did not appear in the geometry texts before 1950. The term was soon after adopted by crystallographers and chemists, who observed the phenomenon around 1890 — although they did not fully comprehend its place as a unique, mathematically describable symmetry.

The principle, aside from some crystals and molecules, exists in the camera. Aside from that, the only man-made object (that I know about, other than abstract sculpture) possessing it is the curette. That is, a device that has a one (right) handed object on one end and another (left) handed object on the other — and the one in a 180° twist from the other.

Now, my inquiry:

1. When did this double ended, twisted (i.e., m-r) instrument first come into being? When does it first appear in text books, etc.?
2. Does the history of the dental m-r curette exactly parallel the surgeon’s m-r curette?
3. Can you cite any texts that have good illustrations (preferably drawn rather than photographed) of curettes? (For reproduction purposes!)
4. Why, do you think, did the curette take this unusual form — amongst all of man’s useful objects? Of course, to pick right and left sides of a tooth — or a face! — but why the 180° twist?
   My speculation: (a) this arrangement puts the instrument in perfect balance or equilibrium; if the two ends were simply mirrored, this wouldn’t be so; (b) if the hook, not being used, is turned away from the patient’s face, he is less likely to be scratched during the treatment! What is your knowledge — or speculation about this? Oh yes! (c) when flipped, the other end falls immediately into position.
5. I see that there are various versions of curettes. Is there a conventional number of kinds or species of curettes? If so, how many?
6. Are there other double ended instruments that are not specifically curettes but which have the same "mirror-rotation" principle? If so, what are they called?

Dr. Norman Mohl of the dental school at Buffalo suggested that there were surgical instruments that had even a longer history than dental instruments. (As a patient, I have been more aware of the dentist’s instruments than of the surgeon’s.)

In a cursory review of some books on the history of surgical instruments, I did, indeed, find “double ended” instruments. Some, with different tools on each end; but
some also, with the same device, each having opposite handedness from the other.
There was a 17th century scalpel and another from 1350. There was even a Greco-Roman
double ended gynecological curette and an apparent double ended knife in a bas relief.
Amongst the historical dental instruments, I found double ended "pelicans" with
this principle from the 18th century. But so far, I haven't found the why!!

Though I haven't noted it (and I have been looking), I wonder if there aren't a lot
of other tools that might from time to time have been so constructed — cobblers' tools,
tailors' tools, potters' tools, etc.!

Sincerely yours,
William S. Huff, Professor
School of Architecture and Environmental Design
State University of New York at Buffalo
Buffalo, NY 14214

(Editor's note: Dr. Huff would appreciate it if any of our readers could help him in unraveling this puzzle. Please write to him directly at his University.)

To the Editor:

I have just completed reading the most recent issue of the Bulletin of the History of Dentistry (October 1982) and want to make an observation to you that is long overdue.

In the years since I have been a member of the Academy, I have saved every issue of the Bulletin even though I may not have read every one of the issues as completely as I would have liked. Having been an editor for some ten years now, I have come to appreciate the effort that goes into a journal of any length or any multiplicity of publications in a year. The factors associated with reviewing the articles, editing them, getting them to a typesetter, reading the galleys and everything else that goes with putting out a publication, unbeknownst to the average reader, is well known to me and these reasons alone would be sufficient to award you the highest medal of the Academy. In addition, you have consistently provided us with useful and useable material and have strengthened, at least for me, the purpose for which joined the Academy and, that is, to continue to learn and to internalize those aspects of my professional history that support the things I do today.

After such a long winded compliment, I just want to say that I have been remiss in complimenting you over the years and want you to know how much I appreciate your personal input because I know the price you are paying for your professional input for all of us in the Academy.

With warmest best wishes.

Sincerely,
Raymond F. Zambito, D.D.S., Ed.D., Chairman
Department of Dentistry
The Catholic Medical Center of Brooklyn and Queens
Jamaica, NY 11432

To the Editor:

Bernard A. Smiler of The New York State Dental Journal suggested that we contact you about a project that our company is writing and researching.

We are now preparing a television commentator kit of copy and slides to be distributed to news managers at television stations nationwide entitled, "Tools for Teeth: A Look at Dental Care Through the Ages." We are looking for prints, pictures, paintings, woodcuts, etc. of various dental practices and instruments; in particular we are looking for the following:

Ancient Chinese use of garlic to prevent toothache:
A siwak;
Toothpick jewelry;
George Washington's false teeth;
Ancient Chinese toothbrush; and
A barber (dentist) of the Middle Ages or American West with primitive dental instruments.

These images or graphics will be transferred onto slides so the best reproduction possible would be greatly appreciated.

Thank you and we look forward to hearing from you.

Edward L. Woodyard, Account Supervisor
Van Vechten & Associates
Public Relations
New York, NY

To the Editor:

I wish to thank you for the favorable review by Dr. Lloyd Church of my book

A review such as that is terribly rewarding and makes the task of writing the book more worthwhile. Unfortunately, pediatricians are not avid readers of books on medical history.

With best wishes
Thomas E. Cone, Jr., M.D.
Boston, Mass.

To the Editor:

We are considering subscribing to your Journal for the Tel Aviv University School of Dental Medicine, as of 1983.

We would be grateful if you would kindly send us a sample copy of your Journal.

Thank you for your cooperation.

Dr. M. Littner, Library Committee
Tel Aviv University Sackler School of Medicine
School of Dental Medicine
Ramat-Avim, Tel-Avim, Israel

To the Editor:

I am presently preparing class materials for a course to be offered in Spring, 1983, at the University of Maryland Baltimore County on the history of women and health. Because of the wide scope of this course, no suitable textbook exists. I am hoping, therefore, to assemble a packet of appropriate readings, which I could duplicate and make available to my students at cost.


If it is possible, I would like to be granted your permission to duplicate this article for my class.

Many thanks for your assistance.

Sincerely,
Barbara Beigun Kaplan, Ph.D.
Instructor, Department of History
University of Maryland Baltimore County

To the Editor:

About 40 years ago my father, Edward I. Seidenberg, D.D.S., was taking a writing class at U.C.L.A. in the evening. One of the papers he wrote during that class dealt with the practice of dentistry in a western town in the year 1890. It was written in the form of a short story (very well, I believe). It was a true story of the hazards of a dentist dealing with a gun-fighter who shot the town’s previous dentist in the elbow for causing what he called the "side-winder" (like a wrought iron monkey wrench) to
slip off his tooth in the "pullin'" process! It goes into the use of cocaine pellets in 20 cc. of water for local anesthesia.

Would your Bulletin be interested in publishing this kind of short story?

Sincerely,
Mark Seidenberg
Los Angeles, CA

To the Editor:
I have been accumulating material on the dental health of the Presidents. So far the only reference I have found is by Hilkene (Bull. Hist. Dent., 13:13, 1965), and an occasional news report on some of the living ex-Presidents.

I made a direct approach by writing to the people in charge of each of the living Presidents, and that soon wilted into futility. If I could locate the names of the White House dentists, that would at least be a starting point.

I was hoping that you may know of someone in our Academy who has made some serious efforts on this topic. Any bit of information would be of great help.

Sincerely,
William J. Carter, D.D.S.
Editor, Midwestern Dentist
Overland Park, Kansas

To the Editor:
I appreciated very much receiving tear sheets of the exceptionally interesting review in the Bulletin of the History of Dentistry on John Wesley's work, Primitive Remedies, as published in a contemporary edition by Woodbridge Press. Dr. Church has a gift for concise and interesting presentation. Thanks for your kindness in letting us see the reviews.

Sincerely yours,
Howard B. Weeks, President
Woodbridge Press Publishing Co.
Santa Barbara, CA

To the Editor:
Very many thanks for sending me the October Bulletin which is as interesting as usual, particularly for Dr. Maynard Hine's review of the 3rd edition of my late husband's book. I hope that this new edition of Dentistry - Then and Now will help to increase the interest in, and knowledge of, dental history.

Please give Dr. Hine a special message from me, telling him what an excellent review it was, and how cleverly he had brought out all the main points.

Most cordially yours,
Dr. Margaret W. Menzies Campbell
Glasgow, Scotland

P.S. Of course, Menzies was a Scotsman, not an Englishman!

To the Editor:
I am writing to you at the suggestion of Ms. Nicole I. Millman-Falk, Assistant Director of The Dental Society of the State of New York.

Presently, I am a freelance writer researching an article on assignment from MD Magazine for a non-technical article on the history of dentistry and prosthodontics.

If you have any material (printed, photographs of antique or ancient dentures, copies of early advertisements, etc.) that you could provide me with as an aid in my research, I'd be most grateful.

Sincerely yours,
Allen J. McGill
New York, NY

This is a remarkable book!

It ostensibly is the biography of an unusual and interesting man, Charles Edwin Bentley, a leader in organized dentistry as well as dental education in all of its ramifications.

But in actuality it is a wonderful picture of the whole profession of dentistry itself in the last decades of the 19th century and the first quarter of the 20th century.

Peopling its pages are personages whose names are hallowed in the annals of dentistry: G. V. Black; William Taggart; Eugene S. Talbot; Truman Brophy. Also appearing are the giants in the struggle to overcome second class citizenship for Afro-Americans: W. E. B. DuBois; Booker T. Washington; the author Lawrence Dunbar and others. And here we hear their comments at dental meetings, read of their activities in the various dental and civic organizations, and generally get a marvelous picture of the forces that shaped our profession.

Charles Bentley was a black man born just before the Civil War, but born into a family with great zeal for learning and culture. They lived in Cincinnati, just across from the slave state of Kentucky, but the family was determined to take advantage of all that life offered.

Charles demonstrated unusual musical talent and his early life was spent traveling with gospel singers and commercial singing troupes. However, he had a lifelong friend, Dr. Daniel Hale Williams, who had distinguished himself as a leading Chicago surgeon, and who gained world fame as the first to operate successfully on the human heart. Bentley decided to pursue a professional career but chose dentistry instead of medicine and enrolled in the Chicago College of Dental Surgery in 1885.
After graduation, Bentley opened practice in Chicago and because of his skill developed an excellent reputation among the wealthy and middle class citizens of that city. His clientele was almost all white, for few blacks could afford his fees. He opposed giving charity work for he claimed it demeaned the work as well as the receiver. Nevertheless, he accomplished more for the poor and underprivileged by his exhortations to the profession to teach oral hygiene to school children than he would have by giving some free dental care.

In 1896, as a new member of the Illinois State Dental Society, Bentley made a presentation at the Society's annual meeting in Springfield. His paper, "New Outlooks in Dentistry" outlined his views on preventive dentistry: dental examination of students in the public schools. He agitated for this so successfully, seeing to the establishment of a commission by the Society to study the matter and ultimately seeing the plan to fruition and operation, that he has been called "The Father of the Oral Hygiene Movement."

An interesting and important aspect of the book is its delineation of the status of race and minority relations in Bentley's day. In 1900 there were about 9 million black Americans in a total population of 76 million. Yet there only were 212 black dentists! Most dental schools would not accept them (it was because of this that Meharry's and Howard's dental schools were created) and the dental publications of the day carried the most blatant anti-Negro articles which make one's skin crawl as one reads them today. In this period of social turmoil, repression and resentment, and in spite of it, Charles Edwin Bentley made a remarkable contribution to his fellow man.

The author, Dr. Clifton Dummett, president of the American Academy of the History of Dentistry, assisted by his wife Lois, has produced a wonderful book. Dr. Dummett writes in an elegantly, beautiful manner. His words are carefully chosen and orchestrated into a whole that is lucid, smooth-flowing, and, for someone who is a lover of good English, an absolute joy to read! The book is copiously illustrated and has an extensive 57 pages devoted to detailed notes. This book is a first-rate addition to the literature of the history of our profession!

— Reviewed by Malvin E. Ring, D.D.S.


Observations by the earliest visitors, adventurers, seamen and fishermen led people to believe that the coast of present New England was inviting, the soil productive, and the countryside well-developed and populated. Such was not always the case. However, all who left written records found the land attractive and the waters congenial. The natives whom they met were strange in customs, food, implements and costumes. They were termed "savages," but most were well-settled, physically strong and pleasant in appearance, and their intelligence deserved respect. Their housing and agriculture were quite developed, enough to deserve detailed description. They were offshoots of the great Algonquian tribe and spoke dialects from a common language. However, there were no common bonds that provided unity or precluded war.

The word "Indian" referred to the native inhabitants of New England at the time the Europeans first settled there and met them. This misnomer was inherited from the earliest explorers and map makers of the New World, who thought that India had been reached. With this exciting beginning, the author
proceeds to describe the daily activities of the people. How they lived by hunting with traps, pitfalls and weapons to obtain deer, bear and then smaller game; to spear fish or guide them into weirs and dip them out. The beaver-dammed streams provided a habitat for rushes, berries and wild rice. Trees provided them with shelter better than caves, food in the form of nuts and fruits, handles for tools and better weapons. Today, four-sevenths of the agricultural products of the United States, measured in farm value, consist of economic plants domesticated by the Indian and taken over by the white man.

Plymouth harbor was well-mapped long before the Pilgrims arrived. In 1614, Captain John Smith examined the whole coastal area, including Boston harbor. With the English and other Europeans came disease that depopulated large areas. At first it was thought to be smallpox or bubonic plague, and it found the natives with no natural resistance.

Government of the various tribes was well-organized and, allowing for the great loss by the Indian plague of 1616-17, the population of the present day New England, before the Pilgrims, approached 75,000. The main source of tribal population was close to the shore or in the valleys of large rivers. These sites provided a prolonged growing season of from 100 to 130 days, so the Indians were aware of the relation of climate to crops.

Their personal characteristics were described in detail. Dark skinned, the males were easily judged as naked except for a skin about their waist and sometimes a mantle about their shoulders. Their teeth, gleaming white, were sound and regular and apparently intact. Very few were cross-eyed, blind, lame or hunchbacked. Most were well-formed and without blemish. No male was bearded, but some bore seared-in blemishes. Verrazano described the females as comely to behold, very graceful and well-formed, of a soft and pleasant countenance and well-mannered. Their features displayed finely-cut long hair with deep black eyes. The even, white teeth were said to be the best feature of the men. The children were never bandy-legged or crooked. Their general health was very good.

Although possessing superior physical qualities, they did not escape physical ailments. They were inured to cold, yet arthritis, rheumatism, neuralgia, chills, fever, pleurisy, and eye troubles were not uncommon. However, smallpox, malaria, tuberculosis, typhus, bubonic plague, diphtheria, measles, and syphilis were unknown. The effects of malnutrition, such as rickets and scoliosis were unknown to them. Teeth, by all descriptions, were strong and regular. Toothache was abominated by the natives. Indian medicine was more advanced than that of Europeans. They were very successful with fractures and wounds, and possessed rare skill in the use of plants and curatives. 450 plant remedies and over 50 Indian drugs are recognized in today’s pharmacopoeias. The hair was carefully dressed with walnut oil. Cold remedies were ground juniper and jack-in-the-pulpit. Spider web and princess pine were used as styptics, and birch bark and pine bark were used for burns. Digestive troubles were handled by goose or skunk oil; columbine root ended diarrhea, and dogwood bark was excellent for fever. Teething was not a serious matter, as the baby was given a bone to chew.

Religion and philosophy are discussed in detail. Their living places, household and personal equipment were well-advanced. The family meals were quite well-planned, both as to content and to time served. Cooking by broiling, boiling, baking and roasting were the usual methods. It was savory and varied. All parts of the animal, both fowl and fish were eaten. Popcorn was a great favorite of all ages.

Roles of the sexes and the daily round of activities of both are interesting
as well as fascinating. Farming methods used by the Indians present a picture of captivation to the reader. They saved the lives of the early settlers. Travel, trade and communication were highly developed; unfortunately, so was conflict.

The book concludes with an Appendix of the uses of trees, shrubs and herbaceous plants. Notes by chapter follow, as well as a bibliography worthy of any scholar, and an index.

This book is a magnificent contribution to our heritage, of value to the scholar as well as the general reader.

— Reviewed by Lloyd E. Church, D.D.S., Ph.D.
Department of Surgery
The George Washington University
Washington, D.C.

_A History of the National Library of Medicine_ by Wyndham D. Miles. 500 pages, $14 ($17.50 foreign), Washington, DC, National Library of Medicine, 1982.

This first, comprehensive, history of the renowned National Library of Medicine traces the Library’s development from the early 19th century through its growth as an international biomedical information center.

The book’s preface, written by William B. Bean, MD, professor of medicine emeritus of the University of Iowa properly described the importance of the library — and this book — when he said:

“The word library is no longer adequate for the National Library of Medicine, as Wyndham Miles makes abundantly clear in this splendid and searching history. The NLM and its offspring have become the central nervous system of American medical thought and research . . . The birth of an almost invisible library occurred when the brand new Army Surgeon General Lovell needed a few medical books of his own in 1818. The story of the growth and transformation of the Library as it grew up to be a supremely valuable central nervous network of medical memory is detailed in a fashion which embodies Wyndham Miles’ dedication, thoroughness, great concentration, and endurance. He has made what might have been a mere chronicle into a story of imagination, of organizations, of ideas, and of many remarkably dedicated persons, military and civilian. Under a variety of governmental auspices they have managed to perform miracles.”

This beautiful book which contains more than 100 illustrations is a terrific bargain at its low price. It may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402. The stock number is 017-052-00224-4.

— Reviewed by Malvin E. Ring, D.D.S.


The “Roaring Twenties” were dubbed that for good reason. Corruption in government and police was rampant; bathtub gin and bootleg whiskey were being openly peddled in speakeasies; working men and women were plunging into the stock market with their last dollars. All this would come to an end with the Crash of ’29 and the Seabury investigation.
It’s a period in American history that still fascinates most of us. And the very illicitness of life in New York City in the ’20’s titillates us even today in this age when permissiveness is the rule.

