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# TABLE OF CONTENTS

HOW DENTISTRY AND HISTORY CAN ADVANCE HEALTH RESEARCH: A PERSONAL VIEW  
—Audrey Davis, Ph.D.  

HISTORY OF HOWARD UNIVERSITY COLLEGE OF DENTISTRY  
—Joseph L. Henry, D.D.S., Ph.D.  

THE PEAKS OF DENTAL HISTORY  
—Gardner P.H. Foley, M.A.  

ODDMMENTS IN DENTAL HISTORY: THE STRANGE CASES OF THE EXPLODING TEETH  
—Malvin E. Ring, D.D.S., M.L.S.  

THE MYSTERY OF THE KUL OBA VASE: A SCYTHIAN TREASURE  
—Michael Kurtz, B.A. and Cindy R. Kurtz  

CLASSICS IN DENTAL HISTORY: DENTISTRY IN THE BIBLE AND TALMUD  
—Fred Rosner, M.D.  

NOTES AND QUERIES  
1974 HAYDEN-HARRIS AWARD TO ADMIRAL ALFRED W. CHANDLER  

BIBLIOGRAPHY OF FACSIMILE EDITIONS OF DENTAL CLASSICS  
Milton B. Asbell, D.D.S.  

DENTAL TERMS IN HALLIWELL’S dictionary and NARE’S GLOSSARY  
—Abraham Blinderman, Ph.D.  

LETTERS TO THE EDITOR  

BOOK REVIEWS
How Dentistry and History Can Advance Health Research:
A Personal View

—AUDREY DAVIS, Ph.D.
Washington, D.C.

I am very pleased and honored to have been invited to speak to you today. I bring you good wishes from the Director, Dr. Brooke Handle, who is out of town and unable to greet you in person as he had hoped to do. The National Museum of History and Technology of the Smithsonian Institution is proud of its collections related to the practice and progress of dentistry. These collections are a vivid testimony to dentistry, primarily over the last three centuries and emphasize, quite rightly, the spectacular contributions of American dentists since the 19th century. Some of these are on display but even more are not, which is, unfortunately, the fate of many museum collections. Some are exceedingly popular such as a set of George Washington's artificial teeth; others stretch the imagination of the average visitor. Collecting and exhibiting the artifacts and tools related to a profession requires a great deal of effort, much of it hard work that doesn't get recorded or noticed. These responsibilities we accept as part of our raison d'être. However to stop with these accomplishments, important as they are, would be to miss an excellent opportunity to impart significant ideas about the growth and development of the dental profession. We must broaden our roles to include research and publication as historians. My training as a chemist, biologist and historian of science and medicine has emphasized the seemingly limitless variety of forces and people which have an impact on any human endeavor, especially those which interact with the health of a person. To demonstrate my thesis I will speak briefly - too briefly for the complexity of the subject I'm afraid - about one historical project I began four years ago.

With the increasing momentum of plans to celebrate the bicentennial, objects and people have been brought to our attention which might contribute to our better understanding of the medical and dental sciences and professions in America over the past 200 years. I wanted, especially, to know more than the few written accounts provide, - what it was like to be a student and young practitioner in Baltimore during the time when the great figures - "The Big 4" - Halsted, Kelly, Osler and Welch - were having their great impact on American medicine at Johns Hopkins. As a result I was introduced to Dr. Ernest Singleton Hendry of Arlington, Virginia, a graduate of the Class of 1911 of the Johns Hopkins Medical School. Dr. Hendry as a brilliant student recipient told me a great deal, and his account deserves a wide audience, for it tells us what the excellent, but not famous practitioner could do with the ideas and tools at his disposal in the first half of the 20th century.
Dr. Hendry and I found no difficulty in sharing an excitement about our alma mater; however to my dismay he soon revealed that his major professional goal, about which we shall soon hear, had been thwarted by this world acclaimed medical school. He was grateful for his excellent education and for being led into a medical career as an internist with special emphasis on gastro-enterology by one of his teachers at Hopkins. His career did indeed fulfill the promise of all this fine instruction. And today at the age of 94 he is still alert and as vitally interested in disease which may strike the mouth and sinuses and have extensive consequences as he was when first introduced to it 56 years ago by a Baltimore dentist named Dr. John Schlinkman.

Dr. Schlinkman, a graduate of the Baltimore College of Dentistry in 1901 and apparently a very skillful dentist, had evolved a technique for detecting the contributing role of the teeth in disorders of the bones, sinuses and other organs. He remained a dental practitioner all his life, modestly not touting his achievements through publication or by addressing meetings. But his skill was praised by such luminaries as the pioneering surgeon, William Halsted, who said that Schlinkman was the finest Surgeon in Baltimore. Dr. Hendry was introduced to Dr. Schlinkman in 1918 by Dr. Thayer of Johns Hopkins who advised him to send a patient suffering from facial pain to Dr. Schlinkman to have her teeth examined.

While her teeth and gums appeared sound, closer inspection revealed a sensitivity in the alveolar process. After curetting and draining a space between two teeth her symptoms cleared up. It was soon noted that not only did local pain and symptoms disappear after similar treatment but frequently recurring headaches, arthritis, neuritis and other complaints formerly stubbornly resistant to treatment were relieved or removed. Hendry soon was amazed to see patients suffering from severe gastro-intestinal disease cured by having their alveolar processes and sometimes the maxillary antrum areas cleaned up in the manner Dr. Schlinkman had worked out for himself.

These two practitioners collaborated until Dr. Schlinkman’s death in 1953 at the age of 84. After this Dr. Hartley, a nephew of Dr. Schlinkman carried on some of the work and still lives in Baltimore, although he is retired and practices very rarely. The collaboration continued in spite of increasing pressures upon both physician and dentist to stop this treatment. First it was believed to be unethical for a dentist to intervene in parts of the body other than the teeth and gums. Second, it was thought dangerous to enter the maxillary sinus if one were not a trained otolaryngologist. Third, the extent of the relief made possible by this treatment bordered on the miraculous, and threatened established medical and dental theories and practices. It still does.

The effect of these very real professionally induced pressures was to weaken Dr. Schlinkman to the point of bitterness but to arouse Dr. Hendry's ire to the point of overseeing the investment of large sums of money in research programs to investigate this still largely unexplained medical-dental phenomenon. Dr. Hendry never forgot the encouragement of Dr. Howard Kelly, one of his celebrated teachers who introduced radium into the U.S. Kelly explained "When I brought radium
to this country for the first time from Paris many doctors turned their
heads when I passed down the corridor. Don't give up. You've got
something here."

Hendry's first effort in 1937-8 consisted of channeling over two
million dollars, acquired from a grateful patient, to the Johns Hopkins
Medical School. It brought no results because the administration which
was not fully committed to dental research and education could not find
the proper investigators to set up and carry out the complex clinical
program required to study this anomaly. While some outstanding
Hopkins medical researchers understood and respected Schlinkman and
Hendry's work, the institution was unable to give them the support to
investigate their brilliant methods of treatment. This example raises in-
teresting questions about the impact of institutions on an individual's
medical-dental research.

Until I met Dr. Hendry in 1970 he had given up trying to interest
Johns Hopkins in this research and was approaching other schools, for
he had acquired another significant sum of money to be invested in this
type of research. I combed the literature related to this medical-dental
phenomenon and discovered it was voluminous extending back, in part,
to the 17th century. Broadly termed it falls under the headings of focal
infection and oral sepsis and these as you well know have been very
controversial and elusive disease processes throughout the 20th cen-
tury. One major result of my historical research was to convince me of
the worthiness of Dr. Hendry's proposal for this type of research. I was
also encouraged by the response of a former chairman of the Hopkins
Department of Otolaryngology, the son of a distinguished physician
who had opposed Dr. Schlinkman and Dr. Hendry vehemently when
he was on the Johns Hopkins faculty 50 years earlier. So together Dr.
Hendry and I again approached Johns Hopkins to set up the necessary
clinical and laboratory facilities for studying the relation of dental dis-
ease and maxillary antrum disease to disease manifestations in other
parts of the body.

This summer Dr. Donald M. Tilghman, graduate of the University
of Maryland Dental School, joined the Hopkins Medical faculty. He
was given the assignment of studying patients with intractable and
residual pain who are confirmed victims of systemic diseases, with the
purpose of discovering a possible relationship to dental and sinus dis-
ease, and then, to further investigate, in charted and in yet uncharted
ways, those showing this complex syndrome.

I have summed up the discovery of the problem and those people
associated with it, but have largely omitted the history which may be
traced through the literature and which includes the contributions of
many other dentists and physicians. I hope you can begin to understand
how a fusion of science, medicine, history and dentistry is a natural and
useful one from this example. Many other instances of the in-
terdependence of the health sciences, their history and application exist
waiting only to be explained. This endeavor will require the talents of
both participants and historians if the full measure of value is to be ob-
tained, and thus, requires the full support of the dental and medical
professions. I hope you will want to go back to your alma maters, un-
iversities, colleges and professional societies and stimulate a "functional" and therefore more meaningful instruction in the history of dentistry. Your success will add a valuable dimension for the student who must assimilate in mind and hand ever growing technological advances in dental instruction and practice.

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(Presented at the 23rd Annual Meeting of the American Academy of the History of Dentistry, Washington, D.C., November 8, 1974.)

Dr. Joseph L. Henry (third from left) Dean of Howard University Dental School and a member of the American Academy of the History of Dentistry meeting with a group of Washington, D.C. area dentists who were about to leave in August, 1974 for Kingston, Jamaica to conduct a dental health care program in Kingston's West End, a project designed to bring professional dental service to the indigent people of Jamaica.
History of Howard University
College of Dentistry

Washington, D.C.

Howard University was founded by an Act of Congress, March 2, 1867 and approved by President Andrew Johnson on the same day, as a "University for the education of youth in the liberal arts and sciences, under the name, style, and title of 'the Howard University'." The Act, known also as the Charter, provided for normal, collegiate, theological, law, medicine, and agriculture "departments" and such other departments as the Board of Trustees might establish.

The University was planned by thirty members of the First Congregational Society at a meeting at the Columbian Law Building in Washington, D.C. in November, 1866. The original idea, as conceived by General Otis Howard, Commissioner of the Freedmen's Bureau, and his colleagues, was to establish an educational institution for newly emancipated slaves. Not surprisingly, this religiously motivated group proposed a theological college for freedmen.

A day or two later ten members of the original group took the first formal action to establish the seminary by selecting twelve trustees. General Howard offered to erect a building if a site could be found for it.

At a later meeting in December, United States Senator Samuel C. Pomery of Kansas suggested that a normal school would be more likely to gain Congressional approval than a seminary. The trustees agreed, and "the Howard Normal and Theological Institute for the Education of Teachers and Preachers" was proposed. However, by the time the Normal Department began its first classes in May, 1867, the school had become known simply as "Howard University."

The first students were white girls, children of two of the founders, Danforth B. Nichols and Ebenezer W. Robinson. But the institute for the "education of youth" rapidly became a predominantly Negro university, increasingly committed to Black education.

HOW THE UNIVERSITY HAS GROWN

In the years since its inception, the University has grown from a single frame building to an institution with numerous buildings valued at over $110,000,000, with more than 1,300 faculty, 2,600 supporting staff employees and over 11,000 students. It is composed of 17 Schools and Colleges and 12 Institutes and centers on two campuses in Washington, D.C.

The University is accredited by the Middle States Association of Secondary Schools and Colleges and by the accreditation bodies of each of the professions for which training is provided. More than one-half of
the nation's Black physicians, lawyers, dentists, pharmacists, engineers, and architects were trained at Howard, and Howard graduates are in positions of leadership and responsibility throughout the United States and in many foreign countries.

THE FOUNDING OF THE DENTAL COLLEGE

Howard Dental College, the 17th Dental School founded in the U.S.A., began on October 11, 1881. On that date, the medical faculty appointed Dr. James B. Hodgkin, a member of the faculty, as lecturer on practical dentistry to the medical class. The appointment was made in recognition of the need for dental education by trained physicians who would practice in outlying locations.

Eight months later, on June 5, 1882, through the efforts of Dr. O. F. Presbrey of the Executive Committee and Dr. C. B. Purvis, Secretary of the faculty, Dr. N. W. Whitcomb of Buffalo, New York, was appointed the first professor of operative dentistry. He was a trained practitioner and had a D.D.S. degree.

Announcement of the fifteenth session of the University, scheduled to run from October, 1882, to March, 1883, carried this note: "Instruction in Operative Dentistry will be given to those desiring it under the supervision of N.W. Whitcomb, D.D.S., and others, for which a small fee will be charged." Dr. Whitcomb found that session a little less than pleasant. He had received encouragement from President Patton and about three hundred dollars' worth of third-hand furniture from the S.S. White Manufacturing Company and the Justin Dental Manufacturing Company, through the efforts of the Rev. Dr. Harvey, the University's financial agent. But the facilities and the low budget for dentistry were generally discouraging and Dr. Whitcomb called the results of his first year "very meager."

On October 10, 1882, the day that the dental furniture was received, an encouraging thing happened that was to be a great benefit to dental instruction. That day the Executive Committee set aside ten thousand dollars the university had just received from sale of land for a nearby reservoir. This money was to be used as an endowment fund for expenses and compensation of teachers in the medical department. In view of the financial plight of the College of Medicine, including the struggling dental department, this decision by the Executive Committee was most fortunate.

THE DENTAL SCHOOL TAKES FIRST STEPS TOWARDS INDEPENDENCE

In the announcement of the sixteenth session (1883-84) this notice appeared for the first time: "Annual announcement and catalogue of the medical department of Howard University, including the medical, dental and pharmaceutical colleges." Also, for the first time, the text of the medical department was arranged in 3 parts. A more systematic course of dentistry was inaugurated by the election of 2 dental professors and 1 demonstrator. Dr. M.G. Jenison, who held degrees in
both medicine and dentistry, was elected as demonstrator in dentistry.

In the session of 1884-85 a regular corps of professors and
 demonstrators was duly appointed, and this year really dates the full
college course of the dental department. Courses of lectures were
prepared and delivered by the various professors during this term, and
clinical work was carried on in a newly established infirmary at regular
intervals. As a result, one student was graduated.

At a faculty meeting held April 23, 1890, Dr. J.F.R. Dufour was
elected the first dean of the dental college. That act in a measure
separated the dental department from the medical school under whose
supervision and control it had existed.

The year 1896 saw a reorganization of the faculty. The office of
dean of the dental department was abolished, and a dean and secretary
of the medical department, including medical, dental, and phar-
maceutical colleges, were elected. Also, in 1896, the dental department
of Howard University was elected to membership in the National
Association of Dental Faculties.

In the year 1897, a separation of the faculty occurred, dividing it
into a senior, or executive, and an associate faculty. The dental depart-
ment became a member of the associate faculty without representation
in the senior body. This was again rearranged in 1904, when Dr. Robert
Reyburn was elected dean of the Medical School with general supervi-
sion over the medical, dental, and pharmaceutical departments, and Dr.
Andrew J. Brown was elected vice-dean of the dental department with
active supervision of the same. Dr. Brown served as dean until 1908.
Dr. C.H. Howland was the dean from 1908 until 1911. In 1911 Dr. An-
drew J. Brown was appointed dean for a second time and served until
1928.

A change in administrative policy took place in 1928. Dr. H.P.
Davis was appointed director of the school instead of dean. This change
did not last, and in 1929 Dr. A.B. Donawa was appointed dean until
1931.

THE COLLEGE REACHES MATURITY

Dr. Russell A. Dixon became the dean in 1931. During the depres-
sion the college had many financial problems which Dr. Dixon solved
as they arose. Under his deanship a new college was built and was
dedicated in 1952. This same building with numerous recent
renovations is the present dental college.

Today the College admits an entering freshman class of 154 dental
students. When the dental hygiene and postgraduate students are in-
cluded, the total enrollment is 451. It ranks 24th in the nation in size,
and no faculty member receives a lesser salary than the national average
for his rank.

BROADENING THE COLLEGE'S GOALS

Since 1955 the College of Dentistry has continued to improve its
ability to provide the community with competent practitioners in the art
and science of dentistry. This was a chief goal of previous administrations. In 1966 Dr. Joseph L. Henry was appointed Dean. He has continued the college’s commitment to excellence in education and research, and has reoriented some priorities to emphasize prevention of disease and the maintenance of dental health.

KEEPING PACE WITH CHANGING EDUCATIONAL CONCEPTS

Traditionally, dental education was roughly divided into preclinical and clinical years. Now, the lines have become less distinct. To meet the challenges of changing dental education and practice concepts, laboratories as such were replaced with multipurpose areas that could be used for preclinical instruction and also as clinical facilities.

The establishment and approval of graduate programs in orthodontics, pedodontics, and oral surgery are high-water marks in the history of the college. The hard work and long hours required to establish and gain approval from appropriate accreditation bodies are examples of the dedication of the dean and faculty.

Research and advanced educational programs under the leadership of Dr. Jeanne C. Sinkford have continued to steadily increase in both quality and quantity. The return from faculty research was minimized because faculty attention was diverted to implement curriculum and patient management changes. The time and talents of practically the entire faculty were utilized to facilitate the above revisions during the 1966-69 school years.

EMPHASIS ON SERVICE TO THE BLACK COMMUNITY

In order to provide communities with preventive dental care, the ratio of dentist to population had to be improved. Dean Henry initiated a nationwide recruitment program to attract more black students to dentistry and provide increased financial assistance. In addition, aware that a special relationship exists to the black community which surrounds it, the College of Dentistry in 1967 began an inquiry to determine why so few Blacks were then enrolling in the dental school, and why nearly none came from its own community. The answers even today are not entirely clear. A part of the answer came from an independent evaluation of the dental aptitude test scores of Howard graduates. This evaluation revealed that the tests were not in an overall sense predictive of the performance of black students.

In 1968 Dr. Joseph L. Henry provided means by which a more statistically reliable index of student performance might be made from the dental aptitude test. This innovation served to make it possible for black students to be more fairly and effectively evaluated by all admissions committees and resulted in greater numbers of admission for Blacks to all dental schools. In fact, the total number of Blacks admitted to all dental schools has more than doubled since 1968.

Howard students have been taught by preceptorship and personal involvement to be sensitive to the needs of the community, and as part of their dental training, they learn how to develop more effective
mechanisms to meet those needs. A part of this sensitivity training began in the liberal arts college. Applicants to the College of Dentistry of Howard University were advised to first obtain their B.S. degrees, and not necessarily by majoring in the physical or biological sciences.

Favored by a tradition of educating those who have been restricted from professional training for reasons other than their own inherent ability, the Howard University College of Dentistry has graduated more Black dentists than all of the other dental schools combined. Today, graduates of the College are delivering dental care in 48 States and 53 foreign countries. Its more than 170 faculty members constitute one of the best trained dental faculties in the world.

HOWARD LOOKS TO THE FUTURE

The future of Howard looks bright since the University has scheduled a $9,000,000 renovation program to provide additions to the Dental College, with the work scheduled to begin in 1975. The major funding of $7,113,005 will come from a construction grant from the United States Department of Health, Education and Welfare, with the remainder provided by Howard University. The renovations will involve the addition of two floors and reprogramming of the existing 3 floors and basement of the current building. The dental school will remain fully operational during construction and renovations.

The new facilities will provide the much needed space which will permit increases in scope, nature and quality of the educational programs. New specially planned self-instructional learning laboratories will use the most modern media aids available and include computer assisted instruction.

The "Helping Hand of Howard Concept" will be enriched by additional and enlarged community programs. Special clinics for treatment using "in and out" analgesia technics will facilitate quadrant dentistry and other full mouth rehabilitation procedures.

The teaching of prevention will be enhanced by an increased number of student-patient consultation areas especially designed for case presentations, patient education, and demonstrations.

The history of Howard's distinguished past and the more recent accomplishments are facts by which assessors in the future may judge the effectiveness of its program. In any event, it is hoped that the assessment will be based primarily on how well the College of Dentistry produces dentists who will extend the "Helping Hand of Howard" to Society in the U.S.A. and abroad, and who are professionally competent, civically active, politically informed, community-oriented, and socially conscious—for these are the goals. This is the correlated course concept promulgated at Howard.

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The Peaks of Dental History

—PROF. GARDNER P.H. FOLEY
Baltimore, Maryland

This paper is a certificate of dedication to express appreciation of the values of the contributions made throughout the centuries by the major participants in the promotion of progress in the art and science of dentistry. It is intended also as an introductory effort to create a list of contributors and contributions that can be used to make members of the dental profession more cognizant of the heritage of their past. Such a series of citations may also be used to inculcate in the public mind a feeling of deep respect for the varied and ever-improving services of dentistry towards the alleviation and correction of the physical and mental afflictions of mankind. Let this paper also serve as a reflection of the crucial importance of dental history to the cultural health of the profession.

As self-nominated Keepers of the Past, the members of this Academy are vitally concerned with recording the chief facets of the developing character of dentistry and promoting the image of dentistry as an integral part of the general cultural heritage. We — and all our affiliates in dentistry — owe a reverence to the peaks of dentistry, for they are the sources from which great blessings have flowed. The peaks must possess superb qualifications for recognition; they must possess lasting purposes and goals; they must play strongly perpetuated roles in the “ascending spiral” of dental history; they are the shining landmarks of the story of dentistry.

1. HIPPOCRATES

The authentic history of dentistry began with the writings of Hippocrates (C.460 — C.377 B.C.) and from them we derive most of our knowledge of ancient dentistry. A large number of passages scattered throughout the collection reflect the great importance that Hippocrates ascribed to the teeth and their maladies.

2. THE ARABIANS

The Arabians maintained the study of medicine in an age of decadence and barbarism. As conservators of learning when the sources of knowledge in Christendom were threatened with extinction and scholarship was savagely repressed, they preserved and consolidated the teachings of the ancient writers and made them available to the scholars and scientists of the Renaissance. The galaxy of great Arabian physicians — Rhazes, Avicenna, Abulcasis and Avenzoar — were vital contributors to the building of the Arabian peak of dental history.
3. GOLD

Over many centuries gold has been used in various forms for the restoration of teeth and for prosthodontic devices. Beginning in the fifteenth century when Giovanni of Arcoli became the first writer to advocate the filling of teeth with gold and continuing beyond Robert Arthur's gift to the profession of the very valuable procedure of welding annealed gold, a procession of dedicated workers have contributed to creating and improving dentistry's use of gold.