Dr. Edgar S. Bacon, a member of the American Academy of the History of Dentistry, had previously written several histories of professional activities in dentistry. His account of the New York Academy of Dentistry’s first 50 years is an especially worthy contribution to the history of our profession. He has also had clinical articles published in professional and lay periodicals.

With this book Dr. Bacon enters the world of the novel. Based loosely on his experiences as a youth, the book tells the story of two young men, fresh out of dental school, who receive internships at New York’s famous Bellevue Hospital. Assigned to the Oral Surgery clinic, they become friends with physicians assigned to other services, and through these friends, share in many of the exciting doings at the hospital.

And exciting and varied they are! Bacon provides us with a panorama of life in New York City in the 1920’s as seen through the stories of the hundreds and thousands of people who thronged through Bellevue’s clinics, wards and emergency rooms. On practically every page is an account of another stabbing, a drug death, a mugging or what have you, that our interest never flags. Also of interest is the training these young dentists received in the hospital, one of the first in the country to establish an Oral Surgery clinic. Never dull, the case histories which Dr. Bacon recalls and recounts so well are at once fascinating and mind-boggling. Could all of these things have happened at Bellevue? You can bet they did!

The title derives from the fact that throughout the building could be heard the screams of the patients in the psychiatric ward, a service for which Bellevue was justly famous. “... These noises of distress were not the kinds of sounds one could shut out with the mere closing of a window. They were heart rending and shrill and they lingered in the mind and made one acutely aware of the eerie world of the insane. It was these piercing screams that prompted some wag to tag Bellevue Hospital with one of its numerous unofficial names — The Howling Seminary.”

Dr. Bacon’s book describes not only life in this haven for the insane, but even more the insanity which raged among the populace outside the walls of the hospital. It’s a book worth reading!

— Reviewed by Malvin E. Ring, D.D.S.


Robert von Fioriep was born in Weimar in 1804. He was the son of Dr. Ludwig Friedrich von Fiorep (1779-1847) and he followed his father in the study of medicine.

The father became the manager of an enterprise which, among other things, published journals. He became a pioneer in reliable medical illustration for books and periodicals.

The son, Robert, studied at the University of Bonn and chose as the topic for his dissertation a subject on which his father had published a paper in 1822: the need for advancement and refinement in the art of diagnosis.

The younger Fioriep chose to study the tongue, which was widely believ-
ed at that time (and almost until our time) to hold the key to diagnosing a host of systemic illnesses.

He studied numerous fetuses and dead infants and then described in detail the development of the tongue. Then he wrote a compendious text describing the tongue in health and in numerous states of disease and included in his book a series of plates which he laboriously hand colored himself.

He had a great reputation as a teacher (the immortal pathologist, Virchow, was his pupil) but his understanding of disease was as primitive as the state of medicine as a whole in his day. Thus there are many misunderstandings in his work on the tongue, but these have to be looked at in conjunction with what was available to him. In microscopy, a hundred magnifications was maximum; there was no knowledge of germs or viruses; and cytology was yet to become a science.

Nevertheless, the book has great value for us today because it mirrors very closely the state of the art of diagnosis in the 1800's. It is "... a valuable documentation of European medical thought as apprehended by an intelligent and industrious graduate student in the early part of the 19th century."

The book is one in a series known as the "Arethusa Monographs" published by the Department of Classics of the State University of New York at Buffalo. The series is devoted to the translation of both Greek and Latin classics and are published with the original language on one page, and the English translation on the facing page. All previous works in the series have been either in the field of literature or social history. This is the first time a medical text has been attempted and the result is admirable! The editors and translators are professors in the Department of Classics at the University. However, they could never have completed such a difficult work in such a satisfactory manner without the able assistance of Dr. Alan Drinnan who holds both the M.D. and D.D.S. degrees and is professor of oral medicine in the School of Dentistry at Buffalo.

The book is a marvelous addition to any library seeking to expand its holdings in 19th century medicine, and which could be read by today's student without a Latin background. It would be fascinating for any student of the history of oral medicine because of the breadth and scope it brings to what is essentially such a narrow area.

The best thing about it is that this is not a money-making project and the book can be obtained for the modest sum of $15 from the Department of Classics, Clemens Hall, S.U.N.Y.A.B., Amherst Campus, Buffalo, NY, 14260. Checks should be made payable to "University of Buffalo Foundation."

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


This text, while meant to be used with the Atlas, can nevertheless be used by itself. It is with soft cover and special binding, making it easy to use in the laboratory. It follows the material in the Atlas and makes frequent references to it. The technic of dissection and instrumentation are presented in the beginning, so that students will not destroy important tissues as they dissect.

Detailed dissecting instructions are presented for the various sections but they are so complete in themselves that a definite order is not necessary. Students are encouraged to look, palpate and completely familiarize
themselves with the important clinical landmarks of each part before they start dissection. The proper skin incisions are shown by photographs.

The text is presented on excellent paper with easy-to-read print. It is profusely illustrated with line drawings and photographs. One might actually use the dissector by itself. To follow the dissector in detail as directed would be quite time consuming and would tax the student's time in the laboratory to complete each assignment. Individual timing of dissection might be necessary. This is an excellent text, very well programmed for use in the up-to-date dissecting rooms. Dr. Snell is to be congratulated for his time and efforts in producing such an excellent text.

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


To be named after a prominent person can be a handicap throughout one's life. To become world famous and a Nobel Prize winner and still be confused with the name of a relative of renown is doubly frustrating. Thomas Hunt Morgan was often confused with his uncle, the Kentucky Confederate hero John Hunt Morgan. In fact, at the dedication of the University of Kentucky's new biology building in 1975, which was actually named after Kentucky's only Nobel Prize winner, it was announced that the building was named in honor of his uncle, the Confederate soldier!

The authors present an intimate picture of Morgan's life and work. Thomas demonstrated an early interest in matters quite different from those of his relatives. He was the first scientist in a long pedigree and, in his own later established terms, a mutation. His early education was in his native state and then on to Johns Hopkins and further study at the Biological Laboratory at Woods Hole. After two years of immersion in biology he emerged the real professional, and in 1890 received his doctorate.

An appointment to the faculty at Bryn Mawr and further research in Europe and Woods Hole, on many species of animals, regarding regeneration, followed. In 1903 he was offered a faculty position at Columbia. At 37 he had his first romance with a Bryn Mawr graduate, Lilian Sampson, 34, and they were married in the same year.

In 1908 he set a graduate student to work rearing the fruit fly Drosophila in the dark hoping to produce flies whose eyes would atrophy from disuse. Although this experiment came to naught, it was apparent that an ideal experimental animal had been introduced to the Morgan laboratory at Columbia. A 23x27 foot room would soon be called the "Fly Room." In May 1910 a male Drosophila was hatched with white eyes, clearly a mutant. This resulted in a wave of experiments to establish the truth of Mendel's principles of heredity. This led to The Mechanism of Mendelian Heredity which was recognized as valid across most of the civilized world and established Morgan as the 20th century Mendel.

The authors follow Morgan's career at Caltech after he had been at Columbia for almost 25 years. In California he wanted to start a department devoted to research and there he found the paradise he envisioned. The Nobel award came in 1933 and brought a trip to Stockholm in 1934. His stay at
Caltech was extended to 1942 when Morgan retired at age 76 but continued to work in his laboratory. He died in 1945 from a ruptured artery, leaving his wife and four children.

This small volume is recommended to anyone interested in the early foundations of genetics. The printing of a family tree on the inside covers of the book is a most useful addition to the text.

— Reviewed by Heyl G. Tebo, A.B., M.A., D.D.S. Professor and Chairman of Gross Anatomy, University of Texas Dental Branch, Houston


The book is made up of a collection of articles published previously with some additional up-to-date information. It should be viewed as a summary of modern approach to nutrition in medical practice. It covers 31 topics in a very readable review format. An appendix includes recommendations of the American Dietetic Association followed by various tables of basic data. Each article is followed by recent references.

The first part of the book relates to adult and pediatric nutritional diagnosis including laboratory data and clinical sciences. This part lists precise guidelines for physical signs and tables of nutritional laboratory evaluation. In the portion dealing with the role of nutrition in various medical problems the section dealing with treatment of the cancer patient offers valuable information. It includes comprehensive tables of the various commercial nutritional support preparations which are particularly useful for home care.

Total parenteral nutrition is very well summed up and describes the concepts and techniques to be used in the cases requiring hyperalimentation. And the chapter dealing with nutrition in oral health should be read by every dentist, pediatrician and oral hygienist. It provides a comprehensive bibliography for those interested in the subject.

An important part of the book is devoted to nutritional determinants of our life span. The discussion of the dietary influence on children and adults is followed by an interesting study of the multiple risk factor. The results achieved in reducing mean serum cholesterol and saturated fat calories seem extremely encouraging.

The last part of the book includes valuable data on vitamin therapy, food additives, various tables of nutritive values and dieting counsel.

This short review cannot do justice to all the subjects covered in the book. Each specialty of medicine will find up to date information related to its own problems. Each of the authors is an expert in his field. Controversial issues are objectively presented and some of the latest research in the field is summed up so that clear recommendations are given to the reader.

The book is a valuable addition to any medical or dental library but can serve practitioners and students equally as well.

— Reviewed by D. Gutman, D.D.S. Professor and Chairman, Department of Oral and Maxillofacial Surgery Rambam Medical Center, Technion Institute of Technology, Faculty of Medicine Haifa, Israel

This second volume of the handbook series consists of 6 chapters by eight contributing authors. The book — intended mainly for hospital personnel dealing with patients whose susceptibility to infections is increased due to their impaired defense mechanisms — is very informative to all health professionals whose work involves infectious diseases, oncology, transplantation, and immunology.

The morbidity and mortality rate caused by nosocomial infections in the compromised host is very high. New sophisticated therapeutic measures are extending the survival time of patients with incurable diseases, but at the same time impairing their immunity, thus increasing the risk of infectious complications. Therapy of certain diseases causes conditions predisposing the patient to infection. Diagnosing infections in such patients can be difficult, and it is essential to be cognizant of the possible problems involved.

Description of the immunodeficiency in the cancer patient is presented as a model of the compromised host. The relationships between immunocompetence and prognosis, and between immunocompetence and the stage of disease, are discussed, and various methods for evaluation of immunocompetence of cancer patients are described.

The predisposing factors to infection and recognition of the infection in the compromised host are specified. In certain given underlying diseases only certain organisms may infect a relatively small number of sites; therefore, it is very important to know which types of infections may occur in what type of underlying disease, to be able to recognize the condition that predisposes to infection, and to be familiar with sites and agents causing most infections in these patients. It is also important to understand the problems of the individual hospital, to realize the difference between community-acquired and hospital-acquired infections, and to recognize the subtle presentation of infection in the compromised host.

In determining what types of infections may occur, the patient’s underlying disease should be considered first, and then the predisposing factors resulting from the treatment of the disease. The most important predisposing factors as they relate to certain underlying diseases are detailed. The extensive use of new immuno-suppressive drugs is responsible for the emergence of a new spectrum of infectious diseases with unusual clinical presentations posing a difficulty in diagnosis and therapy. Rare pathogens and unusual clinical pictures caused by common pathogens are encountered. Various causal microorganisms and their isolation, as well as treatment are described. Different protected environment units (isolation units), the preparation of them and the patient prior to occupancy, are presented. The book discusses microbiological monitoring of the protected environment and the patients as well as antibiotic programs and their objectives.

Treatment of infections in the immunosuppressed patient requires rapid methods, including surgery; thus, optimal management of specimens is essential when surgical procedures are necessary for diagnosis. Different possible infections in this category are described and the difficulties in dealing with infections of the compromised host are emphasized. Many references are included, in some instances very extensive.

Reviewed by Gaida Barens, Ph.D.
Department of Community Dentistry
University of Southern California

This book was published for the benefit of elementary and secondary school teachers who are responsible for units in health and physical education. Rather than following the classical concept of presenting a time-consuming and sometimes tedious series of lesson plans to be delivered in sequence over several years, the authors have chosen to use the more novel concept of "statements." To this end, their book consists of fifty-one one-sentence statements, such as "The quality of diet is important to health." Each statement is followed by an Introduction, wherein the physiological background of the statement is presented, and Procedure, which describes the experiment to be performed by the students in order to support the statement. Teaching Methods, the next segment of each unit, lists performance objectives and helpful hints for the teacher. This is followed by a list of germane topics for class discussion and a list of necessary materials.

The statements are grouped into five categories: "Orientation to Exercise" provides an exercise fitness profile and a description of the specificity of exercise theory. "Somatology" statements introduce the concept that the size, shape and structure of human bodies vary and are dependent upon many factors. The "Neuromuscular" category stresses muscle function and control and motor learning. "Energy Systems" and "Energy Support Systems" concentrate on the physiology of metabolism, energy control mechanisms and how the student may learn to modify them.

It is left to the user of this book, the teacher, to modify each unit to make the lesson appropriate to the grade level of the students, to the time available for its presentation and to the resources of the school. The authors feel that this potential for versatility will make their work more useful to their readers and this is probably true. Each teacher's personal variations, using the text only for resource material and suggestions, should make the system quite attractive to the thinking educator.

The authors' views can be summarized in the following quotations: "Biological awareness is then a process through which the student can learn about his or her body and its response to the environment. . . . We must spend less time stressing and practicing skills and more time emphasizing, through these skills, how the body works and how it responds to the demands of the environment."

Reviewed by Eric R. Robinson, D.D.S., M.S.
Director, Dental Education
St. Vincent Hospital & Medical Center
Toledo, Ohio

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A NEW BOOK for the successful clinical perfectionist

Stress: The Dilemma of Success

by JAMES M. DYCE, DDS(Penn), LRCP(Edin), LDS(Glas)

FOREWORD BY

HAROLD HILLENBRAND, Executive Director Emeritus, American Dental Association. He writes:

"This book is informed by viewpoints and learning that are, to say the least, not common to most writers from the health professions.

"The author illustrates a progression of thinking which moves from the concerns of the clinical perfectionist to the examination of the most divisive areas of social and political thinking. His message is highly perceptive of the many broad problems which currently trouble most of the world. It should compel the discerning and thoughtful reader to consider the questions raised."

Sir Terence G. Ward, President, International Association of Oral Surgeons, writes:

"I proposed that this book be undertaken because the profession requires clarity on the philosophy of practice. To opt to be ancillary in the National Health Service is an unworthy ambition for trained professional brains."

Sir Robert V. Bradlaw, Chairman, Advisory Council on the Misuse of Drugs, writes:

"Conclusions are always important but to have the opportunity of learning the intellectual process by which conclusions were reached is fascinating."

M. H. M. Harrison, Hunterian Professor, Royal College of Surgeons of England, writes:

"A disturbing and important book. As I began to grasp the thesis, many questions concerning my career seemed much clearer."

The Author states: "Success today is measured by our accomplishment with the balancing act of technology, economics, ergonomics, the memory chip, the satellite. It is not our skills which are in question. What is in question is our thinking. We need empirical evidence of the effective application of some of the core-truths from our calling, upon the mayhem of today's world."

Dr. Dyce was awarded the prize for the Thesis of the Year during his Doctorate at the University of Pennsylvania, following graduation in Medicine and Dentistry in Scotland. He joined two eminent American dentists in Harley Street, London, remaining in that practice throughout his career. The author pioneered the use of visual education: at the War Office (supervising training films in the treatment of battle casualties in the field); at Guy’s Hospital (designing a new camera for oral visual education). He pioneered a new approach to the thinking of the professional man: in his private practice (devising a fresh look at the causes of stress); at Cambridge University (studying the philosophy of the Post-Industrial Age.) He has authored three previous books.

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Active and honorary members of the American Academy of the History of Dentistry receive the Bulletin as a consequence of their membership. The subscription price for all others, domestic and foreign, is $10.00 per year. Foreign subscriptions must be paid for in United States funds. All copies sent to foreign countries by surface mail only. No arrangements can be made for air-mail delivery.

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Division of Behavioral Sciences, School of Dentistry
University of Oregon Health Sciences Center
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The Bulletin is published semi-annually in April and October
ISSN: 0007-5132
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 Life and Work of John Howard Mummery

—SHIRLEY GLASSTONE HUGHES, Ph.D.
Cambridge, England

One of dentistry's greatest histologists and anatomists, John Howard Mummery received innumerable honors and awards from a grateful profession for his pioneering work in the structure of the teeth and comparative anatomy. A true Renaissance man, this article traces his colorful life as well as his manifold scientific contributions.

The Mummery family can be traced back to William Mummery, a blacksmith of Hawkings, Kent, who was buried there in 1670. It is likely that the original name of the family was Mumbray or Mumray which indicates that the family originally came from France before 1536, the date of the earliest Hugenot immigration. The name was exclusive to the S.E. corner of Kent at one time. Robert Goodwin Mummery (1819-99), uncle of John Howard Mummery, changed his name in 1856 to Mumbray as he believed it to be his correct name.

The members of the family practised many crafts; they were leather workers, jewellers and pharmacists. One of them, William Rigden Mummery (1819-1869) of Deal, acquired a tannery in Dover and supplied leather boots and equipment for the army at the time of the Crimean War, a very lucrative contract.

He became Mayor of Dover in 1865 and the local populace said of him, "Return again Mummery, Thrice Mayor of Dover". The family, of which
J.H. Mummery was a member, was thus an old, highly respected, one which has for many generations been distinguished for "public spirit and private virtue throughout Kent".

William Rigden’s youngest son Frederick Albert was born in 1855 and succeeded to the tannery business. Well known for his feats as a mountaineer on the Matterhorn, he also studied economics under J.A. Hobson, and with whom he wrote, The Physiology of Industry. His posthumous publication My Climbs in the Alps and Caucasus was well received.

John Mummery, J.H. Mummery’s grandfather, born in Folkestone in 1782, was a tailor and also a widely read man. An excellent amateur painter, he had a charming character which made him deservedly loved by all his six children throughout his life.

John Rigden (1809-1885), his oldest son and J.H. Mummery’s father, was a man of great intelligence and drive and inherited the sense of humour, knowledge and practicality of the long line of Mummerys as well as their practical spade-shaped fingers.

John Rigden started his career as a chemist at Deal and soon became apprenticed to a surgeon at Bow; but when he saw operations without anaesthetics his sensitivity prevented him from continuing in this profession. He changed his career to dentistry and practised in Dover from 1843-1858. He then moved to No. 10 Cavendish Place, London, obtained his L.D.S. in 1860 and practised dentistry until he retired in 1883.

As well as being a distinguished dentist, he had a great interest in anthropology. He was the author of a pioneer work on the incidence of caries among different races which was widely hailed.

JOHN HOWARD MUMMERY’S FAMILY LIFE

John Howard (1847-1926), the subject of this paper, was the son of John Rigden by his second wife Rebecca Jane Shackford, and was born at 10 Cavendish Place on January 19, 1847.

Educated privately before studying medicine at University College Hospital, he qualified M.R.C.S. in 1870. He then went to the Dental Hospital of London (now known as the Royal Dental Hospital), and qualified as a dentist in 1873. While at U.C.H. he came under the influence of William Sharpey, professor of Anatomy and Physiology, and John Tomes, who encouraged his interest in microscopy and dental histology.

For many years he was in practice at Cavendish Place, first with his father and then, alone, until his son, Stanley, joined him in 1905. The practice was a large one and occupied a great deal of his time. At the age of 57 he retired and devoted himself to his researches, contributing a vast number of publications in all fields of dental science, as well as giving innumerable lectures, right up to the year of his death.

In 1874 he married Mary Lily Lockhart (Fig. 1) (1849-1897) who was the daughter of William Lockhart of Twickenham, an early medical missionary in China. Mummery had five children by this marriage: Percy, a surgeon; Stanley, a dentist; Norman, a
surgeon in the Navy; and two daughters, Dorothea and Celia. (The tradition of Medicine lives on in the Mummery family. Hugh Evelyn, son of Percy and grandson of John Howard, was Sargeant Surgeon to Queen Elizabeth II and in 1981 was awarded the K.C.V.O.) The boys were first educated at home and then went to the Leys School, Cambridge, before entering the university. The girls attended school in Southwold and later Malvern Ladies College. In 1897 Mummery's first wife died at the age of 48 of pneumonia.

The family at first had lived at Holly Terrace, Highgate, where the children were born; then in the 1890's moved to The Manor House in the small village of Southall, Middlesex. This home, a picturesque Elizabethan building, was described as one of the proudest historical possessions in Southall at that time (Fig. 2).

In 1898, after his wife's death, he moved his family to Islip Manor, Northolt; this house was smaller, and only five servants were employed. (Islip Manor was later taken over by the Local Authority for a Health Center and John Howard's old bedroom was turned into a dental surgery.) In 1914 a move was made to 29 Albert Bridge Road where he lived until his death.

Mary Lily, Mummery's first wife, was very capable as well as kind and gentle. She took part in a number of charitable organizations and so gained the love and affection of the local residents that on her death the village went into mourning and, in her honour, put up a stained glass window at St. Leonard's Church, Hesston, Middlesex. She was an excellent water colorist and went frequently to the National Gallery to paint, as she remarked in her diary of 1882. In this same diary she noted that Howard was at home most Thursdays when he painted and gardened.

Her inheritance helped run the large establishment where they entertained generously, and on two occasions hosted garden parties for the British Dental Association. They had the help of 7 laundry maids, a parlour maid, a housemaid, a cook, a butler, and a gardener. After Mary Lily's death, the family lived in the smaller house at Northolt, which was run with only five servants.

In 1903 John Howard married Lillian Baumfield Parker, daughter of Thomas Parker of Nottingham; she was 24 and he was 50. (Fig. 3). The marriage was a very companionable one and she adored him. She was very helpful to him and once when she found a drawerful of bills,
which he had not bothered to pay, she offered to do this as she thought that such a fine man should not waste his time with such matters. He almost wept for joy. Although most of his children were grown by then, it was no sinecure to be stepmother to five children. She was business-like, capable and meticulous as well as economical, and made many cuts in the family budget, including the sale of the house at St. Margaret’s Bay, which was used mainly for holidays. Mummery was a very generous man and gave his girls large sums of money for frills and furbelows, which Lillian curtailed. Although strict and slightly formidable, she was at the same time kindly and understanding.

Whenever Lillian and Mummery travelled together, both at home and abroad, she always kept in touch with the family. She was a very elegant, tall, woman, who dressed well and was a great stickler for etiquette. She was a great socialite, attended literary luncheons, played bridge, played the piano, won several medals for her singing and won a certificate for her Red Cross work; she was also a competent water colourist. Both Mummery’s wives were talented, charming and efficient women.

Mummery was a very active positive person and despite all his activities as a private dental practitioner, research worker, lecturer, teacher, member of a number of societies as well as other dental commitments, found time to take his family on holiday. He had the house at St. Margaret’s Bay, Kent, where the family plus the servants and very many guests went.

With both wives he travelled a great deal in England, and on holiday spent a good deal of his time painting in water colors. They travelled frequently throughout Europe, cruised to Norway and the Canary Isles as well as to the U.S.A. While in Italy, he went up Vesuvius, leaving his wife, Lillian, down below. He came down complaining about the horrible smell, but found it all wonderful. The family walked a lot, cycled and were all very energetic. He was a great mountaineer and also played golf. He was intrepid and fearless and was one of the first people to own a penny-farthing bicycle; he fell off it several times when learning to ride, much to the children’s amusement. While visiting Paris with his daughter Dolly, they went up in a balloon, which was the greatest adventure at that time. He wrote frequently to the children and grandchildren while travelling and the letters were nearly always illustrated with charming and appropriate pen and ink sketches.

Mummery’s attitude toward the role of women in society was ahead of his time. However, his conservative nature comes through in a letter he wrote to his daughter in 1913 on the occasion of the birth of her daughter:

My dear Dolly:

My best love and warmest congratulations on the happy event which we have all been anxiously waiting for. Best love to the granddaughter and hearty congratulations to her proud father.

The sex does not matter in these days as the women are coming so much to the front that the poor men will soon be nowhere and she may yet be a mining engineer, a politician or a suffragette — but don’t let her be a militant one.

In the early days of motoring he had a Rover car and once had to wait one and a half days before he could get the axle replaced, which had broken on Porlock Hill. In 1908 he was one of the early members of the Royal Automobile Club.
Another of his pastimes was that of nature study, and some of his collections formed interesting exhibits at the Selbourne Society. His water colors are of great merit and a number were exhibited at the Royal Institute of Painters. (Fig. 4). As a young man he was tempted to devote a great loss to the dental profession had he succumbed to this desire.

He had a great sense of whimsy, an example of which can be seen in the highly amusing crest he designed for his wife Lillian (Fig. 5). His skill with pencil and brush was of great aid to him in illustrating his earlier scientific papers, (Fig. 6) although later he depended largely on photomicrography, in
which he was an expert. He was loved by colleagues and patients alike, the
latter coming from all over the country for their dental treatment. Among
them were many notables, including the eminent novelist George Eliot, in
whose biography is mentioned the dental treatment given her by Mummery:

Marian returned to London from Rickmansworth only once — 28th July
— to see the dentist, who pulled a tooth that had been tormenting her.4

Another entry records a subsequent visit:

Returning home on 9th October, they were disgusted to find the
drawing-room still in the hands of the paper-hangers. Nevertheless they
settled in to work. Mornings of writing were succeeded by afternoon
sessions with Mr. Mummery, the dentist, who had much to do for both
of them. Using Nitrous Oxide for the first time, he extracted two of
Marian’s canines, and she felt no unpleasant after effects.4

MUMMERY’S CLOSE FRIENDSHIP TO W.D. MILLER

Mummery and Willoughby Dayton Miller, who formulated the
chemico-parasitic theory of caries, were very close friends and this is il-
lustrated in letters from the latter to the former from 1895-1907. Unfor-
tunately there are no letters surviving from Mummery to Miller. The early
letters are addressed to “My dear Mummery” but as time goes on there are
many other forms of address such as “Dear old man”, “Dear old stick-in-
the-mud”, “Dear old Whipperjack”, “Dear old stick”, “Dear little
Mummery”, “My dear old humbug”. On one occasion when he wished to
harangue, he addressed him as “Mummery sweetest, fairest, dearest, you un-
grateful old reprobate!”’. The correspondence ceased, unfortunately, in 1907
with the death of Miller at the age of 54 years.

Despite the banter in the correspondence they studied a number of
scientific problems together. Miller advised Mummery on ways to decalcify,
section and stain freshly extracted teeth. They corresponded on
bacteriological subjects as well as on golf. As was his habit in his cor-
respondence, Mummery illustrated his letters with charming pen and ink
sketches, and Miller, in one of his letters says, “your confounded sketching
mania has got me into trouble already . . . .”

Mummery’s obituary in the Dental Cosmos said:

. . . his character had much in common with that of the late W.D. Miller,
with whom he had maintained for many years a most intimate
friendship. The writer regards it as one of the most illuminating ex-
périences of his life to have spent a day in company with Miller and
Mummery on a slope of Mount Saleve, in the Swiss Alps, and to have
absorbed the stimulating impression which the contact of those two
master minds developed under the influence of the majestic beauty of the
place.5

MUMMERY’S EARLY WORK IN BACTERIOLOGY

Mummery was one of England’s early workers in the field of
bacteriology. In order to gain knowledge he studied under Professor Robert
Koch of Berlin, one of the pioneers of this subject. Mummery was so keen in
this field that he had an incubator installed in his library, full of potatoes,
on which he grew a number of organisms. He lectured in bacteriology at his
old hospital, the London Dental Hospital, from 1901-1911. He was also in-
fluenced in this field by his friend Miller.

While still a student at the hospital he was awarded the prize in Dental
Surgery, so it can be seen that honors and awards were gained early in his
professional career. From 1885-1907 he was a member of the Committee of
Management of the Hospital and was appointed Emeritus Lecturer in Dental
Histology in 1920. Both at University College and the London Dental Hospital he made friends with many students who became famous in the world of science. He was a great friend of Charles Tomes and also of his father John Tomes. They both urged him to desert the field of bacteriology and follow in their footsteps. He finally took their advice and turned to dental histology and anatomy in which fields he excelled. The friendship with Charles Tomes continued throughout his life, each advising the other on their researches; they also spent holidays together.

Although Mummery's mistress was science, whom he served with lifelong devotion, he was no recluse. He was active in the affairs of the British Dental Association and was president in 1899 when the Annual Meeting was held at Ipswich, as well as president of the Metropolitan Branch and chairman of the Representative Board. He was interested in the Dentists' Provident Society and was an Official Arbitor.

A STRONG BELIEVER IN DENTAL RESEARCH

Mummery was born at a time when dentistry came under the influence of Sir John Tomes and other notables, and when dentistry was beginning to take shape as a scientific profession in its own right. He believed in greater participation in research by members of the profession and suggested that private practitioners keep jars of 10% formalin in their surgeries in which to place pathological specimens for further examination. He also urged that there should be more grants for dental research.

HIS PIONEERING WORK IN DENTAL HISTOLOGY

As president of the Microscopical Section of the British Dental Association he evinced great interest in the use of photography and microphotography in dental research, aware of its value in demonstrating fine structures. At the same time he did not think it would entirely replace the coloured drawings done by hand using the camera lucida, and felt that all histological papers should be illustrated by both methods. (Fig. 7). At this time advancements in the field of optics saw the introduction of new lenses such as the oil immersion and the apochromatic lens. These gave an increased concentration of light and a greater range of magnification with excellent sharpness. Mummery was praised for describing methods of
fixing and staining, as well as cutting hard tooth sections while retaining the soft tissues. A fine microscopist, he was also an able photomicrographist, and made use of his early training in bacteriology to produce many slides of bacterial preparations. 7, 8

He described various odontomas, dentigerous cysts, single and multiple dental cysts in adults as well as a melanotic and composite odontoma in children; pink spot and many other pathological conditions were described. He acted as consultant for the interpretation of pathological specimens, and wrote and spoke about every aspect of dental anatomy, histology, pathology and orthodontics.

MUMMERY’S WORK IN CARIOLOGY

Mummery, as previously mentioned, was very friendly with Miller and came under his influence, which resulted in his taking a great interest in caries as Miller formulated the chemico-parasitic theory. He went to Miller’s defence when this theory was misinterpreted. He surveyed the literature on caries and described the pioneering in vitro experiments carried out by Magitot in France and Miller in Germany. In these procedures caries was achieved by incubating teeth with saliva and carbohydrates; if the carbohydrates were missing, caries was not produced.

Mummery accepted Miller’s theory which did not state that all the phenomena of caries were explained by fermentation of carbohydrates. There was also susceptibility and immunity in the individual which required further investigation. He suggested that cavities caused by caries should be thoroughly disinfected and a germ-free filling inserted, believing also that bacteriology would add a new approach to the treatment of caries.

Miller had postulated that enamel and dentine were decalcified by the fermentation of carbohydrates by acid-producing bacteria thought to be leptothrix buccalis. (At the present time lactobaccili and streptococci mutans are believed to be the responsible organisms.)

Mummery stressed the fact that dental disease led to other diseases such as gastritis, enlargement of the lymph glands, anaemia and lowered body resistance. He did not claim that all toxic conditions were due to organisms in the mouth even though it had been shown that oral bacteria could penetrate to the brain. He declared that no surgery should be undertaken on any patient with a septic mouth. He suggested ways of combating caries by careful cleaning of the teeth with the toothbrush and silk floss, and recommended foods which encourage salivary flow, such as apples and oranges, and the avoidance of sugar and refined carbohydrates.

A great advocate of preventive dentistry, in his presidential address to the F.D.I. he exemplified good oral hygiene by saying:

Hygiene of the mouth in Japan is perhaps older than in any other country. When a Japanese rises in the morning, his first act is to clean his teeth with salt, and his second act is to say his prayers, for he may not utter a prayer to his God without a clean mouth. An old Japanese proverb says “Let a man be brown but his teeth must be white”.

EARLY STUDIES ON HISTOLOGY OF DENTINE

At the beginning of the 20th Century, the presence of an organic matrix in enamel was not always recognised. Mummery maintained that if it were dead inorganic tissue, without any matrix, it would not be permeable to mouth fluids. By staining teeth with alcoholic fuchsin or silver nitrate he demonstrated the presence of the organic matrix in the teeth of humans and marsupials. 9 He further described the presence of a translucent or protective
zone in the enamel, beneath a carious lesion, into which the stain did not enter. He concluded from these observations that the alteration of the enamel is a distinct change of structure not due to development but associated with the decayed area, indicating that the enamel was not inert. The change in the translucent zone in enamel is today assumed to be due to the increase in the size of the pores present in the prisms, which allows the mounting media to enter them so that the structure of the prisms is no longer easily recognised.¹⁰

In the latter half of the 19th Century there were two schools of thought on the formation of dentine. One held that the odontoblasts were converted into calcified tissue, with the center remaining uncalcified as a soft fibril. The other believed that the odontoblasts secreted the dentine. In order to prove the latter theory, Mummery used a special method for fixing, decalcifying and staining teeth of various species such as the human, rat, fish and elephant. He described the presence in the pulp near the odontoblasts of many fibers in the form of open-meshed reticulum. These fibers passed between the odontoblasts into the collagenous base, the pre-dentine, which in its turn was calcified.¹¹,¹²

In 1892 Mummery had said: “We can no longer look upon the matrix of the dentine being a homogeneous substance, but must regard it as composed of a reticulum of fine fibres of connective tissue modified by calcification where that process is completely hidden by the densely deposited lime salts.” As a result of these conclusions he decided to investigate the calcification of the tooth, studying the function of both the odontoblast and the ameloblast. He conducted some chemical experiments which simulated normal calcification, and came to the conclusion that in both enamel and dentine lime salts were precipitated in the form of calcospherites which eventually broke down and were obscured by final calcification. The lime salts were deposited in the matrix, which was a colloidal substance formed prior to calcification. He concluded that the odontoblasts were the principal agents in calcification of the dentine but were not themselves calcified. C.S. Tomes had stated that “… the enamel is formed by the actual conversion of the cells of the enamel organ into enamel …”.¹³ This theory was disputed by many authorities including Mummery who recognised that enamel calcifies in the same way as dentine. The modern view holds that a nucleating substance, of unknown composition, is present, around which crystals form when there is a correct concentration of lime salts.

ARE THERE NERVE FIBERS IN DENTINE?

There has been, and still is, a great deal of controversy as to the presence of nerves in the dentine. In 1912 and 1920 Mummery wrote: “For the past fifty years very many attempts have been made to solve this problem, and many theories have been propounded, but none of these has been generally accepted, the evidence not having been considered sufficient by the majority of observers.”¹⁴,¹⁵ He used various methods for decalcifying teeth and for staining both ground and decalcified sections and found that the best stain to illustrate the presence of nerves in the dentine was gold chloride. In these specimens he found that the myelinated nerve fibers lost their myelination and entered the intricate plexus of Raschkow. From this plexus they passed between the odontoblasts and into the dentinal tubules. He maintained that the fibers passed into the tubules as distinct beaded structures along with the dentinal fibrils right to the enamel border and sometimes into the cementum, and concluded that the odontoblast and its
fibril were sensory structures. Today it is believed that most of the beaded nerve fibers in the calcified dentine are artifacts.