4. THE FIRST DENTAL BOOK

Certainly recognition should be given in this aggregate of peaks in dental history to the foundation stone of dental literature. The first edition of Artzney Buchlein was printed in Leipzig in 1530. The fifteenth and last edition was published in 1576. The anonymous author, a physician of Mitweide, presented nothing new but drew his materials from the standard sources. The historical significance of the first edition — forty-four pages divided into thirteen chapters — is that it was the first book devoted exclusively to dental therapeutics. Up to 1530 the knowledge of dental diseases had been preserved only in various medical works written and published in Greek, Latin and Arabic. The publication of the Artzney texts provided the majority of those who treated dental ills with selected information from the best known writers on the subject and in a language that was their own.

The example of specialization reflected by the restricted coverage of the Artzney books undoubtedly had a provocative influence on the gradual development of an enlarged interest in dentistry as a field of practice separate from medicine, or as an important segment of medical practice. The book has stood for almost four and a half centuries as a humble, but significant, monument to the expanding strength, depth and breadth of dental literature.

5. A DENTAL BOOK FOR THE PEOPLE

Walter Hermann Ryff, a German physician and surgeon, published in 1545 a small book of great historical significance. His Nuetzlicher Bericht is a noteworthy contribution because it was the first book designed to give the public useful knowledge of oral hygiene. Although unoriginal and of little worth scientifically, it merits recognition as the foundation book of the literature devoted to public health dentistry.

6. VESALIUS

Andrea Vesalius, professor of anatomy at Louvain and Padua, wrote one of the immortal works of anatomy — De Fabrica Humani Corporis (1543). By his greatly improved methods of scientific investigation and his more accurate interpretations, he broke the almost mythical influence that the authority of Galen had exercised on medical science for over 1200 years. Thus Vesalius became the prime motivating
factor in the opening of a new era in the medical sciences, an achievement that had impressive effects on the advancement of dental science.

7. FAUCHARD

There is unanimity among dental historians in designating Pierre Fauchard (1678-1761) as the most important contributor to dental progress. This magnificently distinguished figure effected the definite separation between the science and art of dentistry and general medicine and surgery. He collected and incorporated in *Le Chirurgien Dentiste*, the entire doctrine of dental art, theoretical and practical, thereby establishing the importance of dentistry as a specialty and providing it with a good scientific basis. He presented clearly and vigorously all the then known procedures in all the areas of dental practice.

The most important dental book ever written, *Le Chirurgien Dentiste*, published in 1728, contributed immeasurably for over a century to the elevation of the profession and to the education of the individual dentist. It has become a symbol of greatness in dental literature and the name of Pierre Fauchard has become a guiding and inspiring light in the story of dentistry.

8. JOHN HUNTER

In 1771 John Hunter, the English physiologist and professor of surgery, published his *Natural History of the Teeth*, honored for two centuries as a milestone in the history of dentistry. In this classic work Hunter explained the structure of the teeth and their use, formation, growth, and diseases. In 1778 his *Practical Treatise on the Diseases of the Teeth* was published. These books provided not only vitally important information to dentists but also inspired them to solidify and promote the concept of dentistry as an independent profession.

9. THE FIRST NATIONAL DENTAL SOCIETY

The founding of the first national dental society obviously warrants inclusion in this grouping of highest points in the history of dentistry. Conceived primarily by Horace Hayden, who served as its president from 1840 till his death in 1844, the American Society of Dental Surgeons was the outcome of a convention of dentists held in New York April 18-19, 1840.

The Society, during its brief but useful career (1840-1856), exerted an extensive and vital influence on contemporary dentistry by the earnest efforts of its members to improve the status of the profession and to protect the public against incompetent pretenders. As the first national dental organization, the Society exercised perpetuating influences on the formation of similar associations of dentists in other countries, for it responded to an important need and provided an historical example of accomplishment.
10. THE FIRST DENTAL COLLEGE

The Baltimore College of Dental Surgery, the cornerstone of institutional dental education, was founded to provide adequate facilities for instructing the dental student in the art and science of practice. The College was chartered by the Maryland Legislature on February 1, 1840. The B.C.D.S. established a pattern for the development of formal dental education. By providing a two-year curriculum for teaching both the biological and the practical phases of dentistry, it contributed greatly to its elevation as a more highly esteemed profession. The impact of this new departure in dental education was felt not only in this country but in all other countries of the civilized world.

11. THE FIRST DENTAL JOURNAL

The American Journal of Dental Science is of major importance in the history of dentistry because its publication as the world’s first dental periodical created an inspirational landmark for the burgeoning profession and lent strong supportive guidance and example to the future development of the dental literature not only in this country but also in the other progressive nations of the world.

By 1839 the leading dentists of America had achieved a strength of professional dedication and affiliation that encouraged them to undertake the publishing of a dental journal.

12. ANESTHESIA

The peak that is designated as Anesthesia is an extremely inclusive historical monument, for it acknowledges and honors a wide variety of media and methods and a host of their discoverers. The search for a suitable anesthetic had gone on for centuries, but it was the successful demonstrations by the dentists Wells and Morton which gave to dentistry a firm basis for the continual refinement of general anesthesia. As a section of this peak there must be recognition of local anesthesia which, like the general anesthesia, has had its large company of variants and discoverers.

13. THE FIRST DENTAL SPECIALTY

Let us now recognize and pay tribute to the two distinguished creators of the first specialty of dentistry — oral surgery.

Simon P. Hullihen (1810-1857), of Wheeling, was the first to practice the specialty of oral surgery and has been designated as "the Father of Oral Surgery." A man of bold and original genius, Hullihen developed remarkable skills in many pioneer fields of surgery, especially the harelip and cleft palate. He also gained wide recognition for his operations for removal of carcinoma of the mouth and jaws and the reconstruction of jaws and lips. These procedures were considered by his contemporaries, in this country and abroad, as unprecedented and extraordinary.
James E. Garretson (1828-1895), by his exemplary versatility and capability in practice and by his voluminous contributions to the literature, merited the distinction of being acclaimed the originator of the first specialty of dentistry. His *System of Oral Surgery* (six editions, 1869-1895) was the first work on oral surgery and exercised a profound influence on the development of the new specialty. In 1869 Garretson was appointed oral surgeon to the hospital associated with the University of Pennsylvania. This appointment marked the first official recognition of oral surgery as a distinct specialty of dentistry.

14. W.D. MILLER

In 1890 Willoughby D. Miller published in *The Microorganisms of the Human Mouth*, his collected research findings derived from a decade of work on the etiology of dental caries. The acceptance of Miller's discovery that the origin of decay depends on the action of bacteria on carbohydrates led to many improvements in the practice of dentistry: more stringent exercise of oral prophylaxis by both dentist and patient; greater care in the sterilization of instruments; and the development of G.V. Black's cavity technique. It also affected greatly the integrity and scope of endodontics and oral pathology; and provided a solid incentive for research in all areas of dental science.

15. THE X-RAY

One of the tallest peaks in dental history personifies the miraculous contribution made to dentistry by the discovery of the x-ray by Roentgen in 1895. On the sides of this peak are niches for the figurative monuments to those notable experimenters, writers and clinicians who gave to the dental profession the knowledge, the techniques and the armamentarium for the effective application of the x-ray in the practice of dentistry.

16. THE SPECIALTY OF ORTHODONTICS

The creation of a strong base and the forceful development of a peak in dental progress to an influential and distinguishing height can be attributed to the work of one man, of two men in separate efforts, or to many men. The separate efforts of Kingsley and Angle provided the knowledge and inspiration for the steady development of orthodontics to the height of its being certified as a specialty of dentistry; thus they gave to dentistry and to the people a valuable area of specialization which was to be a concomitant source of guidance and encouragement to the several other dental specialties that achieved recognition in the twentieth century.

In 1880 Norman W. Kingsley (1829-1913) published *A Treatise on Oral Deformities as a Branch of Mechanical Surgery*, which has been acclaimed as the first book on the scientific treatment of irregularities of the teeth.

Generally recognized as the founder of the science of orthodontics,
Edward H. Angle (1855-1930) contributed in all possible ways to the development of the second specialty of dentistry. In 1887 he presented his revolutionary system of orthodontics, and then he founded the Angle School of Orthodontia. Through his graduates he exerted a tremendous impact on the growth of the science of orthodontics. Angle was the chief motivator in the founding of the American Society of Orthodontists in 1901. He was also chiefly instrumental in establishing the first journal of the specialty, *The American Orthodontist*, in 1907.

17. G.V. BLACK

As a teacher, as a writer, and as an inventor, Greene Vardiman Black (1836-1915) made a magnificently valuable contribution to the progress of dental practice and to the stabilization and reputation of the dental profession. In 1887 he introduced a system for the teaching of dental techniques, which was eventually adopted by all the dental schools in this country. A prolific contributor to the literature, Black's amazingly versatile interest is reflected by the variety of his subjects. His inventions were of great value not only for their practical utility, but also for their influence on the practitioners' appreciation of the scientific method as related to practice. Black contributed to the advancement of every phase of operative practice: he standardized operative procedures; he improved the manufacture of amalgam; and he systematized cavity preparation.

Like those of Fauchard, G.V. Black's contributions to the profession form a peak recognized and honored by inheritors throughout the world.

18. THE DENTAL DRILL

The lack of an efficient drilling apparatus was chiefly responsible for the very slow progress in operative dentistry through centuries. The progress toward achieving the long desired goal was marked by important improvements made by many contributors. Nasmyth, Lewis, Westcott, Spencer, Chevalier, Merry, Soper, Green, Morison, Elliot, S.S. White Co., Doriot and others formed a noble company of contributors that led the technological march to the hydraulic turbine contra-angle handpiece of Robert Nelsen that has revolutionized the practice of dentistry.

19. THE INDEX TO THE DENTAL LITERATURE

The idea of the *Index to Dental Literature* was conceived by Arthur D. Black in 1897. Volume I, covering the literature of 1911-1915, was published in 1921 by the Dental Index Bureau under the auspices of the American Institute of Dental Teachers. The first 15 volumes were compiled by Dr. Black. After his death in 1937, the details of indexing and publishing came under the supervision of the Bureau of Library and Indexing Services of the American Dental Association.

The Index is and will continue to be one of the major factors in the progress of dentistry. It perpetuates the value of every listed contribution; it has had a profound influence on the development of dental
libraries by affording them a classified subject index for dentistry and providing them with a repository of information upon which to build their most important services; it has been the means of reducing duplication of scientific efforts; and it supplies the investigator with a ready medium for checking developments in all phases of dentistry.

20. FLUORIDATION

Fluoridation of communal water supplies as a public health measure for the prevention of caries very obviously deserves to be ranked as one of the most towering peaks in dental history. Following many years of research following Frederick S. McKay's observation of the "Colorado brown stain" as an endemic oral condition, the presence of mottled teeth became a subject of international concern among dental investigators. The discovery that fluorine was a constituent of domestic water supplies and related to the mottling of tooth enamel led to many team studies on the distribution and classification of mottled enamel. When the quantitative measuring procedure had been scientifically substantiated, there began the long and often difficult series of efforts by all the elements of organized dentistry to achieve acceptance by the public in the towns and cities throughout the land of dentistry's vital contribution to the health of all the people in this country.

The fluoridation campaigns conducted by American dentistry have had a strong international impact by providing effective examples of both scientific and political endeavors towards educating the people to appreciate the values of fluoridation.

21. INTERNATIONALISM IN DENTISTRY

The spirit of internationalism has been a powerful influence in the progress of dentistry during the twentieth century. The Federation Dentaire Internationale and the International Association for Dental Research are firmly established organizations that have demonstrated great worth in maintaining and strengthening relationships between dentists in all countries of the world.

The F.D.I., founded in 1900 at Paris, has effectively carried out its primary object of promoting the organization of bodies that will contribute to the advancement of dental science throughout the world.

The I.A.D.R., founded in 1920, has the chief purpose of promoting the advancement of research in all branches of dental science and of contributing directly to the development of oral health service.

These organizations have encouraged and facilitated cooperative effort and achievement by — and mutual helpfulness among — investigators and leaders in all nations, to the glorious end that dentistry may render cumulatively a steadily improving service to humanity.

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Oddments in Dental History: The Strange Cases of the Exploding Teeth

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

One would look in vain in the current dental literature for instances where teeth have “exploded” in the mouth. Yet a century and more ago this seemed to be a phenomenon which, although rare, was nevertheless reported with some frequency. Although it seems that to accept the truth of the cases here presented would require stretching one’s credibility, they were nevertheless documented by reputable dental practitioners in recognized periodicals. How account for these “explosions”? Perhaps some reader can come up with a suitable explanation; especially as to why we don’t hear of “explosions” today.

The earliest cases the author found were reported in the June 8, 1861 Medical and Surgical Reporter published in Philadelphia. A Dr. W. H. Atkinson cites three instances, with the journal prefacing his report with the statement that although it doesn’t request “... the reader to stretch his credulity, or offering any theory to account for it, we assert the respectability of the source of the report.”

Case 1.—Rev. D. A----, Springfield, Mercer county, Pennsylvania, August 31st and September 1st, 1857. At nine o’clock, A.M. of August 31st, the right superior canine or first bicuspid commenced aching, increasing in intensity to such a degree as to set him wild. During his agonies he ran about here and there, in the vain endeavor to obtain some respite; at one time boring his head on the ground like an enraged animal, at another poking it under the corner of the fence, and again going to the spring and plunging his head to the bottom in cold water: which so alarmed his family that they led him to the cabin and did all in their power to compose him. But all proved unavailing, till, at nine o’clock the next morning, as he was walking the floor in wild delirium, all at once a sharp crack, like a pistol shot, bursting his tooth to fragments, gave him instant relief. At this moment he turned to his wife and said, “My pain is all gone!” He went to bed, and slept soundly all that day and most of the succeeding night; after which he was rational and well. He is living at this present time, and has vivid recollection of the distressing incident.

Case 2.—Mrs. Letitia D----, Vernon, Mercer county, Pennsylvania, 1830. This case cannot be so clearly or fully traced as case first, but was much like it, terminating by bursting with report, giving immediate relief. The tooth subsequently crumbled to pieces; it was a superior molar.

Case 3.—Mrs. Anna P. A----, Hemphill, Mercer county, Pennsylvania, 1855. This had a simple antero-posterior split, caused by the intense pain and pressure of the inflamed pulp. A sudden, sharp report, and instant relief, as in the other cases, occurred in
the left superior canine. She is living and healthy, the mother of a
family of fine girls.

For the second published report I am indebted to Professor John
W. Howard of West Virginia University who found it in a textbook
Pathology and Therapeutics of Dentistry; with Miscellaneous Essays
on Dental Subjects by J. Phelps Hibler, D.D.S. and published in 1874.
Professor Howard characterizes the book as being "... uncertain in its
grammar and spelling, turgid in its style, and idiosyncratic in its
opinion." Strange as it seems, this case is to be found on page 27 of Dr.
Hibler's text:

There are certain peculiarities and incidents which at times ac-
companies Odontalgia, in some I think, peculiar constituted in-
dividuals, which are sometimes truly amazing. The explosion of a
tooth for instance, suffering from Odontalgia, which is ac-
complished through the yet unknown workings of hidden causes in
the organism, or induced by, and running simply with the disease
... One case coming somewhat under my own observation; explo-
sion transpired in the case of a Negro woman, residing at the time
in this place, some years since. There was nothing very much
different in this woman's constitutional make-up, so far as I could
discern, from others of the same race ... She said just
before the explosion took place, the tooth was aching dreadfully,
disturbing the harmonical equanimity of every part of her organism
to the extent that she at moments was laboring under slight
aberrations of mind. All of a sudden the raving pains eased up
greatly; having been walking the floor for several hours, she sat
down for a moment or two to take some rest. She averred that she
had all her senses unimpaired from the moment the aching ceased;
all at once without any symptom other than the previous severe
aching, the tooth, a right lower first Molar, bursted with a concus-
sion and a report, that well nigh knocked her over; splitting the
tooth directly through from the buccal to the lingual surface, and
very much shattering the organ otherwise; at the same moment
having a horrid sensation traversing the Eustachian tubes, which
ended in rendering her quite deaf for a considerable length of time.
The whole thing did not occupy but a moment, and the tooth
ceased aching at once.

The last case was reprinted in the Archives of Dentistry, (Vol. 1,
No. 1, New Series, June 1884, page 46) from an article in the British
Journal of Dental Science:

A patient recently came to a dentist to have a tooth extracted.
It was the right inferior first molar, and was split in half from left
to right. Upon inquiring it appeared that for several days the tooth
had been paining him rather severely — growing longer and being
extremely sore to the touch. The pain continued to increase until
the night previous when, all of a sudden, something seemed to
crack in his mouth, and the pain at once ceased. The patient
thereupon discovered, with his tongue, that the tooth seemed to be
divided. No doubt the splitting was occasioned by an accumulation
of gas in the pulp cavity.
The Mystery of the Kul Oba Vase:
A Scythian Treasure

—MICHAL KURTZ, B.A.
CINDY R. KURTZ
Hollis, New York

On April 19th, 1975, the Metropolitan Museum of Art of New York was privileged to open a most unique exhibition. For the first time in history, the Soviet Union loaned its Scythian riches to the United States. Among the treasures loaned was the controversial Kul Oba vase. In the past, analysis of the vase by dental and medical historians alike has been hampered by "professional near-sightedness." These biased interpretations of scenes depicted on the vase are giving way to equally feasible explanations. Dental and medical historians neglected to step back and allow themselves a broader perspective. This paper presents several alternative theories to the commonly held one — early dental treatment among the ancient Scythians.
The Pontic steppes are great plains of the Soviet Union north of the Black Sea. Here the city of Kerch in the Crimea lies on the straits connecting the Black Sea with the Sea of Azov. In 1830 I.A. Stemikovsky and P. Dubrux excavated the Kul Oba (Mound of Ashes) site, situated approximately four miles west of Kerch.

Beneath the tumulus, or burial mound, was a stone vault with a corbelled roof. This burial chamber contained three corpses from the fourth century B.C.: a Scythian man, a woman, and, presumably, a slave. The Scythian’s wooden sarcophagus had a separate compartment for his weapons. The lady had been placed on a wooden bier beside the sarcophagus. Among several precious golden objects discovered in this tomb was the now famous Kul Oba vase. The vase was found placed between the knees of the woman.

The Scythians were Iranian-speaking nomads of the Pontic steppes. Their belongings were carried with them in their wagons. They hunted and made war on horseback. The characteristic gorytus, or combination bow case and quiver, was fastened to the belt on the left side. Scythians valued their horses, their gold, and their burial places which they successfully defended against Darius the Great of Persia (c. 512 B.C.) using scorched earth guerilla warfare tactics.

The Kul Oba vase was probably created by a Greek Ionian colonist.
living on the Pontus possibly from the nearby settlement at Panticapaeum. The so-called animal style characteristic of native Scythian craftsmen is lacking. Greek inscriptions and motifs, such as the head of Athena, were found in the same tomb. Interestingly, Herodotus wrote Book IV on the Persian Wars when he was at Olbia, north of the Black Sea. Hellenization had indeed reached Scythia.

The Kul Oba vase is a national treasure of the Soviet Union and its home is the Hermitage Museum in Leningrad. It is composed of a natural alloy of gold and silver known as electrum. The electrum is in repoussé which signifies that it is hammered in relief. Four separate Scythian vignettes are depicted above the petals of a rosette and an ornamental band of guilloche. The photographs do not show the diminutive size of the vase: only five and one half inches tall. It has been slightly bent on its base, but there are no obvious wear facets or abrasions. It is replete with fine details. The figure experiencing oral pain has been examined by Helmut Nickel of the Metropolitan Museum of Art. He has reported seeing teeth with the aid of a magnifying instrument.

It is precisely these four scenes upon the Kul Oba vase that have been a source of constant controversy among historians. Associate Professor Ann Farkas of Brooklyn College believes that “... Scythian art when executed by Greek artisans often contains narrative scenes that must reflect a Scythian mythology.” However, a recent interpretation by Dmitri Rayevsky of the Moscow Institute of Ethnography based on the writings of Herodotus' fourth book on the Persian Wars offers a fascinatingly different explanation.

In classical Greek mythology Hercules was the illegitimate offspring of Zeus, who had disguised himself and copulated with Alcmena. Hera, Zeus’ jealous wife, never forgot and caused Hercules to go temporarily insane later in life and kill his wife and three sons. After consulting with the oracle at Delphi, and in order to purify himself, he embarked on a campaign known popularly as the “Twelve Labors of Hercules”. The tenth labor was to carry off the cows of Geryon from the Island of Erythia near southern Spain. As a memorial of his trip he erected Gibraltar and Ceuta nicknamed today the “Pillars of Hercules”. Herodotus emphasized that the Greeks living about the Pontus claimed that on his way back from Geryon, Hercules passed through Scythia. A severe storm caused Hercules to draw his lion’s skin about him and go to sleep. Upon waking he discovered that the mares from his chariot had disappeared. After an extensive search he came upon a cave in which there lived a half woman-half snake. She promised Hercules she would return his mares if he would have intercourse with her. Herodotus tells us:

So Herakles, to get his mares back agreed; but afterwards she put him off and delayed restoring the mares, since she wished to keep him with her as long as possible. He on the other hand, was only anxious to secure them and to get away. At last, when she gave them up, she said to him, “When your mares strayed hither, it was I who saved them for you; now you have paid a reward; for I bear in my womb three sons of yours. Tell me therefore when your
sons grow up, what must I do with them? Would you wish that I should settle them here in this land, whereof I am mistress, or shall I send them to you?” Thus questioned, they say, Heracles answered, “When the lads have grown to manhood, do thus, and assuredly you will not err. Watch them, and when you see one of them bend this bow as I now bend it, and gird himself with this girdle thus, choose him to remain in the land. Those who fail in the trial, send away. Thus you will at once please yourself and obey me.”