In 1968 Frank examined the nerve fibers of the pulp with the electron microscope and described how the unmyelinated nerve fiber associated with the odontoblast in the pre-dentine sometimes twisted itself around the dentinal process, but made no mention of nerve fibers entering the calcified dentine.\(^\text{16}\)

Recently in a study by Pimenidis and Hinds, Tritiated proline was injected into the Gasserian ganglion; then autoradiography traced the labelled proline to the nerve endings in the dentine. It was also found to be present in the tubules near the odontoblast area, and sometimes could even be traced to the enamel border.\(^\text{17}\) Experiments by Byers and Mathews in 1981 tend to confirm this.\(^\text{18}\) Today it is thought that occasional nerve fibers are seen to penetrate to the dentine about a third the way up; but the subject is still very debatable.

MUMMERY'S WORK IN COMPARATIVE DENTAL ANATOMY

In 1919 Mummery had published *The Microscopic and General Anatomy of the Teeth*.\(^\text{19}\) This book contained much of his original work and was very popular with the profession; a second edition was printed in 1924. In addition to the thorough coverage of the histology of the teeth of the first edition, the second contained a study of comparative dental anatomy.

Most of the drawings were made by him from material in his personal collection as well as from specimens secured from colleagues, museums and societies. The book was hailed as a highly original work and a great contribution to the field.

HIS EXTENSIVE WORK IN DENTAL ORGANIZATIONS

Mummery was always interested in dental organisations and education and was on a large number of committees. He devoted a great deal of the little spare time he had in helping administer various professional societies. He joined the Publishing Committee of the B.D.A. in 1891 and, as a staunch supporter of dental research, helped select papers with a bias towards research.

He was a prominent figure in the old Odontological Society and was its president in 1892 as well as its Foreign Secretary. When this Society was absorbed into the Royal Society of Medicine he was the first president of the Odontological Section, in 1908, as well as Foreign Secretary and Trustee of the Museum.

HONORS AND AWARDS WERE BESTOWED ON HIM

Among his many honors was the Sir John Tomes prize in 1897, awarded by the Council of the Royal College of Surgeons, and in 1923 he was elected a Fellow of the College.

He showed great interest in the F.D.I. and became president in the fateful year of 1914 when the 6th Congress was held in London. In his inaugural address he said:

*We had hoped that the advance of civilisation had rendered such a situation as the present impossible, but we have been sadly disillusioned. It is all the more necessary that we should all use our best endeavours to make the Congress a success despite those adverse conditions, for medicine and science know no politics and no nationality and must steadily pursue their way under all conditions and in all circumstances. The friendships and mutual regard fostered by these meetings enable us to meet as brethren in a common cause.*
During the First World War, though nearly 70, he commanded the Maxillo-Facial Hospital in Princes Road, Kensington, and received the C.B.E. in recognition of his excellent services.

The University of Pennsylvania, in 1915, conferred on him an Honorary Doctorate of Science for his original work.

He was a member of the Committee for the Investigation of Dental Diseases set up by the Medical Research Council in 1922.

The General Medical Council appointed him Inspector of Dental Hospitals and, in 1923, Inspector of the Examining Board for the Dental Diploma. He also examined for the D.D.S. in New Zealand.

At the 1922 meeting in Madrid of the F.D.I. he received the Miller prize, awarded to the person who had rendered the most eminent service to dental science. This honor must have given him much pleasure in view of his great friendship with Miller.

In a letter to his daughter he said “Our holiday this summer will be a bit dished as we have to go over to Paris to receive the Miller Medal. The medal itself will be only a bait for thieves and I expect I shall have to bank it as it contains 50 Pounds of gold, which is a rare article these days.”

In 1922 Arthur D. Black, Dean of the Dental School of Northwestern University in Chicago, wanted to have a bronze bust of Mummery placed in the newly-built library of the school in appreciation of Mummery’s kindness to the dental students from Chicago who had studied under him. Unfortunately Mummery died in 1926 before the bust was completed and the sculptor had to resort to the use of photographs. (Fig. 8) The bust was unveiled at a special meeting of the Odontological Section of the Royal Society of Medicine in July, 1929. In his speech at the unveiling Sir Charles Tomes said that Mummery had made himself a unique master in photomicrography. This was great praise it was said, for Tomes was not given to exaggeration.

The Dental Research Laboratory at the Dental School of the University of Witwaterstrand in Johannesburg, South Africa, was named in Mummery’s honor.

Mummery was also honored by the British Dental Association in 1926 when it instituted a prize in dental research in his name. With over 300 Pounds subscribed initially, the prize has been awarded quinquennially for work relating to dental histology or pathology.

Mummery’s kindness has been stressed by one and all. Upon his death in 1926 his obituary notice in the British Dental Journal said “He placed his time and skill freely at the disposal of others and nothing seemed to delight him more than to give a helping hand to younger men interested in scientific investigation.” He was recognized as a final authority on matters of dental histology and this brought him a large correspondence.
He retained his mental vigour unimpaired until his death. He was 72 years old when he published his book on dental anatomy and was engaged in research up to a few weeks before his death in 1926.

He was the most modest of men, a good conversationalist, with a great sense of humour and could contribute something to most subjects. He was a great lover of music and drama and had a great appreciation of art. He was one of the most gifted members of his family, and aside from his scientific achievements is best remembered for his very great charm.

A recognised leader of his profession, not only in his own country but in every scientific center in the world, he was truly one of dentistry's greats!

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DR. GLASSTONE HUGHES received her Ph.D. at Cambridge and was engaged in research on the development of teeth in tissue culture. She is the recipient of an honorary F.D.S. of the Royal College of Surgeons of England and was herself awarded the Howard Mummery Prize. Requests for reprints should be made directly to the author. Her address is 34 Porson Road, Cambridge, CB2 2EU, England.
Orally Used Smokeless Tobacco as Advertised in the Metamorphic Trade Cards of 1870-1900.

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Smokeless tobacco (which includes snuff in its various forms as well as chewing tobacco) poses a significant threat to the general, as well as dental, health of the users. Nevertheless, it has a long history, and was widely promoted to the public by means of clever and colorful advertising cards which promised the consumer an end to his troubles if he'd but buy that product.

Since the early 1970's, American adolescent and adult males have dramatically increased their usage of smokeless tobacco. Dentists are becoming especially interested in this development because smokeless tobacco is strongly implicated in producing significant dental changes. These alterations in the soft and hard tissues of the mouth include bad breath, discolored teeth and fillings, excessive tooth wear (abrasion), decreased ability to taste and smell, gingival recession, advanced periodontal destruction of the soft and hard tissues, leukoedema, erythema of the soft tissues, leukoplakia and cancer.

Today, smokeless tobacco is being extensively promoted by mass media advertising, including radio, television, promotional gimmicks and the press. In the last century, smokeless tobacco was popularized in a different, yet quite effective way: the advertising trade card. The purpose of this article is to show some examples of a unique advertising form, the metamorphic trade card. This will help to provide a historical perspective of today's smokeless tobacco advertising campaigns.

SMOKELESS TOBACCO USAGE IN THE 19th CENTURY

In the United States, smokeless tobacco became especially popular in the period from 1800 to 1913. In that latter year Camel cigarettes were inexpensively mass-produced by means of the newly-invented cigarette making machine and the use of smokeless tobacco declined as more-and-more users turned to cigarettes.

During the 1800's three forms of orally used smokeless tobacco became popular: moist snuff, loose-leaf chewing and block (plug) tobacco. In 1789, P. Lorillard published the first known advertisement for tobacco. Their copy, featuring the American Indian theme, was used to promote all of the various Lorillard products, which included cut tobacco plug and snuff. The "Red Man" soon became a symbol for tobacco, and vividly painted wooden Indian statues began to appear everywhere, until, about the turn of the century, their use gradually died out.

During the 19th century, tobacco chewing became known as the "American Habit." Hundreds of factories in the Northern cities, especially New York, produced plug and chewing tobacco. They were given a variety of colorful trade names: Horse Shoe, Climax, Star, Daniel Webster, Honest Long Cut, Board of Trade, Newsboy, The People's Choice and Cherry Ripe. Plug tobacco was produced in small, family-operated, factories in North
Figure 1 — “The Melancholy Pair,” Metamorphic Advertising Trade Card, Jackson’s Best Sweet Plug Tobacco, Petersburg, Virginia, Lithographed in color by Donaldson’s Brothers, Five Points, New York, Circa 1900. Closed Panel (left) measures $3\frac{1}{4}''$ x $3\frac{3}{4}''$; Open Panel (right) measures $3\frac{1}{4}''$ x $5\frac{3}{4}''$.

Figure 2 — “A Sure Defense Against All Harm,” Allen’s Five Cent Plug, Metamorphic Trade Card, Lithographed in color by Donaldson’s Brothers, Five Points, New York, Circa 1890-1900. Closed Panel (left) measures $3''$ x $3\frac{3}{4}''$; Open Panel (right) measures $3''$ x $5\frac{3}{4}''$. 
Carolina beginning in the mid-1850's. Its name was derived from the manner in which it was made. Workers bored auger holes in green birch, elm, maple and poplar trees which contained a sweet sap. These holes were plugged with leaf tobacco, and after a month or two, the log was split open, and the hunk of sap-sweetened tobacco was removed. Plug tobacco often produced a "swollen cheek" appearance, resembling a dental abscess, in the user. These tobaccos were noted for their repulsive, whimsical names, e.g., Alligator, Darling Fanny Pan Cake, Grit, Jaw Bone, Mule Bar, Monkey Wrench, Old Slug and Plank Road.

ADVERTISING TRADE CARDS

By the mid-1800's, the Industrial Revolution had produced a new entity: consumerism. There was mass production of all goods for a clamoring American public. Competition between various firms was fierce, and governmental controls were almost nonexistent. Preposterous claims of efficacy could be made about any product. During the 1870's, technical advances enabled the printing trade to produce material by lithography in full, vibrant colors. The public was bombarded with a stream of colorful handbills, billboard signs and trade cards.

Advertising trade cards, generally measuring 3 by 5 inches, were printed to give the public information about a product, a tradesman and his services, or to make an announcement of a coming event. By 1890, nearly seven hundred printers across our nation were producing these attractive picture trade cards. These items were distributed to the consumer by the traveling salesman, the druggist, by mail or in the general store. Many people started to collect these cards, placing them in albums, scrapbooks or storing them in trunks. A new leisure pastime, similar to stamp collecting, grew around these cards. They were especially popular for the fifteen-year period from 1885-1899. By 1900, the use of trade cards fell off dramatically, and they almost disappeared from the scene by 1905. It is uncertain why their popularity waned. They are presently resurfacing as collectible items.

THE METAMORPHIC TRADE CARD

The metamorphic advertising trade card is a special type of novelty item which was popular in the late 1890's. This card changed from a lesser state to a more developed one. The card is usually folded horizontally, and when opened, demonstrates the amazing effects of using its product. It frequently portrays a "mini-drama." Typically, in the first closed panel, a distressing situation is presented and the open panel shows its solution. Four examples of the metamorphic trade card, advertising chewing plug tobacco, are shown in the open and closed position (Figures 1, 2, 3 and 4).

Discussion

The metamorphic advertising trade cards of the late 1800's emphasized the tranquilizing and sedative-like effects produced by using smokeless tobacco, which could lead to a state of happiness and content. The use of a specific product was touted as being able to put a smile on one's face and reduce social tensions.

Modern smokeless tobacco advertising features popular, "macho-type" sports personalities and entertainers who endorse the use of these products. Smokeless tobacco is seen as the perfect answer for active people who use their hands in pursuing an outdoor hobby or leisure time activity. Current
Figure 3 — "The May-Flower Legend," Bagley's Chewing Tobacco, Detroit, Michigan, Metamorphic Trade Card, Lithographed in color by Donaldson's Brothers, Five Points, New York, circa 1890-1900. Closed Panel (left) measures 2½" x 3"; Open Panel (right) measures 2½" x 4½".

Figure 4 — "Young Lochinvar Seeking Chewing Tobacco in the West," Stuart Chapin and Co., Toledo, Ohio, Metamorphic Trade Card, Lithographed in Color, Calvert Lithographic Company, Toledo, Ohio, Circa 1870-1900. Closed Panel (left) measures 3⅜" x 3¾"; Open Panel (right) measures 3⅛" x 5⅜".
advertising, unfortunately, implies that smokeless tobacco habits are innocuous and safe.

Smokeless tobacco advertising campaigns from the past and present have several common themes. They both emphasize that smokeless tobacco satisfaction is primarily reserved for males who enjoy the camaraderie of engaging in this activity together and who appreciate full flavored tobacco taste.

REFERENCES


DR. CHRISTEN is associate professor and chairman, Department of Preventive Dentistry, Indiana University School of Dentistry, Indianapolis. DR. SWANSON is a colonel in the United States Air Force and Base Dental Surgeon at Dyess Air Force Base, Texas. Requests for reprints should be made to Dr. Christen at the dental school, 1121 West Michigan Street, Indianapolis, IN 46202.

DENTAL BOOKS FOR SALE
A small collection of books, pamphlets and prints dealing with various aspects of dental history is offered for sale. For listing contact Samuel X. Radbill, M.D., 224 Welsh Terrace, Merion Station, PA 19066.
The Life and Accomplishments of Dr. Samuel Fastlicht

—DR. JOSÉ SANFILIPPO B.
Mexico City, Mexico

On July 6, 1983, the world lost one of its foremost historians with the passing of Dr. Samuel Fastlicht of Mexico City. Widely acknowledged as the world’s greatest authority on pre-Columbian dentistry, Dr. Fastlicht will long be remembered for his many contributions to the literature dealing with dental practices in Meso- and-South America, most notably his outstanding work Tooth Mutilations and Dentistry in Pre-Columbian Mexico. Loved and respected by all who knew him, Dr. Fastlicht’s death will be keenly felt by the entire dental community as well as by the world’s dental historians.

The following speech, translated here from the Spanish, was given by Dr. Sanfilipp B., on the occasion of Dr. Fastlicht’s 50th anniversary in dentistry, to the Mexican Society of the History and Philosophy of Medicine, in Mexico City on November 4, 1982. It marked Dr. Fastlicht’s last public appearance.

Mr. President, Ladies and Gentlemen: This evening the Mexican Society of the History and Philosophy of Medicine appears in all its glory to render homage, on his professional golden jubilee, to an illustrious dentist who is dedicated to the historical investigation of his profession: Dr. Samuel Fastlicht.

Dr. Fastlicht is an illustrious Mexican who was born in another land, but who has dedicated his life to uncovering our glorious past. He is a Mexican, like others we know, who knows more about our roots than we ourselves do, and who loves this country as much as anyone who was born here.

Professor Fastlicht was born in a little village called Sambor in what was then Austria, but after World War I became part of Poland. Born soon after the turn of the century in 1902, it was in that region that he completed his earlier studies with brilliant success. Some years later, due to the vicissitudes brought on by the war, he found it necessary to emigrate to another land, and by a stroke of good fortune chose our country, to which he arrived in 1923.

Once situated in Mexico he decided to attend night school at the Escuela Nacional Preparatoria; during the day he was employed as a dental technician for several well-known dentists. Later he undertook the study of odontology at the School of Dentistry. It was at that time situated alongside the present Palacio de la Medicina de Santo Domingo. He was graduated from there on February 13, 1932. His thesis was entitled “Facial Prosthesis” and it won him the recognition of the members of his profession.

Later he went to Los Angeles, California, to study orthodontics, a branch of dentistry which gave him much satisfaction, and to which he would bring many honors. One of these was the creation, in 1931, of the Mexican Association of Orthodontists, which continues to function to this day. This association organized five important medical-dental conventions and they were of paramount importance because they helped elevate the scientific level of Mexican dentistry.

"Once in a while individuals appear to whom the time in which they live is of little importance and they allow themselves to be moved by an in-
clination which, even if it isn't very productive or very practical either, makes them dedicate part of their existence pursuing facts in archives or old libraries — all this for the love of historical truth." These words, spoken by Dr. Fastlicht more than 20 years ago, clearly show us his love of history.

He was prompted to research the pre-Hispanic past of our land by Dr. Alfonso Caso, with whom he studied and took courses in the Old Museum of Anthropology and History on Moneda Street, stealing precious time from his professional practice. Later, and for many years, he attended the famous Monday lectures at the National College.

While engaged in this pastime, around 1940, Dr. Caso showed Dr. Fastlicht a copy of the famous Codex Badianus which had recently been published by the Johns Hopkins University. In this he found many interesting facts relating to the kinds of dentistry which were practiced in pre-Hispanic Mexico, and it was in this way that his career as a dental historian began. (Fig. 1)

Fig. 1. A page of the Codex Badianus, written in 1552, which launched Dr. Fastlicht on his career in dental history and anthropology. This plate, taken from Fastlicht's book La Odontologia en el México Pre-Hispanico shows the plant called Teonochtli by the Aztecs, and believed valuable by them for curing tooth-ache.
In 1947 he undertook a radiographic study of the mutilated teeth in the collection of the National Museum of Anthropology, publishing his findings in the *Annals* of the Museum.

From this first step Dr. Fastlicht continued working in the field of history, publishing his findings in odontological and anthropological journals, both domestic and foreign. In 1951, in collaboration with Dr. Javier Romero he published his first book: *The Art of Dental Mutilations.* This work summarized his findings up to that time and pointed the direction in which he was to work for the next 20 years. His great investigative bent forced him to come to grips with one of the problems concerning the ancient Mexicans: the composition of the cements they used with which to fix the jade and pyrite inlays in place, fillings which have remarkably stayed in place for hundreds of years. (Fig. 2) Unable to arrive at a conclusion himself,

![Fragment of a skull studied by Fastlicht showing hematite inlays in the facial surfaces of the anterior teeth. This ancient skull was found in the vicinity of Chiapas, and is in the collection of the National Institute of History and Anthropology of Mexico.](image)

Dr. Fastlicht enlisted the aid of several laboratories in the United States and England to solve the puzzle. All of this culminated in his second book, *La Odontologia en el Mexico Prehispanico,* a work which he, himself, edited in 1971. Five years later a new edition was issued in English translation and published in Germany. In addition to being a translation of the Spanish, it also contained many new findings and, above all, was richly illustrated; it is an edition of superb quality.

Because of all this immense investigative work, Dr. Fastlicht is rightly considered the world's best authority on pre-Hispanic odontology and one of only three Mexican researchers who have specifically concentrated on the study of dental mutilations.
Fastlicht contributed a special chapter analyzing the dental aspects of the famous herbal, *Libellus de Medicinalibus Indorum Herbis* by Martin de la Cruz y Juan Badiano which was issued in facsimile form by the Mexican Institute of Social Security in 1964. In addition he participated in the symposia on the subject of the *Codices* which were organized by the Academies of Medicine and of Stomatology, the latter being chaired by Dr. Fastlicht himself in the role of president of the group. He also analyzed the dental components in the works of Francisco Hernandez, and his findings will soon be appearing in the yet to be published sixth volume of Hernandez’ work. In advance of this release he had, at his own expense, a facsimile work issued in a printing of 200 copies and which he distributed to his close friends. This was his last publication.

These are not the only things on which Dr. Fastlicht worked with great dedication. He also became involved in the field of bibliography and Dr. Francisco Guerra tells us that Dr. Fastlicht “... energetically applied the bibliographical knowledge, which he had himself acquired, to the building of an excellent and important library.” And it is certainly true that he has an excellent specialized library which contains books and periodicals which are hard to find, as in the case of the journal called *El Arte Dental*, the first publication of its kind which was issued in Mexico in 1887 and is probably the very first dental journal of Latin America. Guerra also tells us that when the great dental historian and bibliographer, Dr. Bernhard Weinberger died, his library passed on to his friend, Dr. Fastlicht, who integrated it into his own. This wealth of material, all these acquisitions combined with his knowledge and skill, helped Dr. Fastlicht create his famous *Odontologic Bibliography of Mexico*, a work which is considered the cornerstone of all our historical and dental research. It was issued on the occasion of the 50th anniversary of the National Dental School and it includes all pertinent material in the field. In it are listed all publications from the 16th century up to 1950, and in addition to books and periodicals are theses from universities in Mexico City, Guadalajara, Merida, Puebla and Monterrey.

Dr. Fastlicht compiled his bibliography by working chronologically, accompanying each entry with an accurate description as well as a critical annotation. Included are facsimilare reproductions, as well.

A problem arose in the case of theses, for it was necessary to compare these with the examination and minute books of the individual schools, for corroboration, and this wasn’t always possible. Fastlicht, himself, is the first to admit its incompleteness on this score, for his own thesis is not listed in the minute book of his school. The whole was a titanic undertaking, and Dr. Alberto Maria Carreno characterized it as follows:

> Few intellectual tasks are more worthy of praise than bibliographies. For they represent an effort which is totally unselfish and altruistic. Its aim is solely that of serving others. It also saves works from oblivion. And with the commentaries it acts as a guide, supplying information, as well, on subjects which other researchers will write about.

But Dr. Fastlicht’s work doesn’t end here; there’s yet another subject which also fascinated him, and to which he dedicated a great deal of his time and effort. He set himself the task of rescuing from oblivion the odontological work of a school teacher from the State of Chiapas who lived at the end of the 19th century. This teacher, Mariano N. Ruiz from San Cristobal de las Casas, wrote about many disparate subjects including a method of tuning pianos, an analysis of political economy, a cosmography and finally, what is of interest to us, various accounts of dental subjects. Dr. Fastlicht
considers this work as "... the first on the subject of dentistry written with true scientific judgement."  

Entitled *Natural and Artificial Teeth: How to Conserve Them and Repair Them*, the book is in essence a short work designed for the instruction of the people, and it was written in 1894. (Fig. 3) This book refers, for the first time, to fluorine as being helpful "... in hardening the enamel of the teeth," a subject which even today is considered very important and is still being widely discussed. The book, about 100 pages long, was given to Dr. Fastlicht by two dentist friends, Dr. Rafael Esponda Vila and Dr. Fermin Reygadas. The work made a deep impression on him and for many years he dedicated himself to the investigation of this strange individual from Chiapas. It became the subject of numerous papers delivered before many different associations and published in numerous journals. Finally, after 25 years Dr. Fastlicht decided to resurrect the book and had it republished in a facsimile edition of 350 copies, which he, himself, paid for and which he again distributed to his close friends and associates.  

In addition to all these activities, he made great contributions to the history of his own specialty, orthodontics, and as part of this compiled a biographical listing of Mexican orthodontists.  

Fastlicht, in his last published work, made a contribution of great consequence to the study of dental history. For in it he supported the possibility that General Porfirio Diaz may have been forced by a dental infection to resign the Presidency of the Republic in order to go to Paris to seek a cure.  

In a few words we have given a succinct description of the enormous amount of work done over a span of 50 years of a most productive life! A life in which, aside from his dedication to the research of historical matters, he has worked arduously at his profession of dentistry, reaching a level which has won for him a place in the National Academy of Medicine, a noteworthy fact since it is far from easy for a dentist to attain such an honor. In the past 120 years of the Academy's existence, only 5 dentists have been accepted into its bosom!  

Dr. Fastlicht, it is good to repeat your own words spoken publicly in your last presentation to the National Academy of Stomatology and which sums up all of your professional activities: "I have dedicated my entire life to study, research and publishing."
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(The translation of Dr. Sanfilippo’s speech was very graciously done by Mrs. Catherine Smith, Piffard, New York.)

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Horace Wells, justly famed as the discoverer of anesthesia, has long been portrayed as a weak, introverted personality who was taken advantage of by his many adversaries in the anesthesia controversy. Newspaper articles of his day tend to contradict this picture, especially a contest to "determine the best dentist in Hartford" and which carries strong suspicion that the "contest" was engineered by Wells.

The celebrated story of the discovery of anesthesia and the controversy by the claimants to that discovery have been the subject of scores of books and articles. The life of Horace Wells, one of those claimants, has been detailed by W. H. Archer in a chronological presentation of letters, newspaper items, office records and other biographical information. The present paper presents some interesting newspaper items about Horace Wells that were not quoted in Archer's chronology or other references about Wells. These previously unreported items not only supplement the Archer chronology, but they also describe an astonishing sequence of advertisements that conclude with the accusation that Wells was a devious, bombastic, egotistical manipulator of publicity.

At the age of 21, following two years of apprenticeship in Boston, Horace Wells began a dental practice in Hartford. Typical newspaper ads announcing the opening of his office were run in the Connecticut Courant of April 4 and 11, 1836, and are quoted in the Archer chronology of Wells' life.

Evidence indicates that young Wells had a restless, impatient, hyperactive personality. His early letters were usually signed "yours in haste." His first letter to the future Mrs. Wells displayed a presumptive impatience that would be poor taste even in today's liberated society. In a letter to his sister, he confesses surprise that he was still in dental practice after six months in Hartford: "... the greatest wonder is that I have not gone on to some other business before this time; or moved to some other place, for I have been here almost six months — that beats all water." Indeed, only three months later, another letter talked of a venture into the publishing business. His later vacillating attention to his dental practice and his peculiar ventures into European art and a stage show also exhibit this restless character.

During the years before the anesthesia events, young Wells devoted his impatient intensity to the development of his dental career. His invention of a set of dental instruments, which is mentioned by most writers of the anesthesia story, was used as the basis of the following advertisement, which ran in the Connecticut Courant from October 28, 1837 to April 1838:

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*Archer does not, however, quote further newspaper items from 1837 to 1842 which are included in the present paper. A possible reason could be the beginning of a daily paper, the Hartford Courant, in 1838. Archer quotes news items after 1838 from the daily Hartford Courant, while the items in this present paper are taken from the Connecticut Courant, a weekly by the same publisher.
IMPROVED METHOD OF FILLING TEETH.

"H. WELLS would inform his friends and the public generally that he has invented a set of Instruments for FILLING TEETH, which by their construction entirely supercede those in common use. Ladies and gentlemen, having Teeth filled by him, from this date, shall be liberally rewarded, if in any instance the operation proves ineffectual.

During this period, Wells also wrote a 70-page booklet on the care of teeth, An Essay on Teeth, which he probably distributed as advertising to his patients. This same drive resulted in several later inventions, one of which was the gold solder that led to his Boston partnership with William T. G. Morton and contact with Charles T. Jackson, the other claimants to the discovery of anesthesia.

It was also during these early years that Wells became involved in the curious situation described in the following sequence of newspaper quotations. The first of the four items appeared in the Connecticut Courant of April 27, 1839. This lengthy article has been abstracted to about one-half its original length.

PRIZE $100

Mr. Boswell (Editor of Courant) — Sir, It will be readily admitted by all, that it is of the highest importance to have the teeth properly and judiciously treated, when they are given over to the care of a Dentist for preservation. We believe that however simple the operation of filling the teeth may appear at first view, it is in fact the most complicated branch of Dentistry, and the evils resulting from the failure of other operations are not worth naming in comparison to the loss of the natural teeth; which is too often the result of bad management in the attempt to preserve them, by those who are unqualified for the task. If we mistake not, it is an axiom among Dentists, that if one of their number can fill teeth well he can perform all other operations well.

Our proposition is this — We deposit the sum of One Hundred Dollars with you, to be disposed of in the following manner: You are desired to give notice through the medium of your paper, that all Dentists now practicing in Hartford may become competitors for the prize above named. Each Dentist is to select his patient from those who have had teeth filled by him at least one year and a half previous to this date—" (Specific rules, scheduling and judging procedures follow in the original article. They have been omitted here) — the examining committee may consist of one, two, or three of the first Dentists in New York, as can be agreed on, by the competitors; . . .

There may be one or two Dentists who are satisfied in their own minds that it would be worse than useless to undergo an examination. If there is one of this description, he is requested to withhold his name altogether, . . .

Why should there not be a law requiring an examination of Dentists as well as those of other professions? Certainly, those who are unqualified are liable to do as much or more injury, than those of any other profession which can be named.

It is hoped that this proceeding may answer as a substitute for such a law, so far as the Dentists of Hartford are concerned.

You and other editors of Hartford, may confer a favor on the community by publishing the whole proceedings and result, which we consider would be perfectly fair and honorable to all parties concerned.

April, 1839 (Signed) FRIENDS OF HUMANITY

We are prepared to pay the above price of $100 to the Dentist who shall be entitled to it according to the requisitions named. — Ed. Courant.
Two weeks later, a second announcement appeared in the *Connecticut Courant* of May 11, 1839:

THE $100 PRIZE.—A notice was published in our paper on the 27th ult., offering a prize of one hundred dollars to the Dentist in Hartford whose work should be pronounced best, on examination by a committee of Dentists of the city of New York. As only one gentleman has offered for the prize, of course there will be no examination. This gentleman is Dr. H. WELLS, and according to the conditions named if there was but one applicant, he is entitled to the money, which he is requested to call and receive.

In the next issue of the weekly *Connecticut Courant*, May 18, 1839, Horace Wells placed a small note:

A CARD

H. WELLS acknowledges the receipt of $100 from the editor of the *Courant*, which sum was publicly offered to the Dentists of Hartford, whose work should best bear the test of an examination before a board of

Copy of the life-sized portrait of Dr. Horace Wells, painted by Charles Noel Flagg, which hangs in the lobby of the Wadsworth Atheneum in Hartford, Connecticut.
the first Dentists in New York. The donors of the prize will please accept the thanks of one who will ever aim at perfection in his professional calling, however far he may fall short of the mark.

The previous quotations would present little to demand our interest until the following advertisement put them in an entirely different perspective (Connecticut Courant, May 29, 1839):

MR. EDITOR: — The object of Mr. H. Wells in his recent conduct in regard to the $100 prize, etc. is so well understood by the public, that we deem it wholly unnecessary to pen any thing in the shape of a reply. The whole career of this man, since his residence in Hartford, proves conclusively that he depends upon newspaper paragraphs for his success, rather than upon his operations. The ridiculous stuff which he has lately filled the papers, is looked upon with that contempt and indignation which quackish boasting must ever inspire. We would advise this young man in future, if he is desirous of earning a livelihood, to give up this practice of parading his name in public prints, and endeavor by an honest and industrious course to learn his profession. The public always judge of a man’s merits by his works, and not by what he can say in the papers.

We therefore once for all inform Mr. H. Wells that he is welcome to hand his name down to posterity by bombastic and modest advertisements, while we shall still endeavor to give our friends satisfaction by a faithful and thorough discharge of the duties of our profession. We shall demean ourselves no farther by bandying words with such fellows as H. Wells.

P.S. — If Mr. Wells is really desirous of showing the world his wonderful powers, we hold ourselves in readiness to operate in any branch of Dentistry he can name, the work to be examined by the first Dentists in New York or Philadelphia. Our time is so much occupied by professional duties that we shall let the fellow make his own choice and select his own terms at leisure.

W. S. CRANE

W. S. Crane, another Hartford dentist, had evidently become hostile toward Horace Wells because of earlier newspaper advertisements. There had been little permanent advertising by dentists in the Connecticut Courant before Wells came to Hartford. Beginning with the October 28, 1837 ad quoted above, Wells had some style of ad running continuously through 1838 and 1839. One ad is not unusual:

L. PRATT, Dentist, has left Hartford to spend a few weeks in New Haven. During his absence he would refer his friends to DR. H. WELLS.

The “few weeks” becomes suspicious, however, when it is observed that the ad ran in the Courant from May 12, 1838 to February 1839. Wells also ran the following ad in the Courant from February 23, 1839 to December 1839:

H. WELLS; DENTIST; Rooms under Union Hall, 162½ Main Street. References: (Ten M.D.'s from Hartford and surrounding towns are then listed.)

In October 1838, W. S. Crane began running an ad which was always adjacent to that of Wells. In the last months of 1839, the ads were not always in every issue of the Courant, but every time Wells’ ad was present, Crane’s was also displayed next to it. Crane’s ad was never present when Wells’ was absent.*

*Years later in a letter to Morton, Wells made a cryptic statement about Crane that implied continued animosity between Wells and Crane: “... my health does not improve at all.—Riggs is doing a large business. Crane fires away as usual...”
Crane, in his letter to the editor, implies that Wells had staged the entire $100 prize incident to gain publicity. In view of Wells' hyperactive, impatient personality discussed above, such a charge is not beyond belief. The "Friends of Humanity" are not identified. The "we" of the ad are not specified as being from New York. The judges are not named and apparently were not yet selected: ("may consist of one, two or three of the first dentists of New York, as can be agreed upon by the competitors").

A comparison of the "$100 prize column" with Wells' An Essay on Teeth reveals an almost identical passage:

$100 Prize ad—4/27/1839
(Second sentence before subject of dentistry is apparent)
"We believe that however simple the operation of filling the teeth may appear at first view, it is in fact the most complicated branch of dentistry . . ."

Wells' Essay on Teeth, 1838
(p. 68, in context of practice of dentistry)
"However simple the operation of filling teeth may appear, it is in reality, the most complicated, as well as the most important branch of the profession."

In addition, both the "$100 prize column" and Wells' Essay on Teeth express several very similar personal opinions. Both suggest that dentists should be examined. Both declare that unqualified dentists are practicing and causing harm. Both assert that some persons could never become good dentists no matter how hard they try.

It seems likely that Wells did indeed anonymously promote the $100 prize contest. The almost identical words in Wells' Essay and the $100 prize column seems to be beyond coincidence. His motive, however, was probably more than pure publicity. He sincerely felt that dentists should be professionals in ability and training and that those who were not, should be removed from practice.

On the other hand, the following advertisement shows that Wells was not at all shy about seeking publicity (Connecticut Courant, January 14, 1843):

TEETH. TEETH. It will be remembered that in the year 1839, H. WELLS, No. 8 Asylum Street, received the prize of One Hundred Dollars, which was publicly offered in Hartford for the best work in dentistry.

He also used another ad which extolled a new dental apparatus. The new apparatus was not claimed to be an invention of Wells, but it gave another excuse for an advertisement (Connecticut Courant, September 22, 1842):

TEETH. TEETH: Those who have the charge of children with teeth growing irregular are invited to call on H. WELLS, No. 8 Asylum Street, and examine his new DENTAL REGULATOR, by the use of which all irregularities are completely obviated if attended to in season. The operation is attended with no pain and with but little trouble or expense. This is something entirely new, but its simplicity cannot fail to meet the approbation of all. Call and see.

An invention which Wells did patent, a coal sifter, is mentioned in most biographies of Wells. The following news item about the invention was found in the Connecticut Courant of November 9, 1839:

WELLS' PATENT COAL SIFTER — We saw a day or two since a very ingenious contrivance for sifting coal, the invention of Dr. H. Wells, of this city. It is so small and neat, that it might be considered as an ornament to the parlor rather than otherwise. It can be made of sheet iron or tin, and in size should suit the drawer of the stove for which it is
intended. The operation of sifting is done in a moment, and without occasioning any dust, so that it may be performed in the room. Those who are in the habit of sifting their coal in the street, in all kinds of weather, will doubtless manage to obtain one of these sifters."

H. R. Raper has made an effort to describe the character of Horace Wells. Raper used the words "intelligent, courageous, creative and decisive" to describe Wells, but he also used the terms "extreme sensitivity, quiet, retiring and gentle." 11,12 Wells has been presented by many writers as a dreaming, weak, introverted personality who was overshadowed by the aggressiveness and cunning of his adversaries in the anesthesia controversy. The material presented in this paper contradicts the image of Wells as a retiring, colorless personality. At least in his early dental career, Wells appears to be impatiently intense and aggressively ambitious.

Wells remains as much an enigma as the other participants in the anesthesia controversy. Time has failed to dull the fascination of those dramatic events.

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7. All of the letters mentioned are quoted in Reference 5.
8. All newspaper quotations are from The Connecticut Courant, Hartford, dates indicated.

DR. WILLIAMS is professor of chemistry and Chairman, Physical Science Department, Harding University, Searcy, Arkansas. Requests for reprints should be made directly to the author. His address is Harding University, Station A, Searcy, AR 72143.
Oddments in Dental History:
Another Case of a Denture
in the Esophagus
with Near-Fatal Consequences!