Rayevsky believes that the vase depicts this tale. Agathyrsus and Gelonus who failed to string the bow have injured themselves in the process. Scythes, the youngest brother, has succeeded and is subsequently being invested.²

![Image of the Kul Oba Vase](Photo: Lee Boltin, Metropolitan Museum of Art.)

The Kul Oba Vase. Scythian warrior binding up leg wound of companion.

The Kul Oba vase is very similar to another that had been found at Veronezhskaya. No mythological interpretation has yet been offered for the scenes depicted on this vase however. Nevertheless, this brings us to a second major and equally convincing interpretation.

The second proposition is that the vases do not reflect a Scythian mythology. Instead, they record actual events in Scythian life. Tamara Talbot Rice supports the view of Mikhail I. Rostovtsev:

On the Veronezh [Veronezhskaya] vase the main decoration
shows a Scythian camp at rest perhaps on the eve of battle. The scene unfolds as on a frieze, running round the bulge of the vessel. First we are shown the Scythian commanders assembled at a conference; next an experienced fighter advises a younger one on the use of his bow, and finally, warriors are shown preparing for the fray. In the Kul Oba vase the battle has been fought or is still in progress, and we see a chief listening to a messenger, a warrior tending the leg of a hurt companion, and another dressing a mouth wound.3

It is interesting to speculate on possible functions of these vessels. They may have served as drinking vessels or to hold perfume. Perhaps they were created specifically to serve in the burial ceremony. After all, there were no gross abrasions or signs of daily use. M. I. Artamonov suggests:

Vessels of this kind [Kul Oba and Veronezhskaya] are depicted on plaques showing scenes of Scyths worshipping a goddess. These are found in great numbers in Scythian barrows of the fourth century B.C., and, earthenware versions in particular, are not infrequently encountered on Scythian sites. They were probably used in cult rituals.4

Also, Herodotus (IV 62) describes a sacrificial ceremony in which rites are paid to Ares, the God of War. Cattle, horses, and even prisoners of
war were slaughtered over a "vessel" and the blood collected was
carried to the top of a mound of brushwood and poured over a sword.
Yet in spite of these fascinating interpretations, the Kul Oba vase
remains as much a mystery as the Scythians themselves.

REFERENCES
1) Farkas, Ann, in From the Land of the Scythians, Thomas Hoving, Ed.,
2) Chelminski, Rudolph. "USSR Lends Its Dazzling Scythian Gold for
3) Rice, Tamara Talbot, Scythians, Frederick A. Praeger, N.Y., 1957, pages
66-67.
4) Artamonov, M.I., The Splendor of Scythian Art, Frederick A. praeger,

ADDITIONAL BIBLIOGRAPHY
Artamonov, M.I., The Splendor of Scythian Art, Frederick A. Praeger Publish-
Asbell, Milton B., Research Studies in Dental History; The Dental Art of
Ancient Scythia, Journal of the American College of Dentists, Vol. 15,
no. 2, 1948.
Rice, Tamara Talbot, Scythians, Frederick A. Praeger Publishing Co., New York,
1957.
Rostovtsev, Mikhail I., Iranians and Greeks in South Russia, Clarendon Press,
Oxford, 1922.

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Dr. Keith W. Dickey being presented
with the 1974 Bremner Award by
Academy President J. Henry Clarke
(right). The award, established by a
bequest of the noted dental historian
Dr. M.D. K. Bremner, is for the best es-
say in the field of dental history from a
dental student. Dr. Dickey, who was a
student at Indiana University School of
Dentistry, wrote a paper entitled "The
Way They Were", an oral history of
that school and this was adjudged the
most outstanding entry by a panel of
judges. The winning paper will be
published in the next issue of the
Bulletin.
Dentistry in the Bible and Talmud

—FRED ROSNER, M.D.
Jamaica, New York

Julius Preuss' classic book entitled *Biblisch-Talmudische Medizin* was first published by S. Karger in Berlin in 1911 and reprinted in 1921 and 1923.

Preuss was born on September 5, 1861 in Gross-Schoenbeck, a small town in Uckermark, Germany. He received his early secular education in Angermuende and Prenzlau. He never attended a Jewish school in his youth, and his vast knowledge of Biblical, Talmudic and post-Talmudic Hebrew literature was acquired in his adult years.

Preuss studied medicine in Berlin under Rudolf Virchow, the founder of cellular pathology. Virchow, a man of uncompromising exacting standards, paid Preuss the compliment of telling him that his way of thinking was that of a true physician. Preuss lived in an age that saw the resurgence of the critical approach to scientific and historical research. This was the age of Geiger and Loeb and Graetz and Steinschneider.

Although numerous medical historical works appeared during that era, sadly lacking was a reliable and critical text on Jewish medicine. There was no dearth of general essays on Biblical and Talmudic medicine, but most were superficial, unscientific and occasionally of dubious authenticity. Even the few outstanding works fell far short of the analytical approach which characterized the writings of Julius Preuss.

Preuss' first writing on Hebrew medicine was a pioneering study entitled *Der Arzt in Bibel und Talmud* and was published in Virchow's Archiv. (138:261-283, 1894). There followed numerous essays which appeared in a variety of scientific and literary journals which were eventually collected in his classic anthology *Biblisch-Talmudische Medizin*. In the preface to this book, Preuss states that it is the first book on Biblical and Talmudic medicine written by a physician. Karl Sudhoff, the most illustrious figure in the field of the history of medicine at that time, hailed Preuss' work as the most important contribution to the history of medical science in the preceding half century.

When the first printing of Preuss' book appeared in 1911, he was already fatally ill with cancer of the throat, complicated by tuberculosis and bronchiectasis. He died on September 23, 1913. In keeping with his wishes, no eulogies were delivered at his funeral and his tombstone bears the simple epitaph in Hebrew, *Rophe*, *Ve-lo Lo*, "Physician, but not for himself".

This paper presents an English translation of Chapter Seven of
Preuss' classic reference work and deals with dentistry in the Bible and Talmud.

To the peoples of antiquity, the pathology of the teeth was the same as it is today. Other than toothaches, the peoples in those days, as well as those of the present, only knew of caries and loose teeth. A broken (ro'ah) tooth is like confidence in an unfaithful man in time of trouble.¹ Jeremiah laments: G-d hath broken my teeth with gravel stones.² Esau wept at the encounter with Jacob because his teeth were loose and painful.³ A priest who is lacking teeth is not fit for the Temple service because of his unsightly appearance⁴.

Vinegar is harmful to the teeth, as is smoke to the eyese⁵. If there is a wound (on the tooth or gum), however, it (vinegar) heals; only when there is no (wound) does it cause loosening (of the teeth)⁶. It is thus good for that which is bad, and bad for that which is good⁷. Sour fruit juice, on the other hand, is efficacious for toothache and is also not harmful to healthy teeth⁸. In case of need, one may even utilize vinegar which was produced during the Sabbatical year (when fields must lie fallow); these fruits are otherwise only permitted "for nourishment"⁹. The vapors of the bathhouse are also harmful to the teeth¹⁰. As a result of prolonged fasting, they become black¹¹.

Celsus enumerates toothache among the worst agonies¹². When one reads of the accepted methods of alleviating toothache which he recommends, beginning with a (red) hot iron, it becomes understandable that the Patriarch Rabbi Judah, in the Aggadah, was allotted unusual grace when the Prophet Elijah appeared and liberated him from his pain by placing his (Elijah's) finger on his (Rabbi Judah's) tooth¹³.

An unusual remedy "for the teeth" (kakka) is that of Rabba Bar Rab Huna: one places a garlic root ground with oil and salt on the thumbnail on the side where the tooth aches, and puts a rim of dough around it, taking care that it not touch his flesh, for otherwise white (a white rash i.e. leprosy) would occur¹⁴. Long lists of remedies for toothache, containing the most blatant superstitions and repugnant things from the "dirt" dispensary, are found in Plinius¹⁵.

Tooth extraction, even today, is certainly not one of the pleasures of life. In antiquity, however, it was a most feared operation. First the gums were incised around the tooth; then the tooth was shaken until it was freely movable; then one took haerens cum summo periculo evellitur, and then one grasped the tooth with one's fingers, and when these were not sufficient, one extracted it with a pair of pliers¹⁶. These pliers resemble more closely the tools of the blacksmith than medical instruments! It is this fact that probably underlies the advice which Rab gave to his son: "do not have any tooth extracted", even if he was not at all averse to this polypragmasy¹⁷. Rabbenu Chananel here explains as follows: "when an eye tooth (i.e. canine tooth) is painful, do not extract it, because your eyes must suffer instead". This is similar to the teaching of Celsus: majore periculo in superioribus dentibus fit (extractio), quia potest tempora aculosque concutere, which the people believe to this day.

26
The Oriental people place great emphasis on beautiful teeth. Rabbi Yochanan teaches: "The person who whitens the teeth of his neighbor is better than the person who gives him milk to drink". The lovers extol themselves as follows: "Thy teeth are like a flock of sheep... which came up from the washing". The patriarch (Jacob) promised his son Judah "teeth whiter than milk". As already mentioned above concerning foetor ex ore, teeth and mouth care play an important role. Spleen was considered by the Rabbis to be "good for the teeth", and leek was considered harmful. However, the spleen should first be chewed and then spit out, since it is harmful for digestion. Prolonged fasting causes the teeth to become black; unripe grapes make them blunt. "For dentures" (ledor shinne), a salt ball is recommended. Plinius also advised people to allow a little salt to dissolve under the tongue every morning while the person is still fasting, in order to prevent tooth decay.

Often mentioned is the kesem, or splinter, hardly the toothpick. It probably represents a toothbrush bitten up, in a poorly esthetic manner, as reported about Muhammed by his biographer Ibn Hischam, and as was customary among the Indians. In addition, fragrant wood was probably used for this purpose. Muhammed warned against rubbing the teeth with Siwak wood. The Romans used mastic wood for this purpose. One was only warned against the use of a reed, since it easily splinters and might injure the gums.

Thus explains Rashi in Chullin 16b. However, in the Jerusalem Talmud, the reason given is "because an evil spirit rests thereon". Calamos is not what is meant; rather it refers to a reed knife, for otherwise the prohibition of slaughtering and of circumcising and of cutting meat therewith would make no sense at all. Epipanias (6:12) relates that Manes was killed with a reed; on the other hand, the Manichees made their beds with epi kalamois (reed or cane).

In Ecclesiastes Rabbah (2 fol. 7 d) we find: "even reeds of chiccim were not lacking in Palestine". Kohut equates chiccim with the Syrian chacina, meaning toothpick. This seems rather unlikely in light of the above (citation from the) Jerusalem Talmud; more likely it means an arrow reed.

It appears that such a (wood) chip was constantly carried between the teeth, perhaps to achieve a better alignment of malaligned teeth. It is possible that the following expression has the same meaning: "If one says to another: take the chip out from between your teeth, the latter may reply: take the beam out from your eyes!".

II

The teeth also played a specific role in the legal sphere. On various occasions in the Bible, it is taught: thou shalt give an eye for an eye, a tooth for a tooth. It is most unlikely that this so-called jus talionis in Judaism was ever to be administered in the literal sense. It is certain that the Talmud, in the discussions of bodily injuries other than murder and manslaughter, only speaks of financial punishments which the injured party is entitled to. That
this interpretation is the one which the Bible meant to impart can be established with convincing proofs. In the legislation of the heathens in antiquity, the *jus talionis* itself is associated with the most stringent consequences. According to Solon, if someone blinds the good eye of a person who is (already) blind in one eye, then the one responsible must lose both eyes! Hammurabi teaches that if a man knocks out the teeth of another man, then the aggressor must have his teeth knocked out. Further, if he knocks out the teeth of a very poor man, he must pay one third *mine* of silver.

If someone knocks out the tooth of his man servant or maid servant, then the servant is given his freedom as a substitute for the tooth. If the tooth is already loose but still usable, and also if the tooth was not completely knocked out, but became loose and unusable (as a result of the blow by the master)5. This law does not apply, however, in the case of a baby tooth of a child servant. Even a physician who was drilling the tooth of his servant, and caused it to fall out, must give this servant his freedom.

IV

Dental technology in antiquity was already at a respectably advanced level. The Talmud speaks of the "drilling" of a tooth, *chatzar*, which the commentaries interpret as "poking and scratching around the seat of the tooth". This thus refers to the elimination of tartar, and is analogous to the rule of Celsus: *dens scaber qua parte niger est, radendus est*.

Lost teeth were replaced by artificial ones. Surprisingly, the most ancient method of strengthening (or fortification of teeth) is a skillful job on an artificial dental bridge, as evidenced by the truskic prosthesis of Orvieto in the fifth century B.C.E. It seems to have been a widespread practice to tie an artificial tooth to a healthy one with gold wire. This is already mentioned in the law of the twelve tablets. In Rome during the epoch of the emperors, removable teeth which ladies only set aside in the still of the night, were customary, as derided by Martial. These type of teeth are referred to by the Talmud by the name *shen tho-thebeth* meaning an inserted (or extra) tooth (*thothab* is equivalent to *thoshab*). Such a tooth can be lost by the woman on the street, and can also be removed to be shown to a girl friend.

The substance of these artificial teeth was varied. Martial scoffs at the woman who considers herself "tooth-rich" because of her "bought bones and their ivory". The Gemara speaks of a tooth of silver, the *Mishnah* of one of gold. The commentaries also mention a tooth of wood. Maimonides understands the gold tooth to be a gold case which the woman placed over a damaged (or defective) tooth in order to cover this beauty blemish. Such cases made of silver for (covering) broken teeth are still utilized today in Tibet.

Teeth of mummies need not be considered here; they are first covered with gold after the death of their bearer. The replacement of missing teeth and the tying of loose teeth were not known in Egypt.

Tooth replacement in antiquity seems to have been used only for cosmetic purposes. Therefore, Talmudic writings do not men-
tion it at all in regard to a man, for whom all ornaments are for-
bidden. Furthermore, the Talmud and the Codes speak of it in the
chapter of 'women's ornaments'⁶¹. The golden tooth was expen-
sive and hence accessible only to the well-to-do woman. On the
other hand, even people of middle income could afford a
thothebeth tooth⁶². Rabbi Ishmael had a golden tooth prepared for a
young maiden who wore an ugly thothebeth (false) tooth. When
her beauty blemish was removed, she was able to be married⁶³.

The preparation of artificial teeth was the craft of naggara or
handworkers⁶⁴. The treatment of diseases of the teeth, however, as
already mentioned,⁶⁵ lay in the hands of the physicians.

FOOTNOTES

2. Lamentation 3:16
4. Bechoroth 7:4 and 44a; nashesu meaning fallen out; variant is nitette meaning removed
5. Proverbs 10:26
6. Shabbath 111a
7. Jerushalmi Shabbath 14:14c 76
8. Tosefta Sheshiith 6:3
9. Levit. 25:12
10. Jerushalmi Abodah Zara 3:42d 59
11. Jerushalmi Shabbath 5:7c 30
13. Jerushalmi Kethuboth 12:35a 51
14. Gittin 69a
15. Plinius 28:49; 30:8; 32:26
16. Celsus 7:12 p. 443
17. Pesachim 111a
18. Kethuboth 111b
19. Song of Songs 4:2 and 6:6
20. Genesis 49:12
21. Berachoth 44b
22. Nazir 52b
23. Jeremiah 31:19
24. Shabbath 65a
25. Histor. Natur. 31:45
27. ed. Weil 2:348
29. Tosefta Shabbath 5:10
30. see Hammer. Geisterlehre der Moslimen p. 20, from Sujithi
31. Martial. Epigr. 3:28 and 6:72
32. Jerushalmi Shabbath 8:11c 24
33. Secare, incidere arundine. Plinius 20:2 and 32:42
34. which is allowed in Tosefta Chullin 1:5
35. Chullin 16b
36. compare L. Lw Graph. Requisiten 1:193
37. Low also explains it thusly: Pflanzennamen p. 345
38. Tosefta Shabbath 5:1 where it states: "one may go out (on the Sabbath)
   with the chip in one's teeth". See also Mishnah Shabbath 6:6 where it
states: "young girls may go out (on the Sabbath) with chips in their earlobes (to prevent healing of the pierced ear)

39. Arachin 16b. The parallel statement in Baba Bathra 15b has the following wording in most codexes: take the chip out from your eye

40. Exodus 21:22 and Levit. 24:19

41. Concerning the assumption of the Sadducees that the jus talionis is to be taken literally see Ritter, Philo und die Halacha, Breslaw 1879 p. 133

42. Paragraph 200

43. ibid. Paragraph 201

44. Exodus 21:17

45. Tosefta Baba Kamma 9:27

46. Mechilta Mishpatim Paragraph 9 p. 85b

47. Baba Kamma 26b

48. Celsus 7:12

49. Janus 1900 p. 96

50. Cicero leg. 2:24

51. Epigr. 9:37:3, nec dentes aliter quam serica nocte reponas

52. "inserted hair" woven into the natural hair. Jerushalmi Shabbath 8b

53. See also Tosefta Kelim 3:16

54. Shabbath 6:5 and 65a

55. Epigr. 1:72. Sic dentata sibi videtur Aegle, Emtis ossibus Indicoque cornu

56. loc. cit.

57. Korban Ha'edah on Jerushalmi Shabbath 6:8c 14

58. Hilchoth Shabbath 19:7

59. Laufer. Tibetanische Medizin, 1:38

60. George Ebers in Geist-Jacobi. Geschichte der Zahnheilkunde. Tubingen 1896 p. 9

61. Orach Chayim 303


63. Nedarim 66b

64. Preuss' book Chapter 1; Part 1

DR. ROSNER is the Director of Hematology, Queens Hospital Center, Affiliation of the Long Island Jewish-Hillside Medical Center, Jamaica, New York; and Associate Professor of Medicine, State University of New York College of Medicine at Stony Brook.

In the June 1974 issue of the Bulletin, Dr. L.L. Mulcahy, in commenting on the article on the University of Buffalo Dental School (December 1973), promised to find a picture of dental students in the anatomy lab at that school. After much search, he came up with this photo, taken in 1900. His father is the derby-hatted gentleman at the far rear.
Notes and Queries

THE 1974 HAYDEN-HARRIS AWARD TO
ADMIRAL ALFRED W. CHANDLER

The Hayden-Harris Award of the American Academy of the History of Dentistry was established to preserve the memory of the founders of dental education in the world, and each year the Academy makes such a presentation to a member who has been deemed to have made outstanding contributions to the field of dental history.

The presentation for 1974 was made to Rear Admiral Alfred W. Chandler, D.C., U.S.N., Ret. A native of Rhode Island, Dr. Chandler received his dental training at the University of Pennsylvania Dental School, securing his D.D.S. in 1915. After a few years in private practice he entered the Navy and was appointed a Lieutenant, J.G. in the Dental Corps in 1917, and through subsequent promotions advanced to the rank of Rear Admiral on August 14, 1946. After completing 35 years of continuous active duty in the Navy Dental Corps he retired in 1952 when he attained statutory retirement age.

In 1946 he was appointed Chief of the Dental Division, Bureau of Medicine and Surgery, and on April 4, 1947 became the first officer of the Navy Dental Corps to serve as Assistant Chief of the Bureau of Medicine and Surgery for Dentistry, and Chief of the Dental Division. While in this office he was responsible for the establishment of a dis-
tinctive rating structure for dental technicians, for the establishment of the first naval school for dental technicians, and for Navy regulations which established dental departments in all ships and stations having dental personnel. In 1949 he obtained the title of "Commanding Officer", henceforth to be the new designation for medical and dental officers in command.

Dr. Chandler has had many honors bestowed upon him. In addition to the Legion of Merit and Commendation Ribbon, the Admiral has been awarded the World War I Victory Medal; the Haitian Campaign Medal; the American Defence Service Medal; the American Campaign Medal; the World War II Victory Medal; the National Defence Service Medal; the Korean Service Medal; and the United Nations Service Medal. He was also the first Navy dental officer to be presented with a scroll by the National Lafayette Baton Committee honoring the memory of the Marquis de Lafayette, awarded to him for distinguished leadership.

Dr. Chandler was lauded in the House of Representatives on February 7, 1962 by Congressman L. Mendel Rivers of South Carolina who cited all of the outstanding contributions to Navy dentistry by Admiral Chandler. Earlier, on May 15, 1952 he entered in the Congressional Record a lengthy article written by Admiral Chandler which listed the manifold sacrifices made by Navy dental personnel in the service of their country.

Admiral Chandler has been prominent for many years as a specialist in prosthodontics and has presented professional papers and clinics abroad and throughout the United States. While on duty in Washington, he was called to the White House as a professional specialist on numerous occasions during the terms of Presidents Coolidge, Hoover and Roosevelt. He is an Honorary member of the American Dental Association, having served as Vice-president in 1951; a member of Omicron Kappa Upsilon Honorary Dental Fraternity; the Capitol Clinic Club; a Life Member of Sigma Nu Fraternity; the American Denture Society; a Diplomate of the American Board of Prosthodontics and a Life Fellow of the American College of Dentists. On November 14, 1966 he received the highest award of the American Dental Association for his outstanding contributions to the art and science of dentistry.

In the field of dental history he has made many notable contributions: he served on the Committee which established the dental exhibit at the Museum of History and Technology of the Smithsonian Institution and was responsible for the placement in the Museum of George Washington's dentures; he has written many important articles on the history of the dental profession and has distinguished himself as a lecturer in that field. On October 27, 1967 he was elected President of the American Academy of the History of Dentistry, a fitting culmination to a lifetime of service to the profession he loves. However, Admiral Chandler has remained a very active member of the Academy, and his influence in the affairs of the Academy is still pervasive and his advice, expertise and knowledge are still eagerly sought after by the leadership of that organization.
The Academy is indeed fortunate that it has in its ranks a man such as Admiral Chandler upon whom to bestow the coveted Hayden-Harris Award, a man who has truly followed in the footsteps of those illustrious forebears.

—Malvin E. Ring, D.D.S.