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

From almost the earliest days of dental literature there have been recorded cases of patients swallowing their partial dentures. In most instances the denture was removed quickly with the patient little the worse for the incident. In other cases the denture passed into the stomach where the clasps perforated the gastric wall and the patient succumbed to the ensuing peritonitis. All these situations were made the more frightening because of the lack of X-ray, making it virtually impossible for the practitioner to properly visualize the location of the swallowed appliance.

In the following case mis-management on the part of a surgeon who was consulted for the removal of a swallowed denture almost resulted in the patient’s demise. What is more astonishing is the fact that the surgeon dismissed the patient after assuring her that the denture was “safely” in the stomach; fortunate for her that the surgeon had failed in his efforts to push the denture there!

The case history was reported by a physician, A.F. Dutcher, M.D. of Enon Valley in Lawrence County, Pennsylvania and was published in the Dental Cosmos, Vol. 1, No. 7, February, 1860. (All italics are mine.)

On October 28, 1859 Mrs. S., aged twenty-five, just after retiring to rest last evening had an epileptic convulsion, after which she was insensible during the remainder of the night. In the morning she was sick at the stomach, and vomited freely several times. In the afternoon the sickness left her and she tried to take some food, but was unable to swallow. The next morning she could swallow water, but nothing in the form of a solid aliment. Having now fully recovered her senses, she for the first time informed her friends that she had swallowed her false teeth. I was then called in, and on examination found them lodged in the esophagus just above the diaphragm. As had no throat forceps of sufficient length to reach them and did not like to force them into the stomach, I told the family they had better call in some surgeon, who would have the necessary instruments for their removal. As they did not cause her any pain, she thought that on the next day she would go to Salem, Columbiana County, Ohio, and have them taken out. She did not, however, go until Monday, the thirty-first. The individual that was applied to had forceps but none long enough to reach them. He concluded, however, with the consent of Mrs. S. to pass them into the stomach. After manipulating for a few minutes with a gum-tube, he assured her that they were in the stomach. She returned home the same evening. Her throat was much inflamed from the operation. She thought she could swallow some better. In other respects she was very comfortable.

On Friday morning, November fourth, she took labor and had a speedy delivery of a child at term. I did not attend her during her confinement. She appeared to do well until Thursday, the tenth, when I was again called to see her. She was still unable to swallow anything but fluids. Pulse 90 and respiration 25 per minute. Complained of pain at the inferior portion of the sternum and under the right scapula. From the
pain and difficulty of swallowing, I came to the conclusion that the teeth were still in the esophagus. On examination, I found I was correct. The case now having assumed an alarming character, Dr. John Dickson, of Pittsburg, Pa. was sent for. He came on Friday afternoon. After the most persevering efforts and skillful manipulation, he succeeded in extracting them from the position they had occupied for more than fifteen days. Her throat was very sore for several days; had some fever, cough, and expectoration, but is now (December second) in her usual health.

The plate was made of silver. It was two inches long and one inch wide and had four teeth upon it. The instruments used in extricating it were a probang and the long throat forceps. The probang was such as is commonly used in cauterizing the throat. A piece of muslin was tightly drawn over the sponge, and secured to the handle; it was then thickly covered with nooses of strong thread. The forceps were fourteen inches in length, used by many surgeons for the removal of calculi under a certain size from the bladder.

At the Nov. 5, 1982 annual meeting of the American Academy of the History of Dentistry in Las Vegas, Nevada, complimentary first copies of the new book Charles Edwin Bentley: A Model For All Times were presented to ADA President Robert Griffiths and AAHD President Edward Leone by Clifton O. Dummett, professor of dentistry at the University of Southern California School of Dentistry and president-elect of the Academy. The book, authored by Dr. Dummett and his wife, Lois Doyle Dummett, is an historical account of the life and times of Charles Edwin Bentley, father of the oral hygiene movement in the United States. Pictured left to right, Dr. Griffiths, Dr. Dummett, and Dr. Leone.
The Nineteenth century contributed greatly to the development of dental scholarship. John Hunter's *Natural History of the Human Teeth* was perhaps the first true classic scientific work on the subject of dental anatomy. Contributions by Hurlock, Berdmore, Blake and others led the way for establishing serious scientific presentation of dentistry to the world. Among the lesser known, but nevertheless important, works written in this period of history were Joseph Fox's *The Natural History of the Human Teeth* and the *History and Treatment of Diseases of the Teeth, the Gums, and the Alveolar Processes*, the first published in 1803, the second in 1806.

The first work dealt in general with the natural history of the teeth with regard to primary irregularities and abnormalities. Fox proceeded to describe the causes and prevention of those irregularities, having been well versed in the subject as a result of vast practical experience. This was in contrast to Hunter's work which involved no close attention on his part to actual practice, since Hunter was not a dentist. Fox successfully proved that the constitution of the membranes surrounding the pulp was indeed vascular, thereby eradicating the erroneous beliefs held by both Blake and Hunter.

Fox's second work dealt with human teeth under the influence of disease. He felt, unlike Hunter, that caries starts within the tooth and progresses outwards towards the enamel. He dealt with the causes and progress of caries, believing that hereditary factors, in addition to local causes, greatly influenced the disease. He maintained that decay was due largely to inflammation of the dentin, which he felt was the result of inflammation of the periodontal membrane. Other causitive factors were said to include tooth crowding and poor nutrition. Fox proceeded to describe the proper manner of performing operations on the teeth. He believed that fillings between the teeth tended to fall out due to pressure exerted on them by food, and he advised that they be done not only because of decay, but for prophylactic reasons as well, and that they be enlarged to overcome this tendency for them to become loosened.

Fox also described orthodontic considerations. He felt that the only effective treatment for prevention of occlusal irregularities was serial extraction of the primary teeth, especially the second primary molars. He averred that the regularity with which the primary teeth are lost had a definite bearing upon the positions that the permanent teeth would assume in the arch. He discussed the development of the jaws, stating that the greatest development takes place in the antero-posterior direction, and that the jaws acquire their full proportion between the ages of eighteen and twenty years. He dealt with the elimination of anterior crossbite via the use of bite blocks attached to an arch of gold or silver. The teeth were to be labially drawn toward the arch with silk threads which would be adjusted every two or three days.
Plate No. 10 from Fox's work showing at top the stages in the resorption of the roots of the primary teeth; below that the eruption of the succedaneous teeth. In the middle are four stages in the development of the mandible ranging from a six year old child to an adult. Below it is a drawing of a maxilla of a fetus showing the stages of formation of several teeth.
In the Chapter entitled "Of Supernumerary Teeth", Fox noted that these were mostly found in the anterior portion of the mouth and especially in the upper arch, and that when they were present, they generally resulted in displacement of the other teeth. He wrote "These supernumerary teeth should always be extracted as soon as they are perceived; and if they have occasioned the other teeth to turn out of their right direction, the application of a ligature will soon bring them again into their regular situation."

Fox, who lived and practiced in England, and died there in 1816, also made a major contribution to our knowledge of the rejection phenomenon. Transplantation of teeth from one individual to another, first pioneered by the great John Hunter, was a dismal failure in the long struggle to replace missing dentition because the transplanted tooth was almost always rejected by the recipient's body. It was Joseph Fox who first described the process by which the implanted tooth was resorbed, finally to be cast out of the body, and accompanied his description with vivid drawings. It was this early effort to understand what happens when a foreign substance is introduced into the body that laid the groundwork for all the future studies of rejection, so important in this age of transplanting organs ranging from kidneys and lungs to livers and hearts.

Insofar as dentistry is concerned, Fox's work added scientific validity to the profession, helping to elevate it from the level of a trade to that of a bonafide medical specialty.

Reprinted here is Chapter Five of Fox's Natural History of the Human Teeth entitled "Of the Irregularity of the Teeth." The illustrations are also from that work. (Fox, Joseph The Natural History of the Human Teeth, London, Printed for Thomas Cox, 1803.)

Of the Irregularity of the Teeth.

During the shedding of the teeth there are several circumstances which prevent the permanent teeth from acquiring a regular position, and often give rise to very great irregularity in their arrangement.

The most frequent cause is want of simultaneous action between the increase of the permanent teeth, and the decrease of the temporary ones, by the absorption of their fangs. It rarely happens that so much of the fang of a temporary tooth is absorbed as to permit its removal by the efforts of the child, before the permanent tooth is ready to pass through; on which account the new tooth takes an improper direction, and generally comes through on the inside.

Cases are very frequent in which scarcely any absorption of the fangs of the temporary teeth had taken place previous to the appearance of several of the permanent teeth, and it often happens, that upon removal of the shedding teeth to give room for the permanent ones, that no absorption of the fangs of the temporary teeth has taken place.

Irregularity of the permanent teeth is most commonly occasioned by the resistance made by the nearest temporary teeth; this is always the case if the temporary teeth are small and close set, for as the permanent incisores are much larger than the temporary, they require more room; but as the space left by the shedding of the temporary teeth is too small for the regular position of the permanent; they are exposed to the pressure of the next tooth, and hence are frequently turned out of their right direction.

Another cause of the irregularity of the teeth arises from the permanent teeth being too large for the space occupied by the temporary ones; those parts of the jaws not being sufficiently extended to permit a regular position of the new teeth — in this case the irregularity is con-
Fox was a strong believer in the removal of deciduous teeth to relieve overcrowding. His caption to this plate stated: "Examples of irregularity sometimes occurring during second dentition. Those permanent teeth which are acquiring an irregular position are sufficiently obvious. Those marked a are the temporary teeth which ought to be extracted. (Plate No. 11)"
siderable, and occasions great deformity in the appearance of the mouth. The incisores and cuspidati being much larger than those of the child, require more room, for want of which they are turned out of their proper positions. The central incisores overlap each other — the lateral incisores are either placed obliquely with their edges turned forwards, or they are pushed back, and stand between and behind the central incisores and the cuspidati; the cuspidati are projected, occasioning the lip to stand out with considerable prominence, and the bicuspidae are placed very irregularly.

It will be proper, in this place, to observe the manner in which the jaw bones grow (the under one being taken as the example), and to point out the difference between the temporary and permanent teeth.

After a child has obtained all the temporary teeth, the jaw in general grows very little, in the part which they occupy. In those children who are an exception to this rule, the temporary teeth become a good deal separated from each other, and these are the cases in which the shedding of the teeth is effected without any assistance of art.

When the jaw of a child is compared with that of an adult, very striking difference is observed; that of a child forms nearly the half of a circle, while that of an adult is the half of a long ellipsis. This comparison clearly points out the part in which the jaw receives its greatest increase, to be between the second temporary molaris and the coronoid process; and this lengthened part of the jaw is destined to be the situation of the permanent molaris.

By the elongation of the jaw a great change in the form of the face is produced; that of a child is round, the cheeks are plump and the chin flat; in an adult the face is more prominent, with a flatness of cheek and a considerable length of chin.

The temporary incisores and cuspidati are much smaller than the permanent, while the molares of the temporary set are larger than the bicuspidae, which succeed them. Hence it is, that the incisores and cuspidati are so frequently irregular, and they never could be otherwise were it not that some space were gained from the molares, in consequence of the bicuspidae being much smaller.

This circumstance is rendered intelligible, by examining jaws at various ages, and observing in what particulars they differ from each other.

Until about twelve months after birth, the jaw grows uniformly in all its parts, and at that time as far as the teeth extend it approaches nearly to a semicircle; at about three years of age, when all the temporary teeth have appeared, it begins to lose its semicircular form, and becomes somewhat elongated; an extension takes place between the last temporary molaris and the coronoid process; and in that part, in an advanced state of formation, the first permanent molaris will be found.

At about seven or eight years of age, the jaw is more extended, the first permanent molaris has grown up, and the second is advancing in formation. At about eleven or twelve years of age it will be found still longer; the second molaris is ready to come through the gum, and the third molaris has begun to form.

The jaw acquires its full proportion at about eighteen or twenty years of age, when the third molaris makes its appearance, and the teeth are seen in the figure of their arrangement to form part of an ellipsis.

The growth of the jaw being nearly confined to the part situated behind the temporary teeth, where the permanent molares are placed, the anterior part of the jaw undergoes little more than an alteration in form; it adapts itself to the permanent teeth there situated, and scarcely receives any increase of size.

The same comparison of jaws exhibits the cause of irregularity in the permanent incisores and cuspidati. When a child is about to shed its
Fox's illustrations outlining his method of using a labial arch bar and ligatures to correct the lingual malposition of upper incisor teeth. The blocks on the posterior of the appliance serve to keep the bite open while the teeth are being repositioned. (Plate No. 12.)
teeth, the first permanent molares come through the gums behind the temporary molares, and therefore the teeth which are situated anteriorly to the permanent molares, can obtain no additional space.

The permanent incisores occupy the space of the temporary incisores, and half of that of the cuspidati. It commonly happens that the bicuspides are earlier in their appearance than the cuspidati; therefore, when the first temporary molares are shed, a little room is gained, as the teeth which succeed them are smaller. When the second molares are shed, still more room is gained; the two bicuspides go back against the first permanent molares, and thereby give sufficient room for the cuspidati. Thus, by the change of the molares of the child, which are large, for the bicuspides of the adult, which are small, room is obtained for the increased size of the permanent incisores and cuspidati.

This change of small teeth for larger, and of larger for smaller, points out the necessity of giving some assistance to nature in one of her processes, viz. that of throwing out the temporary teeth before the permanent teeth appear; if this be done at a proper time, the teeth will always take a regular position, and every deformity arising from irregularity be prevented.

During the progress of the second dentition, an opportunity presents itself for effecting this desirable object; but everything depends upon a correct knowledge of the time, when a tooth requires to be extracted, and also of the particular tooth; for often more injury is occasioned by the removal of a tooth too early, than if it be left a little too long; because a new tooth, which has too much room long before it is required, will sometimes take a direction more difficult to alter, than a slight irregularity occasioned by an obstruction of short duration. If an improper tooth be extracted irreparable mischief will ensue; as in the case where young permanent teeth have been removed, instead of the obstructing temporary ones, which have several times known to have been done.

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The History of Dental Health on Guam

DIANE M. BEECHER, R.D.H.
Indianapolis, Indiana

The tiny American territory of Guam has had a more extensive dental health program than any other component part of the United States. This article traces the development of that program, as well as the early dental health of the island's inhabitants.

Guam, a small island in the western Pacific, has the most extensive dental health program in the United States. Guam became a territory of the U.S. in 1950, but its history, especially its dental history, dates back much further.

Guam was populated approximately 4,000 years ago by a group of people called the Chamorros. (Fig. 1) Their economy was based on fishing and farming. The food of the Chamorros consisted of fish, fowl, breadfruit, taro, rice, bananas and coconuts. Because of the low amount of sugar in the diet,
teeth, producing an active agent which stained the teeth and surrounding gingiva, and increased the salivary accretions. (Figs. 2 and 3)

No evidence of dental restorative work was noted. However, one skull showed ethnic mutilation of the anterior maxillary teeth. The mutilation was in the form of a lattice design filed into the enamel.1

CHANGES IN LIFE-STYLE UNDER CHANGING GOVERNMENTS

In 1521 Guam was discovered by Ferdinand Magellan, and remained under Spanish control until 1898. During this time the Chamorros adapted to Spanish customs and traditions. This led to inter-marriage with the Spaniards, and this "... along with changes in the diet resulted in a people who were smaller in stature and less robust than their Chamorro ancestors."2

In 1899 the United States captured Guam and held it until 1941 when it was taken by the Japanese. In 1944 Guam was recaptured by the U.S. and in 1950, it became a territory of the U.S. Throughout these times the economic base shifted from sustenance fishing and farming to a consumer oriented society, with the people working in diverse areas, ranging from government service to tourism. This resulted in a drastic change in diet. The production and consumption of foods produced locally dropped sharply, while consumption of imported, preserved, and refined food increased. And as refined foods in the diet increased, so did caries. In 1958, of 12,000 school-age children examined, all had caries, with an average of 5.2 carious teeth per child.3 At that time there were only four dentists in private practice and one dentist working for Guam Public Health. The patient to dentist ratio was overwhelming.

INSTITUTION OF AN EXTENSIVE DENTAL-HEALTH PROGRAM

The people of Guam realized the extreme need for better dental health treatment and education. The Guam legislature voted to organize the Guam Dental Health Program, in order to meet Guam's growing needs. In 1959 the program consisted of 1 dentist and 4 hygienists funded by the local and federal government. This dental health program was aimed at the prevention of dental decay through education of school-aged children and their parents, and by giving fluoride treatments, cleanings and necessary extractions.4 In August, 1967, Public Law 9-93 was enacted empowering the dental section of the Department of Public Health and Social Services to provide free dental care for all children up to age 17. This care was to include restorations in addition to the treatment already provided.5 The program was expanded again so that by 1981, Guam Dental Public Health employed 8 dentists and a support staff of 45 people. This is said to be the largest program of its type in the United States. The support staff includes 16 expanded duty hygienists who do all reversible procedures. The hygienists were trained either at the University of Guam (which program has since been discontinued) or are
it is not surprising that archeological remains show a low incidence of caries. In fact, only 18% of skeletal material studied showed any evidence of caries. However, these same skeletal remains do show an extensive periodontal disease problem. Almost all of the female skeletal material over the age of 40 shows evidence of periodontal disease, but only 65% of the male skeletal material carries evidence of the disease.

THE BETEL-NUT HABIT AS A FACTOR IN DENTAL DISEASE
Perhaps the difference in the state of male versus female skulls can be explained by the differing habits of men and women in Guam. At that time, women were known to chew betel-nut, Areca catechu, more habitually than did men, for its "beautifying" properties.

Leigh suggests that the betel-nut habit, together with a soft diet requiring little mastication, were the primary factors in producing a high incidence of periodontoclasia.