BIBLIOGRAPHY OF FACSIMILE EDITIONS OF DENTAL CLASSICS

Modern dentistry is based upon the solid foundation of the works of pioneers in the profession, and these works range as far back as the first book on dentistry, the Artzney Buchlein, which laid the groundwork for all of the dental literature which has followed in the succeeding four hundred years. It is always exciting to see the work in a form as close to the original as possible, and so publishing houses have, over the years, brought out facsimile editions of these dental classics.

To my knowledge, no bibliography of these facsimile editions has been compiled up to now. I have therefore gathered together as many titles of facsimile editions as I could find and list them here. It is my hope that, if I have missed any, I can be apprised of the titles so that I may append them to this bibliography:

Reprinted Editions of Book on Dentistry

1. Abhandlung von den Zahnen des Menschlichen Korpers und


5. Artzney Buchlein ... edited by Hermann Aupperle, Schwabish Gmund, 1959, sm 8vo.


9. Libellus de Dentibus. By Bartholomeus Eustachius, Venice, 1563. Published with a German translation by Prof. F. Driank and a short historical essay by F. Driank, Urban & Schwarzenberg, Vienna, 1951, 8vo.


—Milton B. Asbell, D.D.S.

**DENTAL TERMS IN HALLIWELL'S DICTIONARY AND NATE’S GLOSSARY**

Dr. Abraham Blinderman, who is Professor of English at the State University of New York at Farmingdale has recently published a fascinating article which deals with some of the archaic medical terms which he found in a study of two early English dictionaries: J.O. Halliwell’s *A Dictionary of Archaic and Provincial Words, Obsolete Phrases, Proverbs and Ancient Customs, from the Fourteenth Century,* which was issued in London in 1846; and in R. Nare’s *Glossary, or Collection of Words, Phrases, Names, and Allusions to Customs and Proverbs in the Works of English Authors, Particularly Shakespeare and his Contemporaries* which appeared in New York in 1822.

Professor Blinderman found that many existing dialects in England go back to the earliest period of the language, and suggests that it would be a major contribution to medical history if some medical scholar would make a definitive study of the semantic changes in the scientific dialectical vocabularies of English from the language’s origins to the present.

In addition, he points out that snobbery on the part of early physicians caused them to look with disdain upon medical writing in the vernacular, feeling that Latin alone was the language fit for the subject. Yet, in spite of their opposition, the very richness of the English language made it a fitting vehicle for scientific writing, especially medical. And that it had its defenders is apparent in this selection from
the introduction to the book *Castle of Health* written by Sir Thomas Elyot in 1534. Incensed by the attack of classical-oriented physicians on his medical writings in English, he retorted vehemently.

If physicians be angry, that I have written physicke in englishe, let them remember that the grekes wrate in greke, the Romains in latine, Avicenna and the other (Rhazes?) in Arabike, which were their own and proper maternall tongues. And if thei had bene as muche attached with envie and covetise, as some nowe seeme to be, they woulde have devised some particular language with a strange cipher or forme of letters, wherein they wold have written their scyence, whiche language or letters no manne should have known that had not professed and practiced physicke.

Needless to say, the peoples' health concerned the people, and they devised words and phrases to express themselves about these things, with many of these expressions being particularly apt. They added immeasureably to the fullness and robustness of our tongue; and that our language is indeed a rich one is shown in these definitions, pertaining to the field of dentistry, culled from Professor Blinderman's search in the early Halliwell's *Dictionary* and Nare's *Glosarry*.

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition and Examples</th>
</tr>
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</table>
| kind-heart | First used (c.1610-1640) as a jocular term for a dentist:  
"Mistake me not, Kindheart...  
He calls you toothdrawer."
(William Rowley, *New Wonder*) |
| dentize | To change the teeth. "They tell of the old Countess of Desmond, who lived until she was seven score yeares old; that she did dentize twice or thrice, casting her old teeth, and others coming in their place." (Bacon, *Natural History*) |
| keckcorn | The windpipe, gullet or uvula; in Gloucstershire, the tonsils. In 1601, *to keck* meant to make a sound as if to vomit and in 1820 *to keckle* signified spasmodic laughing. |
| lag-teeth | The molars, so called becuse they are the last in growth. A *lag-tooth* is the wisdom tooth. |
| lolliker | Used in Cumberland and Lancaster to designate the tongue. Cumberland variant: "Open thy gob an' put out thy lolika, hinny." In 1611 one would *loll* (thrust out) the tongue. Also the colloquial lollipop has some kinship to lolliker. |
| weasand | In 1450, the trachea, throat, esophagus from Old High German *weisant*. "Or cut his wezand with thy knife." (Shakespeare) |
| brook | To digest. From the Old Teutonic *bruk* to enjoy, make use of. Paston Letter III, 1473: "Water of mynte... were good for my cosyn to drynke for to make him to browke." Later, from the literal to chew or digest, the word acquired a figurative meaning, to endure or support. |
| amper | In Somersetshire, a person covered with pimples is said to be ampery. The word was first used in 700 to indicate tumors or blemishes, but it was also used as a |
ancome A small ulcerous swelling formed unexpectedly. The word has many variant forms - uncome, ancombe, and andicomb. It is probably a variant of the northern English on-com, visitation, access of disease, perhaps a partially adapted translation of the Icelandic akoma, eruption of the skin, visitation. "I have seen a little prick, no bigger than a pin’s head, swell bigger and bigger till it has come to an ancome."
(Marston, Eastward Hoe III, iii)

nippigang An ulcer, cancer, amper or abscess.
quitter The nasty matter running from a wound. Possibly from the Old French quiture, cuiture meaning cooking. Later decoction, pus, purulent discharge from a wound or sore.

radegunde A sort of boil. In 1597, the disease redgum altered from the earlier radegounde, Old English gund pus. The disease marked by a papular eruption of rash (Strophulus intertinctus) incident to young children, especially during dentition, consisting of red pimples and patches irregularly disposed on the skin. Interestingly, Radegunde was the name of the wife of Clothaire, King of the Franks (558-561).

sordius Filthy, from French sordide from the Latin sordidus, dirty. In 1670, the word referred to filthy or fecculent matter collecting on or in the bodies of people or animals. In 1746 it alluded to foul crusts formed between the teeth and lips in typhous and other fevers.

lattage A speech impediment, from lat, late, backward.

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

(Reprinted, in part, from the article "Medical Terms in Halliwell's Dictionary and Nare’s Glossary" by Abraham Blinderman, Ph.D., New York State Journal of Medicine, March, 1975. Reprinted by permission of the author and of the New York State Journal of Medicine, copyright by the Medical Society of the State of New York.)
To the Editor:

Congratulations on the December issue of the Bulletin. Every succeeding number contains information of increasing interest. Would you send me two additional copies for distribution to potential candidates to membership in the Academy? I am willing to compensate for the expense if necessary.

A great man, Dr. W.D. Coolidge passed away this week. I am enclosing news items of this great benefactor to humanity. I knew him well, having visited with him at his home on several occasions.

Cordially,
Louis B. Amyot, D.D.S.
Schenectady, N.Y.

(Editor's note: Dr. Coolidge, the Director-emeritus of the Research Laboratories for the General Electric Company died on February 3, 1975 at the age of 101. He was the inventor of the Coolidge X-ray tube which utilized his invention of ductile tungsten and which made possible the modern X-ray used in dentistry.)

To the Editor:

Thank you for the Bulletin for June, 1974, which I received during the week. I want you to know that I enjoyed my visit to the annual meeting of your Academy this past October in Washington. I also hope that the history of our Society which I left with you has proved of interest.

Yours sincerely,
James Molony, D.D.S.
London, England

(DR. MOLONY is Secretary of the American Dental Society of Europe, which is composed of expatriate American dentists or dentists who received their dental education at American universities.)
To the Editor:

Will you please help me chase down some minutiae?

My mother has told me that she heard Lucille Ball tell Dick Cavett on one of his talk shows that she had at one time had an unusual effect in her teeth from radio frequencies. The story, as I have it, is that she got some kind of strange vibrations or sounds in her jaw or teeth whenever she went past a certain location. Turns out there was an illegal radio transmitter operating in Japanese interests early in World War II.

Is there actually a history or some literature on this subject somewhere? Is there some substantiation to Miss Ball's story? Can you save my mother's reputation?

Very truly yours,
Willis H. Carrier
1740 Franklin Street
San Francisco, Cal. 94109

(Perhaps one of our readers can supply the answer to this fascinating inquiry.)

To the Editor:

Your Bulletin has just been delivered in the morning mail, and I cannot wait to thank you for the wonderful article you have written about Menzies and to tell you how pleased I am with it. I am also very appreciative of your extremely kind letter which accompanied the Bulletin.

I wish to comment on the fact that the President of the Canadian Dental Association deputized Dr. Gullett to travel to Glasgow in June of 1973 to confer the Honorary Membership on Menzies. Sad to relate, Menzies had the sad duty of writing Dr. Gullett's obituary in November of the same year. They were old friends and each had a great admiration for the other's historical work.

Very sincerely,
Margaret W. Menzies Campbell
Glasgow, Scotland

(DR. CAMPBELL is the widow of the late great dental historian, Dr. J. Menzies Campbell who died on June 27, 1974.)

To the Editor:

I received the Bulletin this morning and I hasten to congratulate you on your splendid memorial note on Menzies Campbell.

Menzies and Margaret Campbell were old friends of ours and for the past ten years, Mrs. Cahn and I visited them twice a year. We made Glasgow our stopping off place solely for this purpose.

As you may know, I gave the Menzies Campbell Lecture before the Royal College of Surgeons a few years back, a great honor for me.

Margaret and Menzies were a delightful couple and we plan to visit Margaret whenever we go abroad.
May I compliment you on your Bulletin. It gets better with each issue.

Sincerely,
Lester R. Cahn, D.D.S.
New York, N.Y.

To the Editor:

Words cannot express the wonderful thrill I received upon reading the wonderful review you wrote on my book Dental Origins in the December 1974 Bulletin.

Previously I received the Miller Award in New York from the National Laboratory Association as author, inventor and historian. But your review was the climax in my 80th year, having been in dental service for 65 of them.

I was very interested in the reprint of the article about Taggart from Dental Cosmos. In about 1912 we had one of the first Taggart casting machines at Boos and I made hundreds of castings, and with his graphite investment. The castings were perfect except for slight shrinkage due to the investment. The gold was 20 karat and Dr. E.T. Tinker swaged them to a better fit on copper amalgam dies.

Thank you very much for the detailed description of my book.

Sincerely,
Harry C. Hagman, C.D.T.
Minneapolis, Minn.

(The Editor regrets that the review carried the wrong address of the publisher. It is 6122 Portland Ave., Minneapolis, Minn. 55417.)

To the Editor:

I wish to express my sincere appreciation for the splendid manner in which my article was published in the December, 1974 issue of the Bulletin of the History of Dentistry. I am pleased with the article and I hope that your readers will be also.

I also wish to thank you very much for the thoughtful review of our edited volume on “The Humanities and Medicine.” Your assessment was especially generous and Dr. Engelhardt and I are very grateful to you.

Sincerely,
Chester R. Burns, M.D., Ph.D.
Galveston, Tex.

What must surely rank as one of the most fascinating books in the field of medical history has just been issued by the press of Harvard University, and a triumph it is!

Most of us are aware that Hippocrates and his followers wrote early treatises on medicine and that the theory of the cardinal humors ruled the thinking of earlier man's attempt to cope with disease. But here in this book we are able to see much more clearly just what the early Greeks' theories really meant and were really based on. The author uses a singularly effective device for this: case histories told in narrative fashion which make the rationale behind the treatments understandable to us, irrational though they may have been. Concomitant with that the author presents the Greek theories of pathology in such a lucid as well as fascinating manner that their whole system of medicine becomes understandable.

In like manner he deals with the medicine of the ancient Romans, the ancient Egyptians, Indians and other peoples. And all of it is done so well that it is really difficult to lay the book aside! Accompanying the excellent text are literally hundreds of photographs and line drawings, many of them in color, as well as an outstanding 45 page bibliography and almost a hundred pages of interesting, informative and essential notes.

The author, who received his M.D. from the University of Milan, was Associate Professor of Pathology at Harvard's medical school, Professor of Pathology at the University of Geneva, Switzerland and is now Chairman of the Department of Pathology at the University of Massachusetts Medical School in Worcester. He has written over a
hundred scientific papers, and his ability as a writer of clarity and distinction is well borne out by this work.

But his strong interest as a sleuth in the medical field comes forth clearly in this book. In trying to understand how early man coped with wounds and injuries, he traces the various "treatments" or "cures" rendered by these earlier physicians. But he also asks whether the early healers might have benefitted their patients or only hastened their trip to the grave. And in order to find answers to this question he set about testing many of these ancient remedies in the modern laboratory, duplicating as closely as possible the techniques utilized by his forebears. And he came up with some truly startling findings!

For example balsams such as myrrh and frankincense were valued highly in the ancient world and the author postulates that this may have been due to the fact that early healers felt that what heals trees (the balsams are products of wounds in tree bark) would also heal a human wound. Also, since wounds smell, the spices and balms, acting as what were known as "aromata" would counteract these vile odors, thus probably "counteracting" the disease process itself. But most significant, he feels that the ancient physician must have felt that these balsams had antiseptic properties, though they knew nothing of the true nature of sepsis. So to test his hypothesis he secured a bacteriologist who would be willing to test the effect of myrrh on bacteria, (and he says that was almost as hard as finding the myrrh itself!) The myrrh dissolved easily in water and "... then was tested against a selection of bacteria including a typical wound bacterium Staphylococcus aureus. The result was clearcut: myrrh acts as a bacteriostatic agent against this bacterium and other gram positive bacteria."

The book is the climax of ten years work by Dr. Majno, and it is indeed a fitting culmination, for he has added immeasurably to our knowledge and enjoyment of this fascinating field of the history of the healing sciences. The book cannot be recommended too highly; it is a gem!


A fascinating project launched about ten years ago by an orthodontist in conjunction with an archaeologist has culminated in this excellent small book which is exciting as well as informative and written for the general reader.

The project to x-ray the pharaohs came about not because of interest in Egyptology but because a group of dentists at the School of Dentistry of the University of Michigan wanted to learn more about how human dentition has evolved over the past several thousand years. To this end they had been studying the present inhabitants of Nubia, a portion of southern Egypt. In 1965 Dr. Kent R. Weeks, an American scholar and archaeologist now on the staff of the American University at Cairo went to Nubia to study skeletons being excavated near Abu Simbel, soon to be inundated forever by the rising waters of the Aswan
High Dam. The skeletons studied formed the largest single collection ever recovered from one site, and it soon became clear that if the population of the past were to be analyzed and compared with that of the present, more attention would have to be paid to the teeth, since these being indestructible, provide an excellent gauge of the effects of environment on the human body. To do this properly a full-scale expedition would be necessary, and Dr. Weeks called on his friend Dr. Harris for assistance. Dr. Harris had been engaged in a study of Michigan school children to determine what part genetic factors played in facial growth and his techniques would be applicable to the study of the skulls in Nubia. As a result Harris and his colleagues spent over four years in Nubia amassing data and analyzing it. But since the skeletons recovered from Nubia were almost all of persons of the lower economic class, it was felt that a lot more could be learned by studying skulls of royalty and comparing the dentition with that found in the Aswan area. With permission from the Egyptian Department of Antiquities a study of royal mummies in the Cairo Museum was launched using newly developed portable x-ray equipment, and the findings which resulted were truly astonishing.

It was possible through tracings of the facial profiles as revealed by the x-rays to determine familial lines and genealogies. New understanding of certain dynasties resulted and some long held misconceptions were done away with. In one case a small mummy buried in the sarcophagus alongside a queen and always believed to be her child turned out to be the mummy of a baboon!

Dr. Weeks devotes about half of the book to a story of the history of ancient Egypt, and a lucidly told tale it is. But what is probably of most interest to those who are intrigued by dental history is the interpretation of the dental findings - the ravages of caries and periodontal disease, the evidence of familial malocclusion - all told simply and interestingly and backed up with scores and scores of excellent photographs as well as copies of the x-rays themselves.

One of the most fascinating portions of the book deals with the stories of tomb robbers and grave despoilers who were seeking gold and jewels, told in the words of the ancient Egyptian magistrates who were trying these plunderers on charges of robbing the royal graves. The legalities engaged in during these trials are themselves startling!

The detailed and scientific report of the expedition's work is soon to be released in a book to be titled Roentgenographic Atlas of the Pharaohs. But even though this shorter book is for the layman, it is a rich source of knowledge as well as entertainment for the dental historian.

It has copious reference notes which serve as a modified bibliography, a unique chronology of the history of ancient Egypt and an excellent kinship chart, showing the relationships of the pharaohs discussed in the text.

Although this book was originally published in 1958, like all perceptive historical treatises, it will never lose its vigor, and has thus been reissued.

The book is one in a series titled MD Monographs on Medical History and is the first in the series. The Foreword is written by Felix Marti-Ibanez, M.D., formerly Director of the Department of the History of Medicine at New York Medical College.

The text is divided into eight major sections beginning with the ancients of 2000 years before Christ and bringing us up to the present era of the late fifties. The size of the book is unique in that it is 5” x 7”. At the back of the book is a chapter by chapter bibliography followed by a compilation of the most memorable figures in public health identified by a sentence or two on their most notable achievement, then a selected list of journals concerned with the international and national scene of public health, and ending with a listing of public health societies and schools of public health. The index is the last item in the book divided into subject and author sections.

The style of the book could not have been summed up more accurately than by Dr. Ibanez’ statement in the Foreword quoting the great pathologist Virchow, who said: “Medicine is a social science . . . anthropology in its widest sense, whose greatest task is to build up society on a physiological foundation . . . Politics is nothing but medicine on a large scale”. The pen of Dr. Rosen is used deftly as he digs deeply into the socio-politico-economic life of the period of history of each of the major sections. He sketches very clearly the problems of the era, the thinkers of the times and the solutions for those problems through the politics of the thinkers. The totality of the culture of the period is brought into clear focus as the public health problems are drawn and carefully inter-related to the perceptions of individuals and of governments. More than a treatment of the history of public health, Dr. Rosen’s book awakens in the student of medicine and public health alike a sudden realization of the fuller meaning of a better life against a backdrop of ignorance and bias, and colors the story with the struggles of the great men and women of the times. The panorama of society’s struggle against itself to overcome disease and the burden of being alive, at times, is woven into the very fabric of the time and evolution of knowledge along with its application to problem solving. The book is more of a sociological study of man and his health related discoveries than it is a treatment of the history of public health. It becomes obvious that it is impossible to study one without the other.

The treatment of items like labor laws and working hours and children’s rights in labor all become suddenly real as public health problems for all and not just the reformers. Dr. Rosen leaves you with the strong feeling that to separate out the health aspects from the sociological is to destroy part of the thrust for victory.

The only shortcoming of the book is its length. There are times when the reader will read over the same item several times because it is
part of more than one public health problem. The detail of the political
canvas also leaves much to wade through in order to get to the meat of
the matter and its ultimate resolution as a public health matter.

However, to this reviewer, the wading was worth the effort. The
book is an invaluable resource of several periods in our past 4000 years
of civilization and can serve many purposes besides the one for which it
was written. Dr. Rosen has accomplished a noble purpose because he
has succeeded in opening up at least one more mind to a greater vision
of the meaning of health in the public interest.

—Raymond F. Zambito, D.D.S., M.A.


Since dentistry is an outgrowth of surgery, any history of surgery
should prove of interest to one interested in the background of the den-
tal profession. But when the story of surgery is masterfully written and
fascinating in its detailed presentation of the sidelights of the field, it
becomes an absolute joy to read! Such is the case with this new book
which is ostensibly the story of James McGrigor who rose from
obscurity to the position of chief surgeon of the British armies under
Wellington, and who was responsible for many of the innovations in
British military medicine which raised the status of English medicine to
such heights. But actually the book is far more than that. It is really the
story of the growth of the surgical profession from the late 17th Cen-
tury to the end of the 19th Century, a period which saw tremendous ad-
vances in the field and which also saw it elevated in the public esteem.

The author is Professor of History at the State University of New
York College at Brockport and he is demonstrably a master of his field.
He has the terrific ability to make history come alive, to make the reader
realize that history isn't an accumulation of dates and incidents but
rather the lives and doings of people, important and unimportant, but
all people who, in one way or other, contributed to the panorama of the
past. Blanco has researched the material so thoroughly that one gets the
feeling that nothing that can possibly be known about the history of
surgery has been omitted. Yet the book is never dull or pedantic, never
weighty or pretentious.

In discussing the frightening conditions surrounding amputations
of wounded limbs in those days before the advent of anesthesia, when
so many hapless injured died of shock resulting from the operation,
Blanco gives us a vivid picture of the mixture of bravery as well as
bravado in the troops. He describes the story of the "amazing
Frenchman who gaily picked up his sawed-off leg, threw it into the air
crying 'Vive l'Empereur'." And the story of the Captain of the 7th
Hussars whose knee was shattered by grape-shot, and during the am-
putation

he never moved or complained; no one even held his hand. He said
once perfectly calmly that he thought the instrument was not very
sharp. When it was over, his nerves did not appear the least shaken. He said smiling: "I have had a pretty long run, I have been a beau there forty-seven years, and it would not be fair to cut the young men out any longer..."

Stories such as this make this book the unusual one that it is. Yet the author has not neglected to tell the story of McGrigor as well and he comes alive in the pages of the book as a human being aware of his own shortcomings as well as the weaknesses of his profession.

The book is copiously annotated, testifying to the tremendous research which Professor Blanco did, but which also serve as great sources of additional information. In addition he has provided an extensive bibliography which alone runs to eighteen pages. This coupled with a fine index make the book an indispensable tool for anyone interested in learning more about the history of surgery, and not only the military aspects of the field.

*The Micro-Organisms of the Human Mouth: The Local and General Diseases which are caused by them.* Unaltered reprint of the original work by Willoughby D. Miller (1853-1907) published in 1890 in Philadelphia. With an introductory essay by Klaus G. König (Bijmegen), 128 figs., + 3 pls. S. Karger, 1973. $23.50.