Betel-nut was used not only as a stimulant but as a cosmetic to beautify by permanently reddening and darkening the teeth and lips. (It is conjectured that the use of lipstick today originated from seamen bringing back to their respective countries from the Pacific Islands the idea of beautiful reddened lips.) To obtain the desired results, the nut, or part of the nut was wrapped in the leaf of the betel pepper (Piper Betle) and sprinkled with lime obtained from burned coral. The quid was then held between the cheek and

Fig. 2. The paraphernalia needed for betel-nut chewing. Clockwise starting from the top of the tray: a leaf of the betel, Piper betle in which the betel-nut seeds will be wrapped; a betel-nut scissors; above this a sack of crushed limestone; whole nuts (Areca catechu) and some nuts cut in half showing the seeds; some powdered limestone which is mixed with the betel-nut; a wad of tobacco rolled into a small cylinder and above it an unbroken chunk of limestone.
graduate dentists from the Philippine Islands who have not yet obtained a dental license in the United States. (Fig. 4)

DIRECT INVOLVEMENT OF THE SCHOOLS IN THE PROGRAM.

Dr. Henry Hoffman, director of the Guam Dental Health Program, stated that the method by which patients are referred to the dental health program is unique. The clinic works together with each school on the island. One school is chosen and three bus loads of children per day, five days a week, are brought to the clinic from the school. The children are examined and given a prophylaxis and fluoride treatment. The school is notified of those children needing further treatment, and they are scheduled for return appointments. These children are brought to the clinic as often as needed, until all restorations and extractions are done. When the treatment is complete, the child is not seen again until the next year, unless a problem develops.

When the first school has had all of its students treated, another school is started on the program. In addition to the actual treatment, a dental hygienist visits each elementary school and gives a dental health education lecture and demonstration to the children and teachers.

Although the laws of Guam provide for dental treatment for children under the age of 17, the clinic is unable to provide all the treatment needed, especially in the area of orthodontics and in cleft palate. In these instances, the clinic acts as a screening and referral agency to the 25 dentists who are now practicing in the private sector. When a child is referred to a private dentist, the government does not pay for the treatment obtained.

The Guam Dental Health Program was Guam's response to an overwhelming need of her people for dental care. It changed throughout the years and will probably continue to change and be a dynamic part of its health services program.
This paper was the first place winner in the 1982 Bremner Essay Award Competition conducted annually by the American Academy of the History of Dentistry among dental students of the United States and Canada.

MRS. BEECHER, at present a third-year student at the Indiana University School of Dentistry, lived in Guam for eight years from 1973 to 1981 while her husband served there with the Air Force. A registered dental hygienist, she worked at the Mangilao Public Health Center as one of the "expanded duty hygienists" as described in the article. She will be presenting a table clinic on the deleterious effects of betel-nut chewing at the 1983 meeting of the American Dental Association in Anaheim. Her address is 3595 North Norfolk Street, Indianapolis, IN 46224. Requests for reprints should be made directly to the author.

CONCERNING CHILDREN'S AILMENTS

When a Childe is sicke of his teeth. Give it twice a days wine with spoones, and therwith rubbe his Gummes, Or rubbe them with Hares greace. Also hange about his Necke, Hares teeth & a wolves toothe tipt with silver, because therwith in his mouth it may playe and bite theron.

—From The boock of physicke wherein . . . selected and approved remedyes for all corporall diseases and sicknesses which out of many high and common persons written physick-boockes are compacted and united together . . . and now nuelye translated out of Low-Dutch into Englishe by Oswald Gabelhouer, 1599.
DENTISTRY IN FOLK ART XVII: THE MASTER PHILANTHROPIST DENTIST LICENSED BY THE EMPEROR AND KING

Artist: M. Trimolet, French, circa 19th Century.
Size: 3" x 5".
Engraving published by Chardon aine et fils, Paris, France.

One of the many illustrations in a book entitled Tableau de Paris a Cinq Heures du Matin et Cinq Heures du Soir (Picture of Paris at 5 o’clock in the Morning and 5 o’clock in the Evening) published August 9, 1827. On page 5 of the “du soir” section, an engraving of an itinerant dentist is seen. In the typical carnival-like atmosphere of that epoch, the dentist is seen waving an oversize molar tooth with his right hand while placing his left hand in the mouth of his patient, who is being held by one of his assistants. Along-side, a more formally attired operator with morning coat is in the process of extracting a tooth on a dog which is securely tied into a stall. Anxiously awaiting their turn are a military officer in apparent pain and his horse, whose jaw is also bandaged in cotton! Candles and lantern illuminate the scene of operation, which takes place at dusk.

From the collection of, and with comments by Bernard S. Moskow, D.D.S., Ridgewood, New Jersey, author of the exquisite Art and the Dentist.
What Is It?

Our current teaser was found illustrated in the *British Journal of Dental Science* for May, 1865 (Vol. 8, No. 107). It consists of a curved metal mouthpiece (A), two clips (Ax), a rubber bulb (B) and a clear glass jar (C). It was described by its developer as being easy to operate, clean and storage and a decided boon to a busy practitioner. What it is and full description of how it was used will appear in the next issue of the *Bulletin*.

* * *

The item in question in the last issue, and pictured here, was a rubber dam applier. The S.S. White catalog description of it stated “This tool is used with a cord across the ends to force the Rubber down between the back teeth, evenly to the necks, without tearing it; and also to pass the tying cord around molars more pleasantly than can be done with the fingers. When a very high strain on the cord is needed, fix it in position with half a turn around the button, and tighten it while pressing the points of the fork between the thumb and finger.”

The cheapest model was made all of steel and cost $1.25, with more expensive models ranging from Bleached Bone Handle with German Silver ends at $1.62 through others made of Walrus Ivory or Buffalo Horn to the most expensive model at $3.00 which was made of genuine ivory mounted in silver.
LOYOLA IN CHICAGO SETS UP DISPLAY OF EARLY DENTAL OFFICE

On the occasion of the hundredth anniversary of the School of Dentistry of Loyola University of Chicago, a beautiful exhibit was created in the patients' waiting room of the school's clinic. Under the aegis of past-president of the American Academy of the History of Dentistry, Dr. Frank J. Orland, a committee developed plans for this reconstructed dental office, circa 1870. Much of the material was obtained on loan from the Chicago Historical Society. The photo of the exhibit was made available to the Bulletin by Academy member, Dr. Max M. Chubin of Chicago.

PROFESSOR HOFFMANN-AXTHELM FETED ON HIS 75th BIRTHDAY

One of the world's most renowned dental historians, Dr. Walter Hoffmann-Axthelm was born in Berlin-Freidenau, Germany on April 29, 1908.

After completing his preliminary studies in 1927, he studied dentistry in Freiburg and Berlin, and in 1931 successfully passed the State examination and received the degree of Doctor of Dental Medicine (Dr. med. dent.). After two years as an associate, he settled in Perleberg where he began the practice of dentistry.

His practice was interrupted by the Second World War during which he served in a military hospital near Hamburg. This service led him into maxillofacial and plastic surgery, and in 1948 he returned to private practice in Perleberg.
In 1950 he was appointed Chief of the surgical service of the Berlin Charity Hospital for Tooth, Jaw and Mouth Diseases, serving under Dr. Rosenthal. This coincided with his beginning as a teacher in the college of dentistry there.

In 1954 he completed studies and received the M.D. degree and specialized in the treatment of jaw and mouth diseases. In 1959 he was named professor of surgery at the University of Jena, following in the footsteps of Dr. Rosenthal, who had now become professor emeritus.

The building of the Berlin Wall ended his career there as a university professor very abruptly. He relocated to Dusseldorf where he began anew as Assistant in the clinic for jaw and facial surgery of the West German Jaw Clinic.

Dr. Hoffmann-Axthelm now became noted for two fields of work: as teacher at the college of dentistry and also as Historian of Medicine at the Berlin Institute for the History of Medicine. His hobby of history had become his principal interest!

He quickly achieved recognition and was named Professor of the History of Medicine by the academic council and Director of the Institute.

The author of more than 100 clinical as well as historical publications, he became widely known in all circles of the dental profession for his outstanding book History of Dentistry as well as his Lexicon of Dental Medicine. Both works have been translated into numerous languages and have become recognized as standard works in our profession.

In addition to all his other interests, Dr. Hoffmann-Axthelm has undertaken the study of the history of his beloved native city. Serving for many years as chairman and then as honorary chairman of the Association for the Study of the History of Berlin, he has gained many plaudits for his service.

Whoever knows Walter Hoffmann-Axthelm personally is exceedingly impressed by his willingness to undertake a task and by the way he throws himself fully and with whole heart into it.

Now that he has retired to Freiburg in West Germany, near the Swiss border, it doesn’t mean that he intends to rest on his laurels! A new edition of his History of Dentistry is in the works, as well as numerous other projects. His past 75 years have been well and fully utilized. May his strength and health long continue, enabling him to contribute to the advancement of the field of dental history as well as of human knowledge!

HELP SOUGHT WITH PROBLEM CONCERNING EARLY AMALGAM

Dr. Roger Fulton, a Forensic Odontologist and a member of the American Academy of the History of Dentistry, is seeking the aid of our members and readers in helping him solve a problem on which he’s currently working. Praising the Bulletin for the fine article by Dr. Allen Charles on the history of dental amalgam which appeared in the April, 1982 issue, Dr. Fulton writes:
I have a skull with what are apparently amalgam restorations. The provenance of the skull dates its interment to about 1867-1870. It is a male Caucasian, and authorities at the Smithsonian Institution give its age at death as “in his thirties.” If this is correct, the restorations were placed during the “Amalgam War” period. My problem: I cannot find any illustrations for cavity-preparation design for that period (these are definitely pre-G.V. Black). None of the collections of skeletal material I have studied of that period have any such examples of amalgam dating from that time.

I hope that someone may offer some help either in establishing what were the types of cavity design during that period. Failing that, perhaps comparison with similar specimens having such restorations and from that period may prove helpful.

Anyone having any information on early amalgam fillings and cavity design can communicate with Dr. Fulton directly at 232 North Grand Street, Post Office Box 308, Schoolcraft, MI 49087.

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UNFAIR ADVANTAGE.

Gladstonian Dentist (to Tory Patient). “I HAVE THE MOST PROFOUND ADMI-
RATION—MOUTH A LITTLE MORE OPEN, THANKS—FOR THAT GREAT MAN,
GLASTON, AND IT WAS ONLY LAST WEEK—&c. &c. &c.”

—From Punch, or the London Charivari, July 16, 1892.
(Courtesy of Dr. Samuel X. Radbill, Merion Station, Pennsylvania.)
To the Editor:

My good friend, Wilma Motley, gave me your name and suggested that I write to you for dental information.

My hobby is stamps and I am working on the history of dentistry on stamps. The first stamp I shall use is one from Egypt (Scott No. 864) showing Hesi-re. However, I also have a stamp showing Imhotep, the Egyptian god of Medicine, and I want to use it if possible. My question: is there any connection between him and dentistry? In the book Medical History in Philately the write-ups are so vague that I need help.

I also need some information on the following women dentists who have been honored on stamps:

1. Elizabeth Krezesinka, Olympic broad jumper. (Poland, Scott No. 756.)
2. Kersten Palm, fencer. (Sweden, Scott No. 918.)
3. Danielle Casanova, French resistance fighter. (German Democratic Republic, Scott No. B84.)

Perhaps you or your readers might be able to answer these questions: where did they go to school, when did they graduate and where are they now? Any information you could furnish would be most greatly appreciated.

Sincerely,
Mrs. Bernard H. Faubion
4436 Conchita Way
Tarzana, CA 91356

To the Editor:

Just a brief note to thank you for sending me a copy of the April 1983 Bulletin. I very much appreciate your generous review of the "Aspects of the Tongue" and I look forward to it becoming a best seller!

As I told you, the whole exercise for me was a most stimulating and rewarding one, introducing me to very many aspects of medical history with which I had never before been in contact.

I trust that you and yours are well. With kind regards.

Alan J. Drinnan, M.D., D.D.S.
Professor and Chairman
Department of Oral Medicine
School of Dentistry
State University of New York at Buffalo
To the Editor:

This letter is a continuation of my search for information on double-ended instruments in dentistry as a form of "mirror-rotation symmetry."

So far I have had little response of consequence to my previous letter to the Bulletin, or the other sources you suggested I contact.

Lily Sentz, the Librarian at the History of Medicine Section of the University at Buffalo, has been some help — she's fantastically cooperative! — but her resources are limited. I did find three major points through her: 1) double-ended instruments (not always the same instrument at each end) go back to the Middle Ages and even to the Ancient World. 2) the "pelikan" is often a "mirror-rotation" instrument. 3) the modern "curette" (not necessarily double-ended) was invented by Recamier in 1843 for gynecological use, while a similar one was developed by Garangeot for surgery in 1732.

Perhaps some of your readers can answer these questions:
1) Why are there double-ended instruments?
2) Can anybody supply more specific dating for double-ended instruments in ancient, medieval or modern times?
3) What is the range of surgical/dental instruments with the mirror-image double-end character, i.e. among curettes, scalpels and pelikans and what other instruments?
4) Are there tools in other trades that have double ends, such as carpenter's or mason's tools, etc.?

Any help you or your readers can render with this project will be most welcome.

Sincerely,
William S. Huff, Professor
School of Architecture and
Environmental Design
State University of New York at Buffalo
Buffalo, NY 14214

To the Editor:

The Israel Institute of the History of Medicine is interested in increasing the number of periodicals which it receives on an exchange basis with its journal, Koroth. Koroth, a journal of the history of medicine and allied sciences, was started in 1952 and appears once or twice a year. Articles are published in Hebrew and English. The English section has been expanding over the past few years and now comprises at least half the contents of the journal.

We would be pleased if you would find it possible to exchange your esteemed journal with ours. We would also be interested in receiving available back issues as an exchange for similar back issues of Koroth.

Looking forward to fruitful cooperation between us, I am
Professor Joshua O. Liebowitz, Editor
Koroth
Israel Institute of the History of Medicine
Jerusalem, Israel

To the Editor:

Next year the Norwegian Association of Dentists will celebrate its 100th Anniversary. On that occasion we should like to show some films concerning the history and development of our profession.

I therefore beg to inquire whether the American Academy of the History of Dentistry possesses such material and whether it is possible to borrow it.

Sincerely yours,
Dr. Kai Hunstadbraten
Norwegian Association for the History of Dentistry
Amot-pa-Modum, Norway
To the Editor:

We are preparing a compendium of "Information to Authors" instructions from the best known and most cited scientific journals in the United States. We hope that this work will serve to simplify and make more efficient the submission of scientific manuscripts for both authors and journal editors. This book will be distributed to medical school and university libraries and to physicians and scientists in this country and abroad.

We would like to include the editorial board page and the instructions for authors from your journal/s. Will you send us either a recent copy of your journal or the separate sheets as requested above?

Thank you for your consideration in this regard.

Sincerely,

Joan Banes, Editor
Le Jacq Publishing, Inc.
53 Park Place
New York, NY

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Poetry and the Dentist

DENTAL SONG—A PARODY.

Drill, drill, drill,
With thy dental machine, said she;
And I would it were seemly to utter
The groans that arise in me.

Oh, well for the laughing maid
Whose teeth are pearly and sound!
Oh, well for the youth in whose molars
No cavities deep are found!

They all pass the dentist's office
Without a thought of fear:
But oh, that my name need nevermore
In his little book appear!

Drill, drill, drill,
With the cold, gray steel, said she;
But the tender nerve of a tooth that is dead
Will never come back to me.

—Mary S. Lothrop in the Boston Transcript, 1894
From the collection of Professor Gardner P.H. Foley
Baltimore, Maryland

There have been many books written detailing the history of the dental profession in various states. This book, so far as this reviewer knows, is unique: it was written by a professional historian! Dr. Charles is associate professor, Department of History, Union Campus, University of South Carolina, and an active member of the American Academy of the History of Dentistry. He has written extensively on dental history, and his article on the origin of dental amalgam appeared in the Bulletin in April, 1982.

South Carolina has held an important place in the development of the profession of dentistry, and "...its main claim to fame in dental history... was that Joseph Flagg (1763-1816), the 'first native born American to make dentistry his life's work' left Boston and practiced in Charleston from 1792 to 1795."

However, the State's importance, insofar as dentistry is concerned, far transcends this. South Carolina dentists formed an organization long before many others, organizing in 1867 the Charleston Dental Association. This led to the formation in 1869 of the State Dental Association, but geographical rivalries kept many "up-staters" from joining because the meetings were held in Charleston. And although rival dental organizations existed side-by-side for a while, the profession did ultimately become strongly unified, so much so that it achieved passage in 1875 of the state's first dental practice act. Since that time, South Carolina has held an honored place in the advancement of our profession.

In several ways, however, that State lagged behind the others, principally in the field of dental education, for although a medical school existed there as early as 1824, it wasn't until 143 years later — in 1967 — that the new dental school in Charleston admitted its first class of students! In spite of this, however, South Carolina is a leader today in dental education,
thanks to the pioneering efforts of two of our Academy's members: Dr. Joseph Volker, then dean of the University of Alabama dental school, who headed a committee studying the feasibility of establishing a school; and Dr. Neill Macaulay of Columbia, SC, the true driving force behind the school's creation.

Dr. Allen's is an excellent history, interesting and readable, yet extensively documented so that interested scholars can follow up with additional study.

The book consists of nine chapters beginning with "Early Dentistry in South Carolina" and ranging through such topics as organized dentistry, the evolution of dental instruments and materials (a lucid exposition of a subject of interest to every dentist), dental specialties, dental auxiliaries, public health dentistry, and what is especially gratifying, a whole chapter devoted to the role of blacks in dentistry in that State. Too often, minority members of our profession are ignored and their contributions to the development of the profession glossed over. Moreover, Dr. Allen makes clear the status of second class citizenship and deprivation of elemental rights suffered by our black colleagues in the State until very recent times.

Dr. Allen is to be commended for this outstanding scholarly work. His extensive notes and complete bibliography make the volume an excellent source book. The only criticism one could have is that it could use some pictures to heighten interest.

The book can be ordered for $25 plus $1.85 for postage and handling from A Press, Inc., P.O. Box 8796, Greenville, SC 29604.

—Reviewed by Malvin E. Ring, D.D.S.


This dynamic book is concerned with the indefatigable activities of a dental practitioner in England — Dr. James M. Dyce. He received his professional education in Scotland as well as the University of Pennsylvania. At age 24 he became part of a very reputable dental group at 60 Harley Street, London. This was a prestigious address, and with a long list of notable clients.

After a time he became restless, mentally. He found that once he stepped outside his small core of activity, his philosophy of life was not complete. While also excelling in the field of photography, he felt the need for further training in philosophy. At the age of 64 he decided that his best course was to go back to school. This he did, and stuck it out for three years before returning to practice under the National Health Service. Here he encountered head-on, the social role of an individual in the community. He succumbed quite early to the challenge of Dr. Harold Hillenbrand, and became aware of Dr. L.D. Pankey and his philosophy. Both of these men are giants in dentistry. It is to their lasting credit that Dr. Dyce was coaxed out of his shell into a world unknown to him, and challenged to explore the depths of society around him.

Stress has many definitions, many concepts and numerous solutions. Dr. Dyce has now met some of them. But why not read his story yourself. It's very fascinating and is an experience all professional people should go
through. Their personal lives, their practices and their entire philosophies of living would make an unbelievable impact on world humanity. It is only to be regretted that there are not more men in the mould of Dr. Dyce.

This book is quite easy to read. However, I found the long list of so-called "important people" somewhat overdone. As you read Dr. Dyce, you will be taken beyond the area of your own clinical expertise, and into the world of new thinking — never to be discouraged by the scope of the subject. Every doctor who considers himself successful should read this book. It will fill a void in his professional life, that he never knew existed.

The author is to be congratulated for his interest, his perseverance and his own adaptation to stress.

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

Pictorial Encyclopedia of Civil War Medical Instruments and Equipment.

Dr. Dammann, a member of the American Academy of the History of Dentistry, has made quite a name for himself as an expert on Civil War dentistry. He has lectured extensively and written widely on the subject, one on which too little work has been done. With this attractive volume he shows himself to be an astute collector of artifacts from the Civil War period, medical as well as dental.

The author, a graduate of Loyola University in Chicago, is in the private practice of dentistry in Lena, Illinois. He has immersed himself in his subject, and probably knows more about it than any other person in this country.

The book is a handsome one measuring 8½x11 and softbound. There are several hundred clear, sharp, black and white pictures illustrating most medical and surgical instruments and a good assortment of adjunctive equipment such as pill bottles, splints, microscopes and embalming materials. The number of dental instruments pictured is disappointing, however, being limited to two views of a large dental kit of instruments and one picture of a small, folding packet of hand instruments. And although Dr. Dammann has included an excellent account of surgical procedures under varying conditions, heightening interest by including short case histories, there is no mention in the book of dental procedures or even what dentistry was performed. Perhaps Dr. Dammann intends to rectify this omission some day by writing a book devoted solely to Civil War dentistry. That would indeed be a welcome addition to the literature.

This is not to imply that the book is without merit; far from it. It is most interesting and includes a very interesting section on uniforms worn by medical practitioners in the services as well as a picture gallery of a number of those physicians. Included, too, are reproductions of title pages of books which would have been read by those surgeons or which were issued by the War Department for their instruction. A short bibliography of little known works in the field completes the book.

Dr. Dammann is to be commended for giving us so handy a guide to the medical and surgical procedures extant in this nation a century and a quarter ago.

—Reviewed by Malvin E. Ring, D.D.S.
This is a book that should be read by every professional person who comes in contact with patients. It concerns influenza or flu, which is something quite unique, and which infects a variety of animals and birds, as well as man. While pestilences of many sorts appeared throughout history, most have been controlled. The Black Death, cholera, Yellow Fever, typhus and smallpox no longer bring death and misery to mankind, yet there is still one disease that continues to flourish: influenza.

The author’s purpose in writing this book was to interest and enlighten the general reader, and to provide doctors, research virologists and public health authorities with a panoramic review of the behavior of influenza from the earliest historical records to the latest research on the subject. He succeeds beyond all expectations.

Many of the early theories of the cause of influenza epidemics included heavenly bodies, miasma, and deleterious gas. The viruses, filterable and ultra-visible, were named and studied in 1918. In 1928, the virus of influenza was isolated, and its route of entry to the body through the nose was established. The effects of the virus on anesthetized animals who developed subsequent pneumonia, quickly opened the door to vast research. The description of the typical illness and its treatment is a classic, and this chapter alone makes the volume quite important. The effect on whole populations is presented in a simple and direct manner; the economic and social costs of influenza epidemics are staggering.

The Italians introduced the term “influenza” in 1504 when the disease was attributed to the influence of the stars. During the eighteenth century, the French called the disease “Grippe”. Its abbreviation “flu” is now the popular term. Pandemics are presented in chronological form including their origin and destructive results. The great pandemic of 1918-19 is presented in detail, and it is one still remembered by a large segment of the American population.

The breeding grounds of the virus, the seasons of the year and the spread of the virus through the air are extremely timely; the discussion of wild birds in transmission of the virus leaves the reader in pure excitement to proceed to the chapter on structure and composition of the virus. Various theories of how new viruses are generated are presented in a clear and lucid manner.

Today, work still continues on the prevention of flu. Influenza has no respect for national or climatic barriers and affects rich and poor alike. It is a global plague, and the story of discovery is not yet finished.

This is a small, extremely interesting book that is literally packed with information of immense interest to professional and lay person alike. The author is to be congratulated on his method of presentation of this dreaded disease.

—Reviewed by Lloyd E. Church, D.D.S., Ph.D.
its museum in Madison, a reconstructed unit of a drug store, to represent pharmacy in Wisconsin in the first half-century of Wisconsin’s statehood. It was the first educational museum in North America devoted entirely to a drug store which was open to the public. Since then there has been so much interest in drugs and drug stores that now there are more than 138 medico-pharmaceutical museums or exhibitions in the U.S. and 18 in Canada open to the public.

This wonderfully-researched handbook fills a long-felt need, and dentistry is sorely in need of a similar work. The various museums or exhibitions are listed, alphabetically within each state or province, and all salient facts are included, such as the museum’s holdings, specialties, visiting hours, entrance fees, if any, as well as a wealth of information on the background of each collection.

The book is profusely illustrated with fascinating pictures of old drug stores and early pharmacy paraphernalia and is well printed in an exceptionally readable typeface.

Of almost equal importance to the listing of collections is the admirable bibliography which should prove indispensable for the collector of early pharmaceutical materials such as pill boxes or drug jars, as well as for the student seeking to understand more about the history of such an important part of the healing arts. The bibliography is divided into sections on “Periodicals on Museums and of Museology,” “Historical and Bibliographical References,” “Pictorial History of Pharmacy,” “Collector’s Guidebooks,” “Tools and Equipment of the Apothecary’s Art,” “Ceramics, Majolica, Faience and Delft Ware,” “Porcelain, Wedgewood, Glassware and Medicinal Bottles” and “Antique Fakes, Restoration and Conservation.”

Dr. Samarneh, who has been associated with the Smithsonian Institution, wrote the section dealing with the U.S., in cooperation with the Museum of American History of the Smithsonian. The part on Canada was written by his co-author, Ernst Stieb. It is because of efforts by workers such as these that the history of pharmacy is such an alive field, as evidenced also by the outstanding American Institute of the History of Pharmacy which by its labors has heightened respect of the pharmacy profession.

—Reviewed by Malvin E. Ring, D.D.S.


The amount of information presently in print is increasing at an unbelievable rate, and the dominating impact of the news media on our society has dramatically identified today as the “Age of Information.” Indeed, the last few years have become “information intensive”, with voluminous amounts of data and detail available from an immensely expanding, widespread fountain of sources. The continuing enlargement and distribution of this material is creating numerous specialists dealing with differing kinds of information. The necessity to collate multi-sourced information will become, in the words of the book, “economically feasible and an important element of the office of the future.” This feasibility depends on computer communication.

Rapidly decreasing costs of computer software and computer communication make the personal computer a good candidate for increasing future office productivity. Projections suggest that in the next decade, the costs of computer logic circuits will drop by a factor of 20, the costs of com-
puter memory by a factor of 170, and communication technology costs generally by a factor of 3.

In the office of the future, the authors foresee the computer as an "interactive computer tool", i.e., a computer that will be available whenever its use is required. More important, it will be able to communicate with the human worker and make decisions regarding the task the worker wishes the computer to perform; this will be based on current information, rather than relying on a preconceived "memorized" program. This interaction will rely on immediate response from a computer capable of an action time comparable to the individual's thinking time. Thus the automated office of the future will contain a nerve center, mechanical in origin, but nonetheless an extension of the user's brain.

Using these premises as their base, the authors embark on a provocative voyage into the office of the future, identifying tools that will be available to the computer worker, the technology that will make this communication work effectively, and the impact the increased automation of a previously totally human environment will have on office productivity. Because of the magnitude of each of these areas, they are extensively examined as separate sections of the book.

Each section opens with introductory notes, citing significant historical stepping stones. Interwoven with the considerable technical data and future projections is a well-knit meshwork of philosophical discourse. The concluding paragraphs of each section construct a bridge into the next area. The final conclusions are in the form of recommendations because, as the authors state, "we are interested in improving the quality of life, and see developments and applications of computer technology that will profoundly impact the lives of an increasing number of people, WHETHER THEY CHOOSE IT OR NOT" (author's capitals).

This is very much a thinking man's book, which may intimidate some readers more interested in "hard" information on future software. Significantly published on the thirtieth anniversary of the invention of the transistor at Bell Telephone Laboratories, this book may prove to be a document of considerable historical interest, as the web of computer communications integrates more substantially both our private and professional lives.

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


John K. Crellin, the author of this small book, was graduated from the School of Pharmacy of the University of London. He then received a Doctor of Philosophy of Science degree, and finally studied Medicine at the University College Hospital Medical School. He first brought this broad and unusual background to the Southern Illinois University School of Medicine in Springfield, Illinois, in 1976; he is currently an associate professor in the Department of Medical History at the Duke University Medical Center.

During his residence in Springfield, Dr. Crellin became interested in the development of medicine in the "Illinois Country." The first chapter dealing

This is a facsimile of the first textbook ever written for the guidance of ship’s surgeons of the East-India Company for use on long ocean voyages. John Woodall, in writing this text over 360 years ago, presented solid basic advice for the novice practitioner. The rules he laid down provided the basis for medical as well as surgical treatment at sea. The chemical remedies were primarily those advocated by the Paracelsian school of thought.

Woodall was the first Surgeon-general of the East-India Company and dedicated the first edition to his patron, Sir Thomas Smith, Governor of the East-India Company. Later editions were dedicated to King Charles II.

Many topics are discussed, such as the instruments and medicines required for the surgeon’s chest, including the plaster box and barber’s case. These included dismembering tools; laudanum for fluxes of the belly; as well as chemicals such as salt, sulphur and mercury. Most important, a detailed account of scurvy in English is given in very descriptive terms, and Woodall recommended the use of lemon juice for its prevention and treatment 140 years before James Lind.

Among wound complications, he covered hemorrhage, pain, fever, infection, convulsions and tetanus — all of which remain problems today. He links these to his account of scurvy, concluding that few diseases at sea happen to seamen in which scurvy is not a part. If seamen were preserved from this disease, he said, few other diseases would endanger them.

References and bibliography come before the text, as does the complete list of works by John Woodall. The recorded owners of copies of the Surgeons Mate of 1617 are given, followed by an Appendix of persons and places named in the text.

The section on teeth is quite detailed and complete. The mates were required to possess great skill in the art of drawing teeth, with specific attention to pus, the use of the Pelican, punches, pacis, and forceps; even the design and composition of the metal in the forceps is covered. The treatment for post-operative pain is vividly presented. The use of gravers for scaling,
and files for reducing sharp or rough parts of the teeth, is discussed. The cure of fractures is quite detailed and would compare favorably to today’s treatment, especially the stress on the importance of rest. His clinical descriptions of the signs of “Scurvie or Scurbutum” include the complete dental picture: “swelling, pain, loose teeth and stinking blood and other corruption.” Closing the volume is a chapter on “Terms of Art” which is actually a dictionary, and a Table of Contents.

Here is an excellent work to be read by those who wish to explore the life of ship’s surgeons on long voyages. They ranked low in the ship’s command but high when the effects of battle and illness struck home.

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


History is becoming an area of increasing concern in today’s world, and it is especially true in medicine and dentistry. Activities of members of these professions have influenced the course of history to some degree. The present book offers the reader a most interesting account of the professional and social activities of such a person, Dr. Thomas W. Evans.

The third son in a modest Welsh Quaker family who migrated to Philadelphia in 1682, he began life in 1823 in the area of 37th and Chestnut Streets in the Borough of West Philadelphia. Early in life he showed a fascination for all things related to dentistry, including animal dentition. He was filling teeth on willing people before having had a single hour’s instruction. The eminent Dr. John deHaven White accepted him as a student and, during this period he also attended medical courses at the Jefferson Medical College. (A fellow student was Samuel Stockton White who later founded the S.S. White Dental Manufacturing Company, destined to become the largest dental supply company in the world.) In 1843, he married, and drove himself to make a high reputation, to gain celebrity, position and fortune. In 1847, the Evenses sailed for Europe with $500, knowing nothing of France, Paris or the language. He arrived in time to witness the Revolution.

He also saw the low esteem in which dentists were held. They were unregulated, and classified along with midwives, cuppers and bleeders, itinerant tinkers and barbers. The French had an old saying: “The teeth leave when the dentist arrives.” Dentists hustled patients and were compared to P.T. Barnum. Even the best practitioners were kept at a professional and social distance by their medical counterparts.

This is the culture that Dr. Evans, an alien, proposed to change — and change he did! He never compromised his independence and quest for excellence. His reputation grew, and his practice increased to the point where he was overwhelmed with demands for his services. His first royal patient was Maximilian II, King of Bavaria; then the entire royal family followed. By mere chance he was called to treat the sensitive teeth of Prince Louis Napoleon, because his regular dentist, Evans’ partner, was away. From then on he rose to be the darling of European royalty, both professionally and socially.

When Napoleon II set up his imperial household, Dr. Evans was appointed surgeon-dentist by official decree. So great was his success that in 1852 he brought his brother, Theodore Sewall Evans, a very capable dentist, to Paris. A natural-born courtier, Thomas W. enjoyed all the pomp and
ceremony in gas-lit Paris, welcomed as a well-informed member of the royal household. His fame became international and a dental chair and equipment for his use were kept at Windsor Castle. His fillings were gold, of the very best, and the envy of all. He was the first dentist in Europe to use vulcanite rubber as a base for dentures, and he used Nitrous Oxide for anesthesia long before its wide acceptance. He was a steadfast supporter of the principle of unrestricted diffusion of dental knowledge in a time when such professional "mysteries" were closely guarded.

He displayed a strong feeling of compassion for human suffering, and was prominent in the foundation of the Red Cross. Honors and awards came rapidly, as country after country paid him full honor. His new home in Paris left nothing to be desired, and included the first central plumbing and heating in Europe. His efforts in military hospitals and sanitation are still classics, as was his development of the ambulance. He received honorary degrees from the Baltimore College of Dental Surgery and the Philadelphia College of Dental Surgery and his name will forever be closely entwined with the University of Pennsylvania.

Death came to Dr. Evans in November, 1897, and his will provided that there be funded a permanent museum and dental school in Philadelphia. To this day one may still see the fabulous life of a man who would not compromise for excellence, reflected in the Thomas W. Evans Museum and Dental Institute, as the school of dentistry of the University of Pennsylvania is officially known.

This book is very interesting and well written. It is exciting to read and filled with historical events. Mr. Carson is to be congratulated for his efforts. He has done his homework and it shows, not only in his graceful writing, but his generous acknowledgements, notes, bibliography and index. Significant illustrations are present. This book is a most welcome addition to the increasingly popular events of dental history, and an excellent book for everyone interested in exciting historical events.

—Reviewed by Lloyd E. Church, D.D.S., Ph.D.
coming to Illinois, leaving Dr. Rutherford most wretched and guilt-ridden for having brought her west.

The second section of the book consists of 12 articles written for a local newspaper in the 1870's after Dr. Rutherford had retired from medical practice. These delightful essays describe the people and colorful events on the Illinois frontier. This section of the book is very well written and readers will find it most interesting.

The third section of the book includes a discussion of the "Matson Slave Trial." Dr. Rutherford was a strong abolitionist and once was called upon to hide a family of five slaves, which he did. Matson, the slave owner, sued him and, believe it or not, Abraham Lincoln acted as attorney for the slave owner! The authors quoted liberally from contemporary accounts and noted that it is still difficult today to explain the conduct of the man who was to become the "Great Emancipator."

George Hendrick is professor of English at the University of Illinois and his wife is a staff nurse for Planned Parenthood in Champaign County, Illinois. Together they carefully investigated their subject before writing the book. This reviewer found the book quite fascinating, particularly since I grew up in Tuscola, Illinois, which is just a few miles from Oakland. As a matter of fact, I considered opening a dental office in Oakland in the 1930's as a "branch" of my father's and my office. Rather than do this I accepted a Rockefeller Fellowship in Rochester, New York, became involved in academics and never returned to private practice. Perhaps if I had gone to Oakland . . . .

—Reviewed by Maynard K. Hine, D.D.S.
Chancellor Emeritus
Indiana University-Purdue University
Indianapolis, Indiana