W. D. Miller was the bridge between two continents, between two countries, between two evolutionary changes in the practice of dentistry. Dentistry in the late 19th century was, in the main, a mechanical demonstration of reparative treatment whereas in Europe the activities of the scientific community were heavily laden with studies to solve the riddle of diseases. Thus, Miller, who received his collegiate and professional education in the United States, carried out his monumental researches in Germany. During the latter part of the 19th century the practice of dentistry was mainly concerned with the production of better ways of performing the mechanical (operative) procedures but it was Miller's work as exemplified by this book that became the forerunner of the scientific approach to the practice of dentistry. As has been pointed out: "It is indeed the work of Miller which re-oriented the dental profession and diverted the reparative ideal to the more logical and humanitarian ideal of prevention."

At the age of 29 he published his first article and continued to do so thereafter the rest of his life. The results of his studies appeared in American, German and English journals and, in fact, the 'Micro-organisms' was first published in German under the title of 'Die Mikro-organismen der Mundhöhle' in 1889 and the following year the English edition was published in Philadelphia. It is this English edition which was his major opus and became one of the classics in dentistry. It not only brought to the dental profession a scientific standard but also influenced to this very day the teaching of basic sciences in dental schools. Thus, it constitutes one of the outstanding landmarks in dental education.

The republication of the 'Micro-organisms' should cause all those
interested in dentistry to discover once more the new dimensions which Miller gave to us. This testament to our profession clearly established dentistry's independence from any subservient position to other health disciplines, it demonstrated that dentistry would now stand upon firm scientific principles and practices; it promoted the concept of a medical foundation in dental education; it developed and to a large measure confirmed the relationships between oral sepsis and systemic diseases thus establishing dentistry's position in overall health programs.

It was unfortunate that dentistry was to lose W. D. Miller at the age of 54, at the height of his professional life. It seems rather odd that knowing that he was "one who has for years been troubled with indigestion arising from abnormal fermentation in the stomach" (page 317) that when symptoms of intestinal trouble occurred he did not grasp its full import since he was operated on for appendicitis at the hospital in Newark, Ohio on July 22nd having delayed treatment; he died on July 27, 1907. The scientific world recognized him, his having been awarded honorary degrees by many universities, honorary membership in over twenty societies in nine different countries.

S. Karger is to be congratulated upon giving to the professional world a second opportunity to possess this classic work in dentistry. It is recommended to every dentist who respects and admires men of this caliber who have been responsible for the elevation of dentistry to the present enviable position it presently maintains.

—Milton B. Asbell, D.D.S.


This book which is of prime interest to anesthesiologists, students and dentists with a strong interest in anesthesia, covers the recent advances in the subject.

With the recent popularization of the intra-venous methods of sedation and with the concurrent introduction of many agents other than the more usual ones with which the general practitioner is familiar, this little history is useful in that it helps to bring the practitioner up-to-date. The book deals with the application of the physical sciences to anesthesia, such as acid-base balance, the problems of ventilation, renal function, hemodynamic changes and the reactions of the latest relaxants.

The physical chemistry of the anesthetic agents is dealt with in detail, together with the changes that have taken place in the practice of anesthesia. Note is made of the trend towards the use of more general anesthesia and less regional anesthesia.

The education and manpower problems of anesthesiologists are also gone into in some detail. The book concludes with an interesting summary of the improvements in the manufacture of anesthetic equipment, with a view towards increasing the safety of the anesthetics as well as the facility of their administration.

—Sidney Schreiber, D.D.S.

47
All of the healing sciences are ultimately concerned with physiology, i.e. with the functioning of the living organism-man. Today we are well aware of the close relationship between physiological functioning and anatomical normality, and we have an awareness of the fact that disease is a malfunction of the body’s physiology.

But this has not always been the case, and it is most clearly stated in the introduction to this excellent book:

We could view the history of physiology merely as the historical development of present physiological knowledge... In such circumstances, the subject matter available for historical reflection could be easily delineated, but physiology would emerge as a very young science, in contrast with the long history of human thought... However, the contemporary concept of this science and its goals are the results of a long evolution. Therefore, the history of physiology not only encompasses the historical development of physiological knowledge per se, but it is also concerned with the evolution of physiological thought in general, and the various attitudes and approaches employed for solving the manifold problems connected with human vitality.

In historical context, physiological thought is seen to be intimately bound up with philosophical efforts, for man has always tried to understand and explain himself. Thus this book takes upon itself the task of tracing man’s musings as well as his searchings concerning himself, and as a consequence it emerges as much a study of the physiological thinkers as it is of what they thought.

The author begins with a consideration of what ancient man believed about his bodily functions, and he gives us a clear and good picture of those early systems of thought. Then by carrying the story through the middle ages, the Renaissance with its great strides in anatomical knowledge, the Enlightenment which saw such a flowering of human genius, the eighteenth and nineteenth centuries which witnessed the solid groundwork being laid for a sound understanding of physiological functioning, he brings us to the modern day and describes in an admirable fashion how the great miracles of modern medicine such as the discovery of insulin and other hormones were able to be wrought.

The author is Professor of the History of Medicine at the University of Muenster in West Germany, and this edition has been excellently translated by Guenter B. Risse who is Chairman of the Department of the History of Medicine of the University of Wisconsin. Dr. Risse has aided the reader immeasurably also by his fine bibliography in English which follows each chapter and totals several hundred valuable citations. The many interesting photographs and the generally fine production of this book make it a valuable addition to the collection of one interested in the history of the healing arts.
In 1864 G.F.J. Colburn, D.D.S. of Newark, New Jersey issued a small pamphlet of 16 pages for the edification of the laymen entitled *Popular Dentistry*. The first ten pages were devoted to such practical information as the need to see the dentist, the causes of decay, etc. But the last six pages were given over to touting a substance labeled SOZODONT which promised it was capable of "... cleansing and preserving the teeth, hardening the gums, imparting a delightfully refreshing taste and feeling to the mouth, removing all tartar and scurfe from the teeth, completely arresting the progress of decay, and whitening such cavities in the teeth as have already become black by decay."

Although the claims for this product are obviously exaggerated, they are really mild compared to others which were hawked to a gullible and defenceless public, who were nevertheless constantly being reassured by "testimonials" that the product possessed all of the remarkable properties claimed for it. SOZODONT itself, in this little pamphlet, is lauded by a string of supporters ranging from eminent physicians to the Chief Justice of the State of New Jersey as well as the former Governor himself.

Did these persons deliberately lie about the products for which they testified? Or were they perhaps self-deluded, imagining "cures" when none were achieved, or when the "disease" itself did not in fact exist?

This fascinating little book by Professor Young attempts to answer that question and does much more than that. It traces the history of "patent" medicines from their earliest days in this country up to the present time.

More important, however, is the story it weaves of the long struggle against an almost unbeatable lobby of the proprietary medicine industry, to get food and drug legislation passed to protect the public. In fact, the first law of that kind wasn't passed until 1906, and at that it was so weak that it took almost a third of a century more before effective legislation was enacted.

The book is a short one since it is the text of a Logan Clendening Lecture on the History and Philosophy of Medicine, named in honor of that great medical historian. It was delivered on May 17, 1973 at the Clendening Medical Library of the University of Kansas Medical Center by a professor from Emory University who has marshaled an astonishing background of facts upon which to base his story, and it is always exciting and at times almost unbelievable. The lecture focused on the emergence from quackery of American proprietary medicines and their ascent, under pressure, to successive levels of greater respectability. Yet it is clear from this work that the end is not yet in sight.

This book has been issued by a new publishing company, Coronado Press of Lawrence, Kansas; it is obvious that so long as it
continues to print excellent works such as this it will be making a fine name for itself among publishers of serious work.

Anyone interested in a comprehensive but short study of the patent medicine field can do little better than read this fine book.

The Editor of the Bulletin of the History of Dentistry, Dr. Malvin E. Ring, with a display sign which was featured in a prominent place at the meeting of the Canadian Dental Association, Toronto, Ontario, October 5, 1974.
NOTICE TO CONTRIBUTORS

Contributions, which may deal with any aspect of dental history or bibliography, are invited. The maximum length for original articles is about 5000 words. Manuscripts should be typewritten with double spacing and wide margins. Only one copy need by submitted. Please consult former issues as to both literary style preferred as well as method of listing references. All references should be as complete as possible and contain the name(s) and initial(s) of the author(s) and the full title of the paper or book. Citations of periodical articles should include name of journal, year, volume number and complete pagination, in that order. For books cited, the city of publication, publisher, date and full pagination are to be given. All photographs which are intended to accompany articles must be black-and-white glossy prints no smaller than 3x5 inches. Photographs will be returned only if so requested.

Manuscripts, as well as all correspondence relating to the publication of papers, news-items and so forth should be addressed to the Editor, Bulletin of the History of Dentistry, 216 East Main Street, Batavia, New York 14020.

SUBSCRIPTIONS AND OTHER BUSINESS MATTERS

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE NEW PRESIDENT OF THE AMERICAN ACADEMY</td>
<td>52</td>
</tr>
<tr>
<td>OF THE HISTORY OF DENTISTRY</td>
<td></td>
</tr>
<tr>
<td>SOCIALIZED DENTISTRY IN GREAT BRITAIN:</td>
<td>55</td>
</tr>
<tr>
<td>AN HISTORICAL PERSPECTIVE</td>
<td></td>
</tr>
<tr>
<td>—Hyman J.V. Goldberg, D.M.D., Joyce A. Hagin, B.A.</td>
<td></td>
</tr>
<tr>
<td>A RECOLLECTION OF PEARL GREY: THE DENTIST WHO EXTRACTED THE PURPLE FROM</td>
<td>69</td>
</tr>
<tr>
<td>THE SAGE</td>
<td></td>
</tr>
<tr>
<td>—M. Samuel Cannon, M.S., Ph.D.</td>
<td></td>
</tr>
<tr>
<td>ODDMENTS IN DENTAL HISTORY: DENTISTS HAVE ALWAYS BEEN SUCKERS FOR POETRY!</td>
<td>72</td>
</tr>
<tr>
<td>—Malvin E. Ring, D.D.S., M.L.S.</td>
<td></td>
</tr>
<tr>
<td>SCENES AND PERSONALITIES AT THE 1975 ANNUAL MEETING OF THE AMERICAN</td>
<td>74-5</td>
</tr>
<tr>
<td>ACADEMY OF THE HISTORY OF DENTISTRY</td>
<td></td>
</tr>
<tr>
<td>THE WAY THEY WERE: AN ORAL HISTORY</td>
<td>76</td>
</tr>
<tr>
<td>OF INDIANA UNIVERSITY SCHOOL OF DENTISTRY</td>
<td></td>
</tr>
<tr>
<td>ON ITS GOLDEN ANNIVERSARY</td>
<td></td>
</tr>
<tr>
<td>—Keith W. Dickey, D.D.S.</td>
<td></td>
</tr>
<tr>
<td>CLASSICS IN DENTAL HISTORY: NECROSIS</td>
<td>85</td>
</tr>
<tr>
<td>—C.F.W. Boedecker, D.D.S., M.D.S.</td>
<td></td>
</tr>
<tr>
<td>A CENTURY OF DENTAL EDUCATION IN CANADA: 1875-1975</td>
<td>93</td>
</tr>
<tr>
<td>—Jack G. Dale, D.D.S.</td>
<td></td>
</tr>
<tr>
<td>NOTES AND QUERIES</td>
<td>101</td>
</tr>
<tr>
<td>NEW DENTAL MUSEUM OF THE UNIVERSITY OF THE PACIFIC</td>
<td></td>
</tr>
<tr>
<td>SCHOOL OF DENTISTRY</td>
<td></td>
</tr>
<tr>
<td>RARE BOOK ACQUIRED BY UNIVERSITY OF MARYLAND</td>
<td></td>
</tr>
<tr>
<td>ORAL HISTORY PROJECT IN SAN FRANCISCO</td>
<td></td>
</tr>
<tr>
<td>NEW HISTORICAL COLLECTION OF THE HEALTH PROFESSIONS AT THE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td>OF PITTSBURGH</td>
<td></td>
</tr>
<tr>
<td>EARLIER REQUIREMENTS FOR SENIOR DENTAL STUDENTS:</td>
<td></td>
</tr>
<tr>
<td>SWAGED GERMAN-SILVER DENTURES</td>
<td></td>
</tr>
<tr>
<td>CORRECTIONS AND ADDITIONS TO THE BIBLIOGRAPHY OF FACSIMILES</td>
<td></td>
</tr>
<tr>
<td>LETTERS TO THE EDITOR</td>
<td>110</td>
</tr>
<tr>
<td>BOOK REVIEWS</td>
<td>113</td>
</tr>
</tbody>
</table>
Our new president was born in New Cumberland, West Virginia, in 1920, was raised in Chicora, a small town near Pittsburgh, Pennsylvania, and got in two years at Slippery Rock State Teachers College before World War II. He spent the war as an enlisted man in the 80th Infantry Division and served with Patton's 3rd United States Army from Normandy to Austria. He entered the University of Pittsburgh School of Dentistry in 1946 and graduated in 1950.

After graduating from Pitt in 1950 Bob says that poverty prompted him to try the Army for two years. He loved it this time around and spent 23 years in the Army Dental Corps, retiring in 1973 as a Colonel and the Chief of the Hospital Dental Clinic at William Beaumont Army Medical Center in El Paso. He is now enjoying life as a private practitioner.

History has always played a special role in his life and it is now his hobby. If he’s not chasing down a rare dental articulator, you will find him out in the desert of a weekend digging for old military and frontier artifacts including bottles — a special love. He says El Paso is especially suited for such activity being very centrally isolated.

The years in the Army and since retiring have been busy ones. He is a diplomate of the American Board of Prosthodontics and is one of the co-founders of the American College of Prosthodontists. Color matching problems in dentistry have received his attention since 1967 and his articles in the Journal of Prosthetic Dentistry have been recognized as the pioneering effort that brought modern color technology to dental colormatching problems. He contributed a chapter to a soon to be published book, "Esthetics in Dentistry", and is a charter member of the Academy of Esthetic Dentistry. Bob is chairman
of the Color and Color Matching Committee of the ACP, chairman of
the delegation of the ACP to the Inter-Society Color Council, chairman
of subcommittee #35: Color and Appearance Matching of Living
Tissue (ISCC) and is the first dentist to be a speaker at the annual
meeting of the ISCC. He has lectured at many national meetings
throughout the United States and has also lectured in Mexico and
Europe.

Bob joined the Academy in the late 60's and served as chairman of
the Membership Committee before being elected vice president in
1973. He says of the Academy: "I think it fills a unique role in den-
tistry. It is an organization of people who love their heritage and the
opportunity to be associated with others of like interest. It is an
organization that offers relaxation and pure enjoyment yet serves a tru-
ly worthwhile and invaluable purpose. It has to be one of my favorite
groups. Being chosen as president of the Academy is an honor that I
will always cherish."
Socialized Dentistry in Great Britain: An Historical Perspective

—HYMAN J. V. GOLDBERG, D.M.D.
JOYCE A. HAGIN, B.A.
Rochester, New York

BACKGROUND HISTORY OF THE NATIONAL HEALTH SERVICE (NHS)

A review of the changes in dentistry in Great Britain since the inception of the National Health Service in 1948 captures both the layman’s and specialist’s imagination. But to properly appraise the current system, one must first acquire some knowledge of the status of dentistry in Great Britain prior to the institution of the Health Service.

The National Health Service (NHS) had its beginnings as far back as 1911, the year of the institution of the National Health Insurance Plan. At this early date the government had recognized the need to improve the health and sanitary conditions of the nation. Families of deceased workers were also often unemployed, adding to the problem of poor health and the high financial burden on the nation.

In 1911 a compulsory health insurance program was instituted to provide free medical care for the majority of low income adult workers. Although revised several times, benefits rarely included dental services until passage of the Child and Maternal Welfare Act (1918), providing free medical and dental care to all nursing and expectant mothers, and children. Disparities existed between the types of services available and to whom they were available, depending on locale. Many public services were biased in favor of the poor by levying charges according to income. In 1923 dental treatment was first included in the compulsory health insurance program as an “additional benefit” though only the worker who paid weekly contributions to the insurance plan, and not his family, was eligible for coverage of half his dental expenses. For the next twenty-five years only nine percent of an astonishingly ignorant, though eligible, public availed themselves of these benefits each year.1

After World War II, the people were psychologically and politically receptive to a new plan, though a slumping postwar economy was not in a position to undertake a bold new program. Support from all political parties based on an enthusiastic hope for a brighter tomorrow catalyzed the inception of the Service in 1948. But the system of local authority was inadequate, and health services did not maintain the degree of efficiency commensurate with the rising standards of medicine.
BEGINNINGS OF THE NHS: AN EYE ON DENTISTRY

The NHS plan envisioned that all citizens regardless of income or insurance contributions would be granted medical treatment in whatever form needed, and this heralded the provision of dental services. Prepared by the coalition government under Churchill in 1946, the NHS Act was thereafter passed by the Labour government, to go into operation on July 5, 1948.

Because of the shortage of dentists, the planned Dental Service sector of the NHS was accompanied by a warning to the community not to expect a complete service. Until December 1949, there were three organizations in the dental profession: the British Dental Association (BDA), the Incorporated Dental Society, and the Public Dental Service Association. In June 1948, the BDA decided not to take part in the new service on the following principles: interference with clinical freedom; desire to provide priority treatment to adolescents; and as a protest against a possible decision by the Ministry of Health to establish a salaried dental service by regulation. At the same time, the two other organizations said they would take part in the Service. This lack of intraprofessional unity left dentistry without a chance of effective opposition to the politicians. Within three months after the inception of the Service, seventy-five percent of the dentists accepted the new national health scheme, later rising to ninety-five percent.

Increased remuneration was clearly seen as an incentive to many dentists to join. Before the Service there was a disproportionately low demand for dentists relative to the population because the public was not dentally educated and tooth conservation was not the rule. Not being prevention-oriented, most people went to the dentist only when in pain; the result was a much greater proportion of extractions to fillings, giving credibility to the description of the British public as "edentulous." The Spens Report on dental remuneration recommended a plan which Parliament agreed to put into effect in July, 1948, basing pay according to an itemized scale of fees. The basic reasons the Service was highly successful in attracting dentists are twofold: the compensation offered by the government was better than most dentists could earn outside the service; and along with the development of national health care, the demand for dentists was continually climbing.

STRUCTURE OF DENTAL CARE WITHIN THE NHS

The National Dental Health Service was devised to include three main divisions: the General Dental Service, the Local Authority Service, and the Hospital and Specialist Services. (A brief discussion of the Dental Estimates Board is also to be included here.)

The General Dental Service (GDS) is the branch of the NHS under the control of Executive Councils in which private practitioners treat patients who have freely chosen them as their dentists, at the same time reserving the right to change dentists at any time. Each item of treatment performed has a specific fee, with the dentist compensated by the government upon completion of the course of treatment. The
dentist reserves the right of appeal if he is dissatisfied with the fee. A practitioner in the GDS is free to choose his place of work, to choose or reject patients, and to treat either all health service patients, or a combination of both health service and private patients. The dentist may refuse any patient at the outset, but once treatment is begun it must be completed unless the patient agrees to stop, he is found to be dentally fit (dental fitness being defined as such a reasonable standard of dental efficiency and oral health as is necessary to safeguard general health), or unless the dentist has the consent of the executive council of the area.

The Local Authority Health Services were required to provide a dental service for school children under the School Dental Service, and for expectant and nursing mothers under the Maternity and Child Welfare Services (MCW). Later the government extended this service to include pre-school children, with school children examined by the school dental officer, who would notify the parents if treatment was required. Emergency treatment is provided when necessary, and a program of dental health education is carried out. Because of the chronic shortage of dentists and high costs, this high priority service has not been as successful as hoped.

The Hospital and Specialist Services today are much improved since the first days of the Health Service. They were established to aid the general practitioners and local authority dental officers in handling difficult cases. Remuneration by salary applies to hospital staff, consultants, specialists, and other auxiliaries. The hospital dental officers give advice and, when necessary, treatment. Today, hospital dentistry includes all types of procedures.

Prior to 1946, hospital services were provided in ‘voluntary’ hospitals maintained initially by philanthropic donations, and in public hospitals which were maintained by the local authorities largely through public funds. The public hospital system represented the majority of hospital beds in the country. The voluntary hospitals, on the other hand, provided the teaching facilities and much of the acute medical and surgical care. Public hospitals were required to accept anyone. Thus, with charges levied according to income, the upper class avoided the public hospitals, while the poor tended to use the public hospitals. Discrimination in the class distribution of health services was probably a significant factor precipitating the NHS Bill.

The Dental Estimates Board (DEB) is the central authority that is responsible for the authorization and expenditure of the money for dental care, approval of treatment estimates, and verification of claims for payment made by dental practitioners. While providing information on dental treatment to the Minister of Health, the primary purposes of the DEB are to prevent abuses of the service and to insure that treatment provided is not below proper standards. Part of its responsibility is to approve plans of treatment such as dentures, oral surgery, orthodontics, extensive periodontal treatment, and complex x-rays. This need for approval makes for delay, thus constricting the practice of dentists. Most of the time of the DEB has been spent examining and verifying the estimates that dentists submitted for work completed.
Upon DEB approval, dentists were paid by the Executive Council, the contractor of all health care dentists. Proposals for treatment of considerable expense which seemed clinically unnecessary were rejected. The result was that dentists began to use standard treatments they knew would be accepted, rather than ones requiring DEB approval, even though the latter might be superior.

THE ECONOMIC ASPECT OF THE NHS: DIFFICULTIES ENCOUNTERED

From the economic point of view, the major difficulties encountered by the innovative NHS were cost and shortage of manpower. The first five years of the NHS were very difficult ones to finance. Since only a fixed allotment was provided by the government for dental needs, an increased volume of treatment brought down the fee per item of treatment. This resulted in dissatisfaction among dentists who, wanting to maintain a steady income level, worked faster and longer hours, but received less and less pay per item of treatment. Thus, the only way dentists could maintain their income level was to increase output; to get on a treadmill which could occasionally result in inferior treatment. The financial future of older dentists was in peril because they could not work as many chairside hours. It is important to understand the background of dentists' earnings at this point.

In January 1949, because of the "excessive" earnings of a small minority of dentists, the government announced it would retain one-half the gross earnings of any dentist above £400 per month. In order to fix dental rates, the Minister set up the Penman Committee in early 1949 to report on the average time required to complete each type of dental treatment. On June 1, without waiting for the findings of the committee, the Minister ordered a twenty percent reduction in the fee scale. The Minister found himself with no other choice but to reduce fees because fifty-nine percent of the practitioners were earning "more than was ever intended for the average work week." The Penman Report of August 1949 showed evidence that almost two-thirds of the dentists were working twenty-five percent in excess of the chairside hours recommended. This investigation explained that there were legitimate ways by which chairside time could be reduced such as adding another chair and having chairside assistance. Most dentists, it was observed, were working faster than normal, while the great majority were trying to cope with the problem of keeping pace with demand without losing personal financial efficiency, or seriously calling into question their professional ethics.

Early in 1950 the Ministry began negotiating with the profession a new scale of fees based on the Penman Report, meanwhile reducing the 1949 scale another ten percent. Despite vehement protest by the BDA, the Ministry did not feel the dentists' longer hours warranted the high earnings they received, even though proof was obtained that between 1949 and 1953, the net income of practitioners declined substantially. The BDA was determined to have the ten percent reduction negated, but it was not until May 1955 that the cut was finally rescinded.
With the worsening of economic conditions, the Chancellor of the Exchequer, in March of 1950, proposed a ceiling on the national treasury's appropriation for the Health Service. Because of a growing apprehension over alleged abuses of the NHS and the rising expenditures, effective May 21, 1951 charges were imposed on false teeth (following considerable parliamentary debate) amounting to about half the cost ranging up to a maximum of £4.5s ($11.90) for upper and lower dentures. It became apparent that a charge on dentures would encourage the most economical use of limited dental resources and encourage priority patients to keep their teeth in a state of health. Upon the imposition of the charges, the decline in the rush for dentures became evident. In 1950, dentures claimed seventy-nine percent of the total budget; in 1960 only twenty-seven percent. However, financial assistance for low income patients where needed was available from the National Assistance Fund.

Within the next year, the Conservative Party came into power and imposed additional charges by the passage of the National Health Service Act of 1952. Strongly opposed by the Labour Party, dental treatment was made subject to a charge of £1 ($2.80) per course of treatment, or less if the actual cost were less. Nursing and expectant mothers and all people under twenty-one could still claim free dental treatment. Not included were the furnishing or relining of dentures, for which there was the usual charge.

Initial reaction of both professional and lay groups indicated a marked dissatisfaction with the new system, as it was believed that emphasis on preventive dentistry would be destroyed. The charges would undermine the dental service because most persons would delay conservative treatment until extraction became necessary. The BDA went along with the need for these charges to people over twenty-one as a temporary expedient to protect the priority services, though it believed charges should gradually be reduced to zero. Meanwhile, dentists felt some change should be made in the fees for conservative dental work since the present £1 maximum charge was deterring patients from regular dental checkups, bringing them to seek care when major work was needed. Thus, the professional spokesmen urged the government to rebate the fee to people who had annual checkups for the purpose of staying dentally healthy. The Guillebaud Committee, set up in 1953 by the Conservative government for the purpose of determining how the increasing costs could be avoided without impairing the adequacy of the NHS, endorsed this because it felt that conservative dental work was the most effective use of the dental service and that to charge for it would present an obstacle to attaining this goal.

From the macroeconomic perspective, expenditures for the dental service in 1953 were thirty-four percent below that of 1949-1950. This was caused by the declining demand for dentures and reduction in dental remuneration. Beginning in 1954, costs of the dental service began to rise slowly. Determining the cost of the National Dental Service, however, was a complicated process, requiring the expertise of a council of administrative Solomons.
THE SHORTAGE OF MANPOWER

Before the NHS, the majority of the people went to the dentist in an emergency or for relief of pain, with the most common treatment being extraction. When the NHS provided free service to all, the demand for dentists was much greater than their availability. Among the reasons for the shortage of dentists was its unpopularity as a career. It suffered from high cost of training, insufficient compensation, and the prevailing attitude that, as a profession, dentistry was of a low status. To achieve a goal of twenty thousand practitioners in Great Britain, set by the Teviot Committee, a program involving the use of publicity in the schools and throughout the nation was undertaken.

Attendance at dental schools reached capacity in the years immediately after the war, but in 1951 enrollment began to drop, and showed no improvement in 1954.

A second investigation was proposed by the government under Lord McNair, to determine why more students were not seeking dentistry as a profession and how the situation could be remedied. In 1956, the McNair Committee published its findings, which were similar to those of the Teviot Committee. Evidently, the problem had grown more critical each year in the local clinics, school services, armed forces and general dental services, which were suffering from an extreme shortage of dentists, and for a variety of reasons. There was an exodus of many dentists from the local authority clinics and school dental service into the field of general dentistry where earnings were higher. Dentists were busy answering the great demand for dentures resulting from the lack of societal emphasis on restorative and preventive dentistry. Priority services for aiding children and nursing and expectant mothers also suffered. Apathy and ignorance about dental health among the public was the major long term problem the dental service faced and needed to overcome by education.

Under the Dentists Act of 1956 a General Dental Council, was established, reflecting the increasing importance of dentistry. This raised the dental profession to the status of a selfgoverning body. Now it was easier for foreign qualified dentists to practice in Great Britain; dental hygienists could be employed under the supervision of dentists to aid in hospitals and local clinics. A new class of dental operative assistants who could be used in the school and local authority clinics was introduced as an aid in the performance of routine work in local clinics.

The Cranbrook Committee Report in 1959 stressed the importance of good dental health, especially for pregnant women, and recommended that the priority dental service should be expanded. However, the chronic shortage of dentists affected every branch of the dental service, leaving this area of relatively high priority as well as other specialized ones, without guarantee of improvement.

High earnings in the General Dental Service drew many dentists away from the School Dental Service and Maternity and Child Welfare Clinics. Already undermanned, the priority services only grew worse. They were still priority in name but not in service, since many expectant mothers and children were forced to join regular services and wait
in line like everyone else, leaving many children untreated. In the Report of the Ministry of Health for the year 1961, a reduction was noted in the total number of cases treated by the priority services since 1960.

It was evident that not all of the priority patients could be put in a state of dental fitness without the aid of General Dental Services. Despite the increase in conservative dentistry, much of the dental work was still extraction of teeth and the provision of dentures. In the General Dental Service, all people, including priority patients, were charged for dentures until 1961, when a new bill provided free treatment for priority patients even if they went to a dentist in the General Dental Service. As a fortunate spinoff, families were likely to seek regular treatment from their own dentists. Dentists benefited by seeing families regularly, and were able to provide more conservative treatment. It had been a worthwhile adjustment.

Problems with the attractiveness of the profession, allocation of manpower resources in general and priority practices still confronted the inexperienced national health administrators. However, growing pains are experienced in any dramatic overhaul of a standardized practice. In fact, the British "muddled through" their era of change quite admirably.

ATTITUDES ON NHS: THE DENTIST AND THE PUBLIC

The dissatisfaction of many dentists is rooted in two aforementioned points: the method of remuneration and the impairment of their clinical freedom caused by the requirement of prior approval for certain methods of treatment. But there were other dissatisfactions as well: financial uncertainties caused by the reductions in compensation by the Ministry of Health, and the lack of opportunity other than general practice, for there were only a limited number of spaces in the hospital service and research field.

In the first of a series of Occasional Papers published by the BDA, the results of a survey of all dentists in the country conducted in April 1965 were printed. This revealed that fifty-one percent of the dentists felt conditions in the General Dental Service were unsatisfactory. While a majority of dentists under twenty-six years old thought conditions were tolerable, only a minority of the dentists sixty years old agreed. Remuneration was the major cause of dissatisfaction of seventy percent of the dentists, although the least dissatisfied with pay were those newest to the field.

It was also found that most of those dentists dissatisfied with pay blamed the speed at which they had to work in order to maintain their income. Some named the number of hours they had to work as their main grievance, while some feared a reduction in the scale of fees. Some dentists replied that the main cause of dissatisfaction was that their total practice expenses were inadequately reimbursed.

Perhaps predictably, younger dentists were much happier with the NHS than the older ones. They felt that personal advantages were very
clear: compensation was good; setting up practice was easier than before; patients were numerous; there was no worry about collecting fees because the government always paid. From the point of view of dentistry's future, the trend toward conservative dental work increased, thereby improving the opportunity for good dentistry. Additional advantages were that the dentist knew the fee for most of his work, and for the average treatment. Thus, these noteworthy advantages indicated by some members of the profession, showed that the NHS system had its solid supporters.

As public recognition of the importance of dental health grew, demand for treatment increased. Dental care was now becoming more valued, as indicated in the results of a survey of dental patients done in July 1967, to determine the level of public satisfaction with the NHS. Ninety percent of the respondents stated they were "very satisfied" with the attention they received from NHS dentists. It would be a reasonable hypothesis to view the prestige of the dental profession as rising with its popularity at this point in NHS history.

EFFECTS OF GOVERNMENT CONTROL ON NHS

The government's effect on the newborn NHS must not be minimized, however. Because of the imposition of time consuming regulations when treatment was complex, a dentist's initiative was stifled, slowing the movement towards improvement, and progress. This became evident when it was seen that when NHS treatment proved to be inferior, practice outside the NHS grew.

Since Parliament placed a limit on the total cost of the Service, and no limit was placed on the amount of treatment dentists could provide, the cost per treatment tended to exceed the government's estimates, creating governmental demands to lower costs. Dentists responded by seeking a hike in fees as well as a separation of the NHS from the political arena, and removal from complete control by the Ministry of Health.

For the purpose of learning about socialized dentistry in Great Britain, Dr. Melvin Meilach of the U.S.A. toured England for about a month in the early 1960's, speaking to members of the working public and to dental practitioners and attending dental conventions. He concluded that the dentist had been buffeted by poor planning, red tape, and political controls. As a result of the red tape involved in obtaining prior approval from the DEB, he found that dentists tended to submit a less complex plan of treatment, one more likely to be approved because it was standardized and routine. Despite these findings, Meilach found that a majority of dentists would not change the system if they could. Nevertheless, the government had promised to increase the treatment fees by fourteen percent in 1963, but only came through with a one percent hike because dentists had succeeded in boosting their income by working harder.

Government control had a conspicuous effect on dental research. In May 1960, a former Minister of Health stated that the reason so few dentists were engaged in dental research was due to a lack of interest
on the part of dentists and new graduates, not a lack of funds for research. However, the dentists felt that the field of dental research was not so attractive, because the government did not give assurance of satisfactory remuneration.

ATTEMPTS TO IMPROVE THE NHS

Dentists seem to concur that the greatest increase in satisfaction would result from an increase in clinical freedom which would result from dropping many administrative restrictions, recognizing however, that a fully comprehensive dental service might be economically unfeasible. Nevertheless, the year 1960 saw the abolition of many requirements of prior approval; more prescribing of drugs; increased employment of dental hygienists in general practice; a clarification of rules concerning supplemental and revised estimates; and a more simplified procedure established for dealing with decisions of the Dental Estimates Board.

A NEW EMPHASIS: EDUCATION, CONSERVATION, PREVENTION

When rationing ended after World War II, the nutrition and diet of infants and expectant mothers was not as suitable as in wartime because of the increased availability of cariogenic foods. As a result, a decade after the beginning of the NHS diseased teeth were still widespread, although steady progress was being made in the conservation of teeth. Herein lies perhaps the greatest byproduct of the socialized national health set-up: emphasis on preventive treatment and education.

During the first ten years of the NHS, dental treatment for persons under twenty-one years increased four times, while treatment among adults remained the same in the General Dental Service, rendering the priority system more effective than ever. In 1949, thirty-six percent of the people were provided with dentures; in 1960, only eleven percent, indicating the trend toward conserving teeth.

The reason for this trend was that more people, especially young ones, were becoming conscious of the importance of being dentally fit. But the challenge was to move ahead from conservative treatment to prevention. The profession recognized the need to better educate the public as well as the Ministry, so that they would realize that advanced techniques and preventive treatment would in the end give the best results.

It became clear that to achieve a better preventive attitude, improvement had to be made in eating habits. In addition to suggesting continued active encouragement from dentists, films, television, and school programs, an investigation of children aged twelve to fourteen regarding frequency of dental treatment was conducted. Intending to impress upon them the need for regular checkups, it was found that with “decreasing intelligence” there was a decrease in the child’s frequency of dental visits, a decrease in the amount of conservative treat-
ment, and a considerable increase in the rate of extraction.

Awareness of dental health was now receiving greater emphasis from the Parliament and the press. Research in proper nutrition, oral hygiene, and fluoridation went on apace. In the mid-1950's three communities added fluoride to their water as a means of enhancing resistance to caries. In 1960, filling teeth had become about three times more frequent than extraction, and fewer patients were receiving emergency treatment, due to the increase in regular checkups. The years 1952-1958 saw a forty percent increase in the number of modern clinics built, a needed response to a growing demand and awareness of the importance of dental health.

The volume of a dentist's work had been increasing, too. In the General Dental Service, seventy-four percent more people were treated in 1960 than in 1948, while there was only an eleven percent increase in the number of dentists.

Another landmark result of the first decade of NHS was the increase in group practice. One of the advantages of the dental team was the sharing of ancillaries. Internationally, this idea of a dental team had become more popular because of the shortage of resources in the face of growing demand, as well as new techniques which demanded more chairside assistance.

Since dentistry today is concentrating on maintaining a large number of people in a state of dental health instead of simply making them dentally "fit" for the moment, a program of comprehensive dental health care should begin in a child's formative years with a dental team whose objective is to perform more with less effort, while maintaining quality service.

Thus increasing use is being made of ancillary dental personnel to enable the dentist to make the best possible use of his knowledge and skill, with ancillaries being of two general types: the operating (dental hygienist) and the non-clinical (receptionist, technician, etc.). Auxiliaries are effective in educating patients, allowing the dentist more time to conduct examinations and treatments. Auxiliary workers can be trained more quickly and are employed at two-thirds the cost of a dentist.

STUDIES TEST NHS EFFECTIVENESS

Until 1968 statistics dealing with courses of treatment only existed. Since these did not show the effect of treatment on the dental health of the public, the Government Social Survey Department and the London Hospital Medical College Dental School jointly carried out a survey of patients. It involved attitudes, behavior, personal characteristics, and data was secured by interview as well as clinical examination.

In the published report Adult Dental Health in England and Wales in 1968, the results were divided into four regions. This was the first survey of its kind since the inception of the NHS, and was intended as a baseline for comparison with future surveys to be conducted at regular intervals.
A study of the edentulous revealed that progress had been made since 1948. It was found that those who had lost all their teeth before age 30 comprised thirty percent of those aged 55 to 64. But of those 30 to 34, only five percent had lost all their teeth. This was encouraging since this latter group had had treatment under NHS since their early teens, showing that for a large portion of this group conservative treatment had indeed succeeded.

Also investigated was the effect of childhood dental attendance on adult dental health in those aged sixteen to thirty-four. It was found that regular dental attendance in childhood had a lasting influence even when the attendance pattern deteriorated later in life. Hardly any extractions were performed on regular dental attenders in their last course of treatment compared to sixty-nine percent having extractions among the irregular attenders.

Another survey (1969) involved 659 children from communities with negligible fluoride in the water and 969 children from places with a high concentration of naturally fluoridated water. Caries experience was found to be forty-six percent lower in high fluoride areas than in low fluoride areas.

EVALUATION OF THE DENTAL SERVICE AND SUGGESTIONS FOR IMPROVEMENT

The volume of dental disease was the fundamental problem facing the dental service. Dental caries, a common chronic disease, affects one-third of two-year-old children in the United Kingdom. An NHS investigation of the caries rate of pre-school children who attended child welfare centers for medical exams showed that there was a relationship between the prevalence of rampant caries and social class: more caries were seen in children of lower social classes.

Indeed, the school dental health service will continue to be an important part in the future dental health of the nation, especially in lower socio-economic areas. The dental health team will have the responsibility of treating areas in great need, carrying out supervised routine treatment and intensive dental health education.

Judgement of the quality of the dental service since the inception of the NHS cannot be made solely upon statistics relating to the amount of treatment given, money spent, size of staffs, nor even whether or not there has been a demonstrable reduction in the incidence of dental disease. Because the demand for dentistry has been so great, and the manpower so small, and it did not aim to give as comprehensive treatment as in private practice, the NHS pursued at the outset only a standard of "reasonable dental fitness," a suboptimal one when juxtaposed against the standards of private practice which catered to a much more limited clientele.

Dentists under NHS are preoccupied with the provision of utilitarian but necessary dentistry which encourages earnings rather than the development of higher skills and advanced techniques, and it is unfortunate that the resources available are inadequate for the application of the most advanced methods.
Because the government cannot treat the public in its entirety with the most expensive forms of dentistry, the more affluent should have the right to request that type of treatment by additional payments in the form of a grant-in-aid system of dentistry. However, two investigators, Walter and Wishart believed the technical standards of routine dentistry have risen since the advent of the NHS. They did recommend a system in which the State would pay a basic fee for specific items of treatment, with the patient and dentist free to arrange any additional fees. This would give the dentist his clinical freedom again. Further, Godden (1964), contended that the government should not prevent a patient from supplementing the NHS funds with his own. Agreeing that if treatment is to be comprehensive it cannot be entirely free, private practice should be a supplement to the NHS, and there should always be a substantial amount of private research and treatment which is not financed by the State.

Finally, viewing the tripling of the cost of NHS to the government, Balding, President of the BDA in 1968, stressed that the NHS must be entirely divorced from party politics. He found the NHS was influenced by the politically expedient and that which appealed politically to the voters.

CONCLUSION

The socialized service has undergone many changes since its inception. The attitudes of the dental profession have revealed the dissatisfaction it has encountered with the NHS in the method of remuneration and the limitations placed on choice of treatment. The high standards and quality often achieved in private practice are not always achieved under the socialized health service structure. However, it is apparent from cost and the shortage of manpower, that a comprehensive service could not be provided for all, but successful attempts have been made to alleviate these problems, making for an improved service.

Great Britain has made great strides in the dental health of the nation since the inception of the NHS in 1948. The number of dental practitioners and auxiliaries is increasing, and because of this, Britain can look forward to preventive dentistry and dental health education replacing what had in the past been too much an emergency service. In fact, this has already begun. Witness the fact that in the initial years of the NHS, extractions and complete dentures accounted for fifty percent of the dental service’s total cost, while in 1972 it was only twenty percent of the total. The emphasis of today’s more sophisticated professional body is toward long range health, not temporary fitness.

That the system is invaluable to the public is seen in the dramatic increase in the volume of treatment. Conclusive evidence shows that since the inception of the Service, the dental education of the public has improved tremendously along with a greater awareness of the necessity of dental care.

Although this paper makes no claim to completeness in discussing all the problems associated with the establishment of a national dental
service, it points the way that in terms of providing the greatest potential good for the greatest number it appears to have succeeded in one nation which instituted it.

REFERENCES

10. McHugh, W.D., op. cit.

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"Strike three" means that a batter has either fanned out or misjudged the pitched ball and let it pass. These words, so familiar to a player or manager, may have a far reaching effect; what's more, its consequences may not be felt for years. In fact, as we know, a chance incident in any individual’s life may alter his destiny. Such was the case with the subject of this paper, young Pearl Grey on a sunny Saturday afternoon in the 1890s.

Pearl Grey was born in Zanesville, Ohio, January 31, 1875 and early in life showed an aptitude for sports, particularly baseball. He played ball in high school and on an amateur local team. Pearl’s father, Dr. Lewis M. Gray practiced dentistry in Zanesville, eventually moving his family to Columbus, where, for reasons not entirely clear, he changed their name to Grey. Shortly following his arrival in Columbus, Pearl became pitcher on a city baseball team. Evidently his reputation had preceded him and it’s claimed he attracted scouts from the major leagues.

In the latter part of the 1800’s it was not unusual for dentists to advertise their services either by handbill, newspaper or by publicly displayed signs. Thus, the following notice appeared in the Zanesville Courier, January 10, 1890:

The Most Wonderful Discovery of the Nineteenth Century. I have the best method for the painless extracting of teeth known in the world today. Perfectly harmless. Perfectly painless. Does not produce sleep. I have purchased at a high price and have the exclusive right for the city of Zanesville, Muskingham County, Ohio for this invaluable preparation for the painless extraction of teeth.

Dr. L. M. Gray

While in Columbus, Pearl Grey was a solicitor for his father’s professional services, in all likelihood when he wasn’t playing baseball. While on such a mission for his father he arrived at the twin villages of Baltimore-Basil, Fairfield County, Ohio on that fortuitous Saturday afternoon when a baseball game had been scheduled between the twin village team and its traditional rival, Jacksontown, Licking County, Ohio. Pearl volunteered his pitching services to the twin village nine, with the endorsement of one of the players who had heard of Grey’s infamous curve and drop-ball, the latter said to unstring the staunchest heart. The Jacksontown team consisted primarily of Ohio farmboys, and not being a completely trusting lot, they brought their own umpire.
and a group of enthusiastic supporters. As Grey’s pitches took their
toll, the Jacksontown nine lost confidence, and quite likely would also
have lost the game, if, at the end of the seventh inning their umpire
had not called the contest because the Baltimore-Basil pitcher “was
throwing crooked balls.” Clearly, the Jacksontown players had never
encountered such a pitcher. The crowd was furious, the opposing
teams rolled in the dust, and young Pearl escaped through an adjoining
cornfield.

This incident probably would have gone unrecorded had not one
of the spectators been from the University of Pennsylvania. Pearl Grey
had impressed him and a week later the stranger traveled to Columbus
to persuade young Grey to apply for admission to the University of
Pennsylvania, where he assured him that his baseball prowess would
gain him admission and not go unappreciated.

In the fall of that year Pearl enrolled in the School of Dentistry at
the University of Pennsylvania, and in the tradition of all good
narratives, he won a berth on the varsity baseball team where he ex-
tended his winning ways. According to some accounts, Pearl was more
interested in pitching and reading books on writing techniques than in
preparing himself for dentistry. Nevertheless, in 1898 Pearl Grey was
graduated with the D.D.S. degree and pursued a dental career in a New
York office partially financed by his brother, Romer. It appears that he
entered the dental profession reluctantly; in addition, he disliked the
inactive life. That his practice was not remunerative is evidenced by the
fact that during the summer when his income was precipitously
meager, he played professional baseball. Some biographers state that he
often was tempted to abandon dentistry for a baseball career, but was
dissuaded by his family.

Like his father, Pearl Grey loved the outdoors and adventure and
was a natural raconteur. This symbiosis of narration and an interest in
writing resulted in the article entitled “A Day on the Delaware” which
was published in Field and Stream in 1902. This was followed by an
historical novel Betty Zane, based on the life of a distant relative.
Pearl’s mother had been Josephine Alice Zane whose grandfather was
Colonel Ebenezer Zane who originally laid out Zane’s Trace from
Wheeling, West Virginia to Maysville, Kentucky, beginning in the year
1796. Pearl’s great aunt was Elizabeth Zane, a heroine of Fort Henry in
the latter 1700’s. During an attack on the Fort by British soldiers and
Indians, the defenders ran out of powder; running to an adjoining
building, Elizabeth Zane gathered extra gun powder in an apron im-
provised from a tablecloth. It was this family which gave its name to
his birthplace, Zanesville.

Thus, Pearl Grey’s ancestors were an extraordinary group.
Nonetheless, he couldn’t find a publisher for his historical novel. A
loan from one of his patients financed its publication by the Charles
Francis Press in 1903; whereupon the author changed his name to one
which was to become familiar to millions, Zane Grey.

In 1905 Grey married Miss Lina Elise Roth, a graduate of Hunter
College, who provided him tremendous encouragement, especially dur-
ing the first few lean years, when their savings dwindled and rejection
slips multiplied. Zane Grey's career became monetarily rewarding when, in 1910, Harper and Brothers published his Western romance, *Heritage of the Desert*. From that year until 1939, when he succumbed to coronary thrombosis, Grey published 80 some books of which more than 30 million copies have been sold. Even today, authors revert to Zane Grey when discussing the epitome of western writing: adventure, plot and excitement.

Relatively early in his career, Grey and his family moved to California, and settled on a four-acre estate on Mariposa Avenue, Altadena; this was his address at the time of his death on October 23, 1939. Grey was survived by his widow who lived until July, 1957; a daughter, Betty; and two sons, Romer and Loren.

In agreement with Zane's request his body was cremated. *Time* magazine (September 14, 1959, p. 103) suggested the following epitaph for his headstone:

"Here lies Zane Grey, the romantic dentist from Zanesville, Ohio, who went West as a young man. There he became a master at extracting the purple from the sage."

**BIBILIOGRAPHY**


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Oddments in Dental History: Dentists Have Always Been Suckers for Poetry!

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

Perhaps it’s because it takes a neat, orderly and well regulated mind to become a dentist. Or perhaps the whirring and steady hum of the drill stimulates in the dentist a love for the flowing rhythms of verse. Whatever the reason, dentists, from dental school on, seem to have an affinity for poetry. In their student days they use poems as mnemonic devices (surely, everyone of us remembers “On Old Olympus’ Towering Tops . . .” which helped us to remember the names of the twelve cranial nerves in their correct order) and the following is a trick dental students used some eighty years ago to memorize the number of bones, with an eye, no doubt, on their upcoming State-Board examinations. It was found in the February, 1898 issue of The Dental Register:

How many bones in the human face?
Fourteen when they’re all in place.
How many bones in the human head?
Eight, my boy, as I’ve often said.
How many bones in the human ear?
Three in each, and they help to hear.
How many bones in the human spine?
Twenty-six like a climbing vine.
How many bones in the human chest?
Twenty-four ribs, and two the rest.
How many bones in the shoulder bind?
Two in each — one before, and one behind.
How many bones in the human arm?
In each one, two in each forearm.
How many bones in the human wrist?
Eight in each if none are missed.
How many bones in the human hand?
Five in each with many a band.
How many bones in the fingers ten?
Twenty-eight, and by the joints they bend.
How many bones in the human knees?
One in each, the kneecap please.
How many bones in the human hip?
One in each like a dish they dip?
How many bones in the human thigh?
One in each and deep they lie.
How many bones from the leg to the knee?
Two in each and plain to see.
How many bones in the ankle strong?
Seven in each but none are long.
How many bones in the ball of the foot?
Five in each, as the palms were put.
How many bones in the toes half-a-score?
Twenty-eight, and then no more.
And now altogether these many bones fix?
And they count in the body two hundred and six.
And then we have the human mouth
Of upper and under thirty-two teeth.
And now and then a bone I should think
That forms on a joint, or to fill up a chink.
A sesamoid bone, or a wormian we call
And now we may rest for we've told them all.

But their penchant for the beat and flow of meter and rhyme extended to fields other than pure memorization for examinations. Students also needed cheers and "yells" to help them in their extracurricular endeavors such as a ball game with a rival dental school, or a traditional Halloween bonfire.

One of the best examples of this genre, a veritable treasure which I am happy to rescue from the obscurity which it so richly deserves, is the following which is reprinted in full from the Minute Book of the Freshman Class of the University of Buffalo Dental School:

Meeting of the Freshman Class, University of Buffalo, 1902 Dents, on October 18, 1899. The meeting was called to order by the President. The report was read from the Committee on Yells. Three yells were recommended. A vote was taken and the following one was chosen:

A LA KA NUTE, KA NUT, KA NIT
A LA KA NUTE, KA NUT, KA NIT
FLIPPERTY FLOP, HULLABALOO
U B DENTS, 1902
U of B, U of B, RAH, RAH, RUH
WE'LL BE D.D.S. 1902.

There being no further business to transact, the meeting was adjourned.

Past-President of the Academy, Dr. Henry A. Swanson of Washington, D.C. (left) and immediate Past-President, Dr. J. Henry Clarke, Portland, Oregon.

Everett A. Jackson, Curator for Dentistry, Museum of History and Technology, Smithsonian Institution, (right) and two unidentified Academy members from Ohio.

Two Past-Presidents of the Academy: Prof. Gardner Foley, Baltimore, Md. (L.) and Dr. Jacob Sharp, New Haven, Conn.

Past President, Dr. John V. Olson examining a display of Ancient Mayan Toothache Figurines assembled by Dr. Robert Sproull.

Dr. Russell Wheeler, St. Louis, Mo. (L.) and Dr. Malvin E. Ring, Batavia, N.Y., Bulletin Editor.
Dr. J. A. Donaldson, Editor of the British Dental Journal, addressing the meeting.

Dr. Audrey Davis, Director of the Division of Medical Sciences, Museum of History and Technology of the Smithsonian Institution chatting with Past-President, Dr. H. Martin Deranian, Worcester, Mass.

Dr. Samuel Fastlicht, Mexico City, Mexico (center), world-renowned authority on Pre-Columbian Dentistry chats with Dr. Hector Molino Hijo, (left) Secretary of the Faculty of Dentistry, University of San Carlos, Guatemala and the Academy’s New President, Dr. Robert Sproull of El Paso, Texas.


One of the numerous exhibits which lined the walls of the meeting room — this one prepared by Dr. Richard A. Glenner.
The Way They Were:
An Oral History of
Indiana University School of Dentistry
On Its Golden Anniversary.

— KEITH W. DICKEY, D.D.S.
South Bend, Indiana

(Editor's note: The following paper is essentially an "oral history" based upon interviews with faculty members of the Indiana University School of Dentistry as well as with others who were in some way connected with the School.)

On September 15, 1923, a very important conference was held by the Trustees of Indiana University with the Dental Educational Council of America, the State Board of Dental Examiners and the dental department of the Carnegie Foundation. The meeting came about because of an interest in dental education in Indiana, and the purchase and subsequent changeover of the privately owned Indiana Dental College into the Indiana University School of Dentistry.

A committee of the Board of Trustees had been appointed to negotiate for purchase of the School from the widow of Dr. George Edmund Hunt who owned the majority interest in the Indiana Dental College. The College had offered to sell the school for $60,000 to Indiana University, with the University making a counter-offer of $30,000, which was refused. On January 30, 1924, the committee reported to the trustees that the property was worth from $40,000 to $45,000. In 1925 a bill to authorize purchase passed both houses of the State Legislature by large majorities, and on March 9, 1925, Governor Ed Jackson signed the bill. The actual transfer of assets became effective as of June 1, 1925.1

The dental class graduating June 9, 1925, received its degrees on the Bloomington campus of Indiana University.

The original Indiana Dental College at 637 North Pennsylvania Street had been an apartment building prior to its use as a school. The four story structure was

"...a gingerbread building with lots of little curleycues of trim. A large clinic with skylights to the east on the first floor, seating fifty chairs. Each unit consisted of a cuspidor, a light without a fancy shade, foot engine for rotary tools, and hand air and water syringes."

"The fourth floor had gross anatomy and all basic science laboratories. Each year you moved down a floor. Sophomore on third, Junior on second, and Senior Clinic with the main office on the first floor."

"The basement contained the prosthetic laboratory, crown
and bridge technique and the other technical courses taught. The locker rooms were on the same floor. There were metal lockers with combination locks.

"The building was fire hazard with no elevator. However, good dentistry was taught with what is considered today as crude equipment and surroundings such as dark lighting and wooden floors." 

The first state wide conference on dental education was held June 8, 1926, at Bloomington in connection with the commencement exercises. Also, in 1926, the academic requirement for admission to the School of Dentistry was raised from a high school diploma to one year of pre-dental study at a liberal arts college. Therefore, the freshman class of 1926-27 enrolled only "...thirteen members while the sophomore class consisted of 108 students." 

In May, 1929, when Dean Frederic R. Henshaw announced that the Indiana University Dental School had achieved a "Class A" rating from the Dental Educational Council of America, the Board of Trustees decided that a new building for the School of Dentistry should be the next undertaking. In 1929, Indiana University School of Dentistry became one of the first schools to have a complete orthodontic clinic under the direction of the State's only orthodontist, Dr. C. R. Jackson. Another first at the School during the 1920's was the invention of the bite-wing X-ray film by Dr. Howard R. Raper, a dental radiologist. The bite-wing film process "made possible the early detection of proximal dental caries and thus saved a lot of pulp exposures."

In December, 1931, Robert Frost Daggett was appointed architect for the new dental school, estimated to cost $250,000. The following February, Dean Henshaw and Architect Daggett presented tentative plans to the Board of Trustees. Since a site for the new building had not been secured, Dean Henshaw campaigned to have the building situated just opposite the School of Medicine. When the price for these 4.02 acres consisting of "just an empty lot used for dumping" was discovered to be $17,500, the purchase of the site was regarded as impossible. However, in September, 1932, the purchase of this site, at 1121 West Michigan Street, for the School of Dentistry was authorized by the Board of Trustees with strong moral support from Mr. George A. Ball and President William Bryan. The price of $17,500 was paid with $12,300 from the Indiana University Educational Improvement fund and $5,150 contributed by an anonymous donor.

Mr. Daggett's final plans and specifications were approved in October, 1932. The general contract was awarded to William P. Jungclaus for $165,100 and sub-contracts amounted to $54,779 to bring the total cost to $219,879.

Excavation for the building began November 29, 1932, with the cornerstone laid on May 15, 1933. The Dental School was moved from its former location on North Pennsylvanian Street at the opening of the fall semester in 1933. "The structure was 220 feet long, 65 feet deep and built with various Indiana limestones. The building was three stories in height and more than 7,000 patients were treated in 1933."
"On the first floor the biochemistry laboratory was located in the north east corner of the new building. The first floor was built to teach the Freshman courses of metallurgy, anatomy, histology, pathology, bacteriology, chemistry, dental anatomy, and pharmacology. A large laboratory for these courses was located in the north west section where the present library is situated. The Freshman lecture room and lockers were located in the south west section. Of course, the registrar and the Dean had offices directly to the east of the main entrance. The gross anatomy department was located on the first floor in the south east section. This laboratory was rented to a mortuary school to train students in embalming techniques for several years."

"The second floor contained an extraction clinic with an x-ray department and a senior lecture room in the north east section. The small library with a dental museum and the children's clinic were in the north west section. The Sophomore lecture room and lockers and two rooms for dental research were in the south west section. The Junior lecture room, orthodontia, oral diagnosis and observation, and a small patient waiting room were in the south east section."

"The third floor housed eighty chairs for students to observe and perform various types of restorative procedures. The equipment was considered quite good and new compared to the old building. The chairs were the S. S. White-Wilkenson pump chair with Weber Dental engines. These engines were rented from the school by the students for $50.00 and after each clinic period the rented engine had to be dismantled and taken back to the student lockers. The south end of the clinic contained a small patient waiting room, clinical progress record room, cashier's office, sterilizing room, superintendent's office and staff rooms. One X-ray unit was located in the mid-south section which was used for patient radiographs. The east section of the main clinic was restricted to prosthetics and the west section was for the crown and bridge department. The northeast section of the third floor was the Senior laboratory with the senior lockers in the south east section. The north west section of the third floor was used for the Junior laboratory with the Junior lockers in the south west section. The main clinic was twenty feet and six inches in height to provide maximum light from the advantageous northern exposure. During the 1930's, northern light was thought to be the best for operative procedures. South of the main clinic was an elevated balcony for demonstrations of porcelain inlays and for difficult gold foil techniques by Dr. E. Baker. One time Dr. Drexell Boyd was a volunteer patient for Dr. Baker to place a lower anterior Class IV foil to be done without any anesthetic agent. The procedure lasted the entire morning and was a very traumatic experience for Dr. Boyd."

The heating of the building was provided by steam connected to the main Medical Center power plant north of Michigan Street. The basement was for storage of materials used in the school. A loud speaking system was installed to enable the students to be reached at all times.

The dedication ceremonies were held on January 8, 1934. President Bryan spoke for the University, J. W. Fesler for the Board of
Trustees, Dean W. D. Gatch for the School of Medicine, and Dean Frederic R. Henshaw for the School of Dentistry. The principal dedication address was made by Dr. D. N. Johnson, of Indianapolis, who was termed “the Dean of American Dentists.”

The actual moving of materials, equipment, and papers to the new building was a “hectic mess.” Dr. G. Thaddeus Gregory recalled how he helped fight the rising costs of finishing the building by painting the dark room himself. Using a newly discovered “wonder” paint, Dr. Gregory was nearly overcome by the noxious fumes several times during the course of the day. Within weeks the pink walls were discovered to be too light and the room had to be repainted in the traditional black.

Beginning immediately after his graduation from the Indiana Dental College in 1912, Dr. John Lacy Wilson instructed operative dentistry until July 1, 1948, when he retired as Professor of Operative Dentistry and Chairman of the Operative Department.

“One opinion of Dr. Wilson is that he was an exceptionally fine, compassionate individual devoted, or maybe better, dedicated, to teaching. He was a former railroadman whose hobby was his watch and euchre playing. His third interest in life was his family. One time Dr. Henshaw, Dr. Timmons, and Dr. Wilson went to Toronto, Canada, to a meeting of the American Association of Dental Schools. When it came time to retire that first night in a big hotel on the eighteenth floor, Dr. Wilson was running about the room in his longjohns. Finally, Dr. Henshaw said to him, ‘John, what are you doing?’ Dr. Wilson replied, ‘Fred, I’m tryin’ to find some place to hide my watch!’”

“Dr. Wilson was a perfectionist in operative dentistry. He was superintendent of the clinic and head of the operative department. A marvelous operator! Students had to do every step just right before he would pass their work for them. To those who remember him, he was a character, with all due respect to Dr. Wilson. He had his likes and dislikes politically; he was an avid Republican.”

“... a rather salty character, who was a very fine dentist, one who stood for good dentistry, fine dentistry. He’s reported to have had quite a temper and salty language; in fact, he used it occasionally when displeased with a student. If you could stand his personality you would discover that he stood for the finest quality of dentistry.”

“Dr. Wilson was an individual who was a fine dentist, a good operator but a character. He used to chew tobacco and was very interested in fire arms for hunting. He had no qualms about going out and swearing at students if they did something wrong. But he was very strict in such a manner that students would learn even from his bad habits. He even had the habit of spitting out his tobacco in the cuspidor of the chair where he was working or observing. Also, Dr. Wilson’s office had a solid door to the clinic where daily euchre games would take place at noon. Students would not dare to knock upon the door for assistance after 12:01 for fear of their lives.”

“He was a character, but he was dead on gold foil. He was a hard man.”
"J. L. left his imprint on every graduate of Indiana University School of Dentistry during his time as a teacher. I remember one time when the seniors had a razz banquet in which the students were ribbing the faculty. In the skit a student asked for some help from the actor portraying J. L. J. L. said, 'What do you want to put into this cavity?' The student said 'Silicate cement.' J. L. said, 'What?' He drew out a gun and ran after the student throughout the main clinic and shot him."

"J. L. was short in stature and rather caustic. He was rather demanding but a very good dentist. When you would do something wrong he would get you aside and swear in a manner as if he had never sworn before. That was his way of straightening out students. He was respected by all students."

When construction began at 1121 West Michigan Street, the only other buildings that were part of the Medical Campus were "... Long Hospital, Coleman Hospital, the old Medical School (Emerson Hall), the two stucco buildings between Long and Coleman, and Ball Nurse’s Home."

Another building was Mazzini’s College Inn at 1101 West Michigan Street. In 1931, Dr. Mazzini, the Indiana State Board of Health serologist who discovered a test for venereal disease, hired his most faithful and dedicated employee for his restaurant, Mrs. Bea Gordon. Whether it was holding back cigarettes during World War II for her favorite dental students, serving chocolate sundaes, burnt hot dogs, and root beer to dental personnel for breakfast, or allowing snacks to be “charged” until the next letter from home arrived, Bea had dedicated her life to serving her next door neighbors, the Indiana University School of Dentistry.

"There’s an old saying that the medical students are smarter, but the dental students are really and truthfully much nicer and more polite."

In June, 1935, two years of pre-dental college work was required for admission to the Indiana University School of Dentistry.

Miss Gertrude Katzenberger began working for the Indiana Dental College when it was located on North Meridian Street above an automobile tire repair shop. She witnessed the move to North Pennsylvania Street in 1920 and faithfully served the profession at the Indiana University School of Dentistry for fifty-two years.

"In 1916 Gertrude was a cashier, a position she occupied for more than fifty years, and which she relinquished only when she was forced to by the age statute of limitation. Gertrude Katz is a delightful person who, I think, never had an enemy. Totally fair, she enforced rules given to her by the Administration and did so without antagonizing the dental students."

Indiana University School of Dentistry is unusual in that it has had very few deans throughout its history.

"Dr. Frederic Henshaw was a very short man, thin with large glasses, known to be sarcastic if he thought the students were not doing well. The students either seemed to love him or they were
rather critical of him. Whenever a student was called in to his office to have a talk with Dr. Henshaw, the Dean would have his chair behind his desk up to as high as it would go, even though his feet would not be touching the floor. The stool in front of the desk where the student sat would be a lower chair so that Dean Henshaw would be either at eye level or above when he was talking to the student.

If a new student had not established a place to stay and he looked like a likeable young man he would shove him out the side door of his office and let the Delta Sigs investigate if the student were interested in joining the fraternity. The chances were he would join the Delta Sigma Deltas. This was quite an irritating situation for the other fraternities. However, Dr. Henshaw, during his undergraduate years at the Indiana Dental College was a member of the Xi Psi Phi Fraternity. He resigned from this group after he graduated, and joined the Delta Sigma Delta Fraternity."

On January 15, 1938, the Board of Trustees gave Dr. Henshaw a leave of absence because of illness, and appointed Dr. Gerald Timmons as assistant to the dean. Dean Henshaw did not improve as hoped, and he died on May 27, 1938, leaving his estate for the sole use and benefit of the Indiana University School of Dentistry which he had guided for many years.

"Dean Timmons practically ran the school, even before Dean Henshaw's death. When it was decided a new dean should be sought the faculty became involved very much. Some wanted Dr. Timmons; but others did not. The school reached the point where the faculty was split and polarized. Someone from outside the School had to be asked to become dean." \\
"Dr. Timmons was easier to get to know than Dr. Henshaw. During World War II, I went to Temple University and talked to Dr. Timmons, then Dean of that school. He called everyone in the school who had ever been connected with Indiana University for a regular homecoming." \\

The graduation Class of 1939 had its diplomas signed by Dr. Timmons, acting dean. The Class also sent a signed petition to the Board of Trustees asking that Dr. Timmons be named Dean. However, after much search the Board of Trustees decided to invite a young man, Dr. William Crawford from Columbia University, to be Dean.

"In 1940 when Dr. Crawford became Dean of the Indiana University Dental School the faculty was composed of former graduates with little or no special post-doctoral training. Dr. Crawford went outside and employed teachers who were from other, more outstanding, dental schools. These new men had obtained post-graduate training in basic medical science programs such as those established by the Rockefeller Foundation, and at the medical schools of Rochester and Yale Universities." \\
"Dr. Crawford helped the school tremendously. When I came as a new teacher I was put on the Admissions Committee. No faculty member from before 1940 was on Dr. Crawford's Admissions Committee. Much should be said about Dr. Crawford. He was a dental materials man interested in photography. He started
many fine things. He also pointed out to the faculty and everybody involved that it was necessary to have changes in dental education. Very frankly it made my work easier when I came in to the office because he started things that had to be done and I was able to follow through."

"As soon as Dr. Crawford arrived on campus it was quite obvious he was going to change things around. Every faculty member was trying to get his foot into the door to see where he might fit into Dr. Crawford’s plan of changing the system. Dr. Crawford indicated that he was going to make the school very basic from beginning to end. The students even had to alloy their own gold before making gold castings. There was more research initiated through Dr. Crawford’s activities. I can not be called an unbiased person as far as Dr. Crawford is concerned because he delayed a decision about my salary for teaching oral surgery at the school for one year. At the end of the year he sent me a letter thanking me for services on the faculty. He suggested that because I gained experience from being on the faculty, that perhaps this was enough pay for the year. I decided not to stay on the faculty for the next year unless there was a substantial increase in salary.""

With Dr. Crawford’s father serving as President of the University of Minnesota, it was not a total surprise when a vacancy at the Minnesota Dental School became available in 1945 that Dr. William Crawford resigned his Indiana post. Dr. Maynard K. Hine had come to Indiana University from the University of Illinois to head the department of Oral Histopathology and Periodontics in 1944. One year later on July 1, 1945, Dr. Hine became Dean by recommendation of his predecessor to President Herman Wells.

"When Dr. Crawford left he recommended that Dr. Hine become Dean which was the best thing that could have happened to the School. He was a fine student, clinician, administrator, and teacher. He also had the ability to obtain what he thought was necessary for dental education to excel. He has contributed more to modern dentistry than anyone else in the world. I am proud to say ‘I’m one of his boys,’ since he made me chairman of the Operative Department in 1948.""

"My favorite dean was Dr. Hine. He always took time to see me and tell me about things going on at the school. He always would stop me in the halls of the school to speak to me. He always said ‘If you have any trouble with any students just say the word and we’ll see what is wrong.’ But, of course, I never did since I never have had anything go wrong with my dental students.""

"The school grew in all directions while he was Dean. Dr. Hine was the father of the graduate program at the School and his graduate school became the outstanding graduate school of the country.""

"Dr. Hine did a lot for our school. He brought it up to recognition on the national and international level. He encouraged his faculty to participate in their respective fields and to do research in their fields. As a consequence the faculty members did get recognition nationally and throughout the world. Dr. Hine was honored when Purdue University and Indiana University were
combined in Indianapolis. He was appointed Chancellor of that new institution, a great step forward for Dr. Hine, and IUPUI, and dentistry."

"Dr. Ralph McDonald (the Dean who succeeded Dr. Hine) has encouraged the build up of a department for the use of television in dental education locally and in connection with the regional campus program of the State universities.""

"Dr. McDonald is still too new in the job for anyone to really evaluate his success as Dean. As a fellow department chairman with Dr. McDonald, it is my opinion that the department which he ran (Pedodontics) is the outstanding department of the school.""

If the educational direction of Indiana University School of Dentistry in the future is uncertain, maybe it can benefit from remembering where it has been. "I think my main observation is that the education in dental schools runs parallel to that of the dental profession as a whole... that we are in this profession because we want to be individuals.""

The philosophy of the Indiana University School of Dentistry which includes education, research, and service can best be summarized by the following challenge that the School continues to stress:

The only enemy that can do you irreparable injury is that one called Fear, who sets upon your shoulder and whispers in your ear, "You can't do it; you are afraid to try."

REFERENCES
5. Ibid.
6. I-Dent, Indiana Dental College Year Book, Senior Class, Volume 9, Indianapolis, 1925.

LIST OF THOSE INTERVIEWED
A. Boyd, Drexell A. D.D.S., Indiana University, 1934 Professor, Operative Dentistry. Interviewed February 1, 1974
C. Gordon, Bea Manager, College Inn Restaurant from 1931 to the present. 1101 W. Michigan Street, Indianapolis Interviewed February 12, 1974
E. Healey, Harry J.  
D.D.S., Indiana University, 1931  
Professor-Emeritus, Endodontics.  
Interviewed February 12, 1974

F. Hine, Maynard K.  
D.D.S., University of Illinois, 1930  
Dean, Indiana University School of Dentistry, retired.  
Interviewed February 19, 1974

G. Hohlt, Frederick A.  
D.D.S., Indiana University, 1934  
Professor, Operative Dentistry.  
Interviewed February 14, 1974

H. Johnston, John F.  
D.D.S., Indiana Dental College, 1921  
Professor-Emeritus, Crown and Bridge.  
Interviewed March 18, 1974

I. Katzenberger, Gertrude  
Cashier, Indiana Dental College, 1916-1925  
Cashier, Indiana University, 1925-1968  
Interviewed March 22, 1974

J. Van Huysen, Grant  
D.D.S., University of Pennsylvania, 1925  
Professor, Oral Histology and Diagnosis.  
Interviewed March 19, 1974

The author wishes to thank the panel of experts who freely, openly and precisely discussed their memories and experiences with me, and allowed me to tape-record the interviews. It is my pleasure to present the ten tape-recorded interviews to the school library for use by future historians of dentistry.

I wish also to express my gratitude to Mrs. Helen Campbell, Librarian, who helped in so many ways, and to Dr. Jack D. Carr, my course advisor in the History of Dentistry.

(This paper was the winner of the First Prize in the 1974 Bremner Essay Award Competition conducted annually by the American Academy of the History of Dentistry among students of dental schools in the United States and Canada. Dr. Dickey, who was a student at the Indiana University School of Dentistry at the time, presented his paper at the 23rd annual meeting of the Academy in Washington, D.C. on November 8, 1974. Dr. Dickey’s current address is 63921 Miami, South Bend, Indiana 46614)
Editor's Note: The last quarter of the nineteenth century can safely be said to be the "Golden Age of Dentistry." It was a time when dentistry was being transformed from an empirical basis to one founded soundly on proven scientific principles. It was during this period that the foundations were being laid for the specialties in dentistry: James E. Garretson, building on the work done by Simon P. Hullihen founded the specialty of Oral Surgery; Norman W. Kingsley, by a series of ingenious techniques laid the groundwork expanded upon by Edward Angle which culminated in the field of Orthodontics. Probably foremost in this struggle to give dentistry a sound scientific basis was Greene Vardiman Black who, among his other accomplishments, applied sound engineering principles to the whole field of dental restoration. Among all of this ferment, work was going on apace in an attempt to explain disease and draw up logical, sound, and understandable reasons for the many disease processes which were being encountered by the health professionals of that day. Virchow completed his monumental work which gave a tremendous foundation to the whole field of pathology, furnishing a key whereby manifold phenomena could be understood. Willoughby D. Miller, applying similar reasoning, was working in the field of dental caries, furnishing a rational basis for understanding this disease process.

About this same period, a young immigrant from Germany and a former student of Virchow's was at work attempting to fathom the secrets of diseases of the oral regions. He was Charles F. W. Boedecker who was later to serve so illustriously as Editor of the New York State Dental Journal. Boedecker was a skilled pathologist who insisted on finding the explanation for the problems he encountered, and who brought his findings before the profession, allowing dentists throughout the world to better cope with their patients' diseases because they were now able to understand what was happening.

In the following selection which first appeared in the Dental Cosmos for May, 1878, and which was originally delivered before the First District Dental Society of New York on March 5, 1878, Boedecker defined in clear and precise fashion the process of necrosis of the jaw-bone following infection and osteitis, giving one of the first descriptions of the microscopic appearance of necrotic bone as compared to healthy bone, as well as demonstrating some basic truths about the structure of bone. He also gave a vivid description of misdiagnosis on the part of several physicians which almost had disastrous
consequences for the patient, and he went on to show how the various symptoms with which the patient presented could be explained through a sound knowledge of anatomy and pathology.

Although numerous papers dealing with pathological problems had been published in the dental literature prior to this one, this paper of Boedecker’s is a classic because it is one of the first to clearly and accurately link together the gross pathological features with their microscopic counterparts, as well as with the symptomatology, a method which would henceforth become standard with dental researchers everywhere.

I propose to speak to you tonight of the case alluded to a few meetings since, namely, necrosis of the inferior maxilla. I will recapitulate its history.

On the 27th day of June, 1877, the patient, a married lady, thirty-eight years of age, a native of France, applied to me. Her temperament may be called bilio-nervous. The left eye protruded considerably from the orbit, the pupil was dilated to nearly twice the size of that of the right eye, and the patient was unable to use the other eye without shading or shutting the affected one. She complained of a bad taste in her mouth since July, 1874. Her gums had been swollen for two days, in the region of the first and second molars of the lower jaw, on the left side. On the 6th of July, 1874, she had consulted an eminent oculist of this city, who (she says) told her that the protrusion and partial blindness of the left eye was due to paralysis of the optic nerve. He applied electricity, and gave medicines internally, but without beneficial result.

While under treatment a severe neuralgia developed, which involved the whole of the left side of the body, and continued with greater or less severity up to the time she consulted me. After the development of the neuralgia she had consulted further with a number of eminent general practitioners, but without gaining relief from the pain, bad taste, or disfigurement.

I made a careful examination of her mouth, and found the first lower molar necrosed and loose. I advised the immediate removal of the tooth, which was assented to by the patient. I then dismissed the patient with the request that she would see me again.

Fifteen days after, on the 12th of July, the patient returned, and, on further examination, I was convinced that this was a case of necrosis. I made an injection of aromatic sulphuric acid into the socket, and informed the patient that the bone would have to be removed; that I believed the whole trouble originated there, and that perhaps, when it was taken out, she would be entirely relieved. The patient, greatly frightened, went to one of her physicians, who did not seem to understand the case, but took her to a professor of this city, and both denied the correctness of my diagnosis. The professor said he believed there was a tumor forming, and that which the dentist supposed was necrosis was nothing but a root of a tooth, which should be extracted.

A few days after this the patient returned to me with a letter from the doctor, requesting the extraction of the root. I was surprised to receive such an opinion from such an authority. I reasserted my former diagnosis to the lady, and told her that both physicians has mistaken the dead socket, from which the tooth had been removed, for a root.
For the satisfaction of the patient and myself, I invited her to see Dr. W. H. Atkinson, who, after examination, pronounced it to be an unmistakable case of necrosis, and advised a continuation of the aromatic sulphuric acid treatment every other day. For the removal of the debris, I advised the patient to use permanganate of potash, ten grains to an ounce of distilled water, taking a few drops of this in half a glass of water, and rinsing the mouth with it as often as necessary.

After the ninth application of the acid I found a pretty large piece of bone loosening. I enucleated the yet attached periosteum and gum, and removed a sequestrum (measuring about one inch and a quarter in length) from the second molar to the first bicuspid tooth, — almost the whole mass, in thickness and depth, of the lower jaw,—leaving only the lower and outer border, and a very thin connection between the angle and symphysis, and involving the inferior dental canal, in which no living nerve nor vessel was present. Then rinsed the pocket with a solution of a teaspoonful of salt to half a pint of water, subsequently drying it with cotton, and again applying the aromatic sulphuric acid, and stuffing the pocket rather tightly with cotton.

The next day the patient was in excellent spirits; able to see with her left eye, and rid of the neuralgia, as well as of the bad taste. I dressed with wine of opium, using the aromatic sulphuric acid every third to fifth day, till the 14th of September. Then found, as I expected, the second and first bicuspids loose, and extracted them, continuing the alternate use of aromatic sulphuric acid and wine of opium.

On the 24th of September I drilled away nearly the whole bone, from the second bicuspid to the canine tooth, leaving only enough to hold the jaw together. The part from which the first sequestrum had been removed was, by this time, almost filled by healthy granulations, and, on the whole outer side, had formed a sort of provisional callus, which enabled me to take away as much as I did without breaking the jaw. The patient, in this condition, was, of course, not able to eat anything but soft or liquid food. Continuing the dressing as before, small spiculae of bone separated and came out with the cotton dressing, or were removed by the forceps.

On the 12th of November, the canine, and shortly after, on the 24th, the central and lateral incisor teeth of the same side became loose, and were removed. After this my patient became so weak and nervous that I was obliged to give up the acid treatment, only using the wine of opium daily, after thorough cleansing with salt water, requesting the patient to take plenty of out-door exercise during sunlight, to eat oysters, eggs, etc., drink wine or porter; in short to live on highly nutritive semi-solid food.

On the 15th of January, 1878, I removed the rest of the dead bone, extending from the canine tooth to the symphysis. This accomplished, as before, with the large round bur of the engine, leaving but a thin plate of the body of the lower jaw, which I was sure was healthy. After this I made a few more applications of aromatic sulphuric acid and wine of opium, and to-day the patient is well. She has had no more neuralgia nor bad taste; can see with her left eye, though not as well as with the right one; but she is satisfied, and I am too.
How is it to be explained that such general disturbances arose from a piece of necrotic bone in the jaw? I think, in the following manner: By a reflex irritation of the inferior dental nerve upon the submaxillary and otic ganglia, which are in connection with the anterior branches of the superior cervical ganglion, and in direct connection with most of the cranial and some of the spinal nerves, the almost constant neuralgia, on the affected side, is easily explicable. The bad taste, I believe, had a double origin: first, directly from the necrotic point; secondly, from perverted action of the gustatory nerve, a branch of the inferior maxillary division of the fifth; lastly, as to the dilatation of the pupil, I think it resulted from paralysis of the iris and ciliary processes, the protrusion of the eyeball from a relaxation of the recti muscles brought on, I believe, by the irritation of the ciliary ganglion in connection with the third nerve (motor oculi), which supplies all the outer muscles of the eye, except external rectus and superior oblique, and the short ciliary nerves distributed to the ciliary muscles and iris.

Now as to the microscopical differences between normal and necrotic bone. The successful study of the elements of bone-tissue depends very much upon the method employed. The proper examination of bone-tissue originated in the second and third decade of this century, and was pursued by Howship, Havers, Henle, and others; all of whom resorted to dry bone, which they divided into thin slabs by the use of the saw, after which these were ground thin by a variety of devices, reducing each specimen to semi-transparency. Observations made in this way resulted in the theory of canaliculi bearing a solution of lime salts, hence the name "canaliculi calchofori." In 1850, Rudolph Virchow and F. C. Donders applied the cell doctrine of Schwann to the explanation of bone-tissue. They sometimes used dry and sometimes fresh bone in their investigations, macerating it in dilute hydrochloric acid, whereby they liberated the elements of the structure more or less distinctly. The bodies so isolated presented, sometimes, nucleated structures connected together by branches; at other times, completely isolated bodies consisting of a central mass with projecting processes, and to these they gave the name bone-cells. Donders, in 1853, drew attention to the fact that bone-tissue had spaces filled by cell-like structures similar to those of other kinds of connective tissue. E. Neumann, in 1863, asserted that the so-called bone-cells were not the cells designated by Schwann, but spaces with offshoots having a more densely calcified wall than the other basal substance, and thus better able to withstand the reaction of solvents. These bone-cells are no other than the lacuna, and their offshoots the canaliculi. Virchow came to believe that the cells were inclosed within the lacunae, though without filling the whole space, and to this day adheres to the cell doctrine of Schwann, and claims it to be the only possible explanation of the bone-cells being inclosed in the lacunae and their offshoots, containing a fluid, and ascribing to them the property of life, forgetting that a fluid as such is not endowed with life.

Inasmuch as the dry method of examination of bone-tissue prevailed exclusively up to the introduction of the wet method, by Heinrich Muller, in 1856, it is not surprising that it is frequently persisted in to this day. The nearer to the living state the examinations can be made, the more instructive and definite will the observation be. Hence the dry method is fast falling into disuse among those making histological researches.

In 1871, Edward Lang introduced the examination of living bone under the microscope upon the heated stage, by which he
noticed amoeboid motion in bone-corpuscles. By this management the lacunae were proved to contain protoplasm, but the nature of the contents of canaliculi he said nothing about. The method of examining bone-structure introduced by Heinrich Muller, viz., to decalcify bone by the use of a solution of chromic acid, is to be preferred. Fresh, living bone should be introduced into a solution of chromic acid of from a half to one per cent, to which may be added, to hasten the decalcification on every second or third succeeding day, a few drops of dilute hydrochloric acid. The vessel should be emptied and the fluid renewed every fifth day. In this way bones are decalcified in a short time, and without considerable change. For thin bones two to three weeks are sufficient to soften them enough to produce sections of any degree of thinness by the use of the razor. Such sections may be stained by placing them in a solution of chloride of gold, of one-half to one per cent in strength. An examination of such preparations will show that, within the lacunae of the bone, nucleated protoplasmic bodies are to be seen, with finely granular offshoots extending into the larger canaliculi, where they are lost to sight. From the surface of the protoplasmic body in the direction of the basis-substance many conical processes protrude towards the small canaliculi, with which they blend.

In 1873, C. Heitzmann described the net-like structure of protoplasm, and also observed the same arrangement in the protoplasmic bodies within the bone. He describes the net-like structure thus: 'The nucleolus is connected with the wall of the nucleus, and this again with the granules by very fine threads, which are to be regarded as the living matter proper, while the fluid contained within these meshes does not possess the property of life.'

One year before, namely, in 1872, this observer described and illustrated a bone-corpuscle from bone in the early stage of inflammation, in *Wiener Medicinische Jahrbucher*, 1872, Plate IX. Fig. 3. This plate shows very plainly the shining, nearly homogeneous-looking bone corpuscle, with offshoots in every direction, filling the whole caliber of the canaliculi. It solves the question of the contents of the canaliculi in bone, by direct observation. The living granular protoplasm in bone behaves precisely as in other tissues under the influence of the inflammatory process — that is to say, the central mass becomes a shining and nearly homogeneous lump, the offshoots from which occupy the whole caliber of the canaliculi, and by this the analogy of bone to all other tissues is established. That is to say here, as elsewhere, the living part of the protoplasm forms a continuous net-work throughout the whole animal body, in the meshes of which a more or less fluid basis-substance is found, differing in its chemical properties in different situations, which in bone is glue-giving, and infiltrated with lime salts.

I have followed the methods, in my examination of bone-tissue, as above described. This enabled me, by the use of the razor, to obtain sections fit to be examined by an immersion-lens magnifying 800 to 1000 diameters. I noticed that the canaliculi could be plainly seen in sections, the basis-substance of which had retained a small quantity of lime salts; in completely decalcified specimens, they are very faintly discernible. According to my experience, it is better to stain the sections with a solution of chloride
of gold of the half of one per cent, whereby a better view of both protoplasm and basis-substance is obtained. Another good way is to stain the sections with carmine and haematoxylin.

The results of my observations with high magnifying powers, 800-1000 diameters, are that bone-tissue presents faint parallel lines, dividing it into the so-called lamellae, within which we find the bone-corpuscles, the shapes of which vary according to the direction of the cut and of the lamellae. As bone-corpuscles are flattened lenticular bodies, we will recognize them in this shape in the front view only. Longitudinal sections through these bodies give a spindle-shaped outline, small when cut near the boundary, broad when cut through the middle line of the lentil. A cross-section through a bone-corpuscle shows a somewhat irregular body. A cross-section from the compact bone of a lower jaw presents invariably bone-corpuscles in all three varieties.

Figure 1 shows three bone-corpuscles from the lower jaw of a man about thirty years of age, who died of an aneurism. All three bone-corpuscles are drawn in the front view, as seen by an immersion-lens of T. Grunow's, of this city, magnifying, with the eye-piece, 1000 times. The basis-substance I have drawn a little darker than a chloride of gold or haematoxylin preparation would appear under the microscope, but it will give a clearer idea of the whole. In Figure 1 we see three large spaces, showing a number of ray-shaped offshoots. Besides these coarse offshoots, innumerable extremely fine light ones are present. The larger as well as the smaller all communicate with each other in this way, forming a delicate net-work through the whole of the basis-substance. Within the three lacunae of Figure 1 are present protoplasmic bodies. We observe in the center of the protoplasmic bodies a and b,—a shining, oblong nucleus in a, and a round one in b, in which the nucleoli are not distinctly visible. Around the nuclei we see a narrow seam, traversed by numerous very fine threads, which are cone-shaped. Their bases are directed towards the nucleus, from the periphery of which they arise, while their points are in connection with the nearest granules of the protoplasm. Within the protoplasmic substance there are finer and coarser granules, all being connected with each other by very fine threads. The seam
around the nucleus, as well as the spaces between the meshes of the threads, are observable, being much lighter than the latter.

From the periphery of the protoplasmic body numerous thick offshoots enter the larger canaliculi, which sometimes can be followed up until they communicate with the protoplasm of other large neighboring canaliculi. Besides these many very fine offshoots run from the periphery of the protoplasm contained in the larger canaliculi towards the basis-substance. Some of them can be seen to enter the fine canaliculi, but their course cannot be distinctly followed. Figure 1, c, shows a protoplasmic body without nucleus; probably this has been cut near to its periphery without touching the nucleus. C. Heitzmann states that the nucleus, the granules, and the threads represent the living matter which fills all the coarse canaliculi. My preparations show a much finer net-work within the basis-substance than C. Heitzmann’s figure before alluded to. Though I am not able to distinctly demonstrate the presence of living matter in the finest canaliculi, yet, as we find it in all other kinds of connective tissue, I am justified in assuming it. In normal bone the lacunae and canaliculi are not entirely filled by the living protoplasm. On the periphery of each protoplasmic body we see a distinct light seam, traversed by the offshoots, which, in a cross-section, only show the living part of the protoplasm in the center of the canaliculus, hence leaving sufficient space for the nutrient circulation.

The minute changes of necrotic bone are very interesting, but it is impossible to study the differences between it and normal bone if the specimens be prepared from dry osseous tissue.

I have made microscopical examinations of necrotic bone from the lower jaw, in the foregoing case, and from another piece from an upper jaw removed by Dr. Frank Abbott. The methods employed were exactly the same as before described from normal bone. In both cases the necrotic sequestra, as soon as they had been taken from the mouth, were put into the solution of chromic acid, and cut in due time. As these pieces were small, I imbedded them in a mixture of paraffine and wax (after the extraction of the water by treatment with alcohol for twenty-four hours), whereby I was enabled to obtain extremely thin sections, some of which stained with chloride of gold, some with haematoxylin, and some mounted unstained.

The results of these examinations were as follows:

The outer surface of the necrotic bone, which, to the naked eye, looked rough and eaten out, when brought under the microscope showed bay-like excavations, known formerly as "Howship’s lacunae," in which there was visible a granular mass mixed with pus-corpuscles. In the middle of the bone I found all the Haversian canals more or less enlarged, some showing the bay-like excavations. The contents of the Haversian canals were everywhere the same,—a conglomerate mass of darkly-shaded granules, which I was unable to stain with carmine. These masses are the same that we see in decomposition of organic matter,—"micrococci." Here and there some medullary corpuscles and multinuclear protoplasmic bodies (myeloplaxes of Robin, giant-cells of Virchow) were recognizable. I did not see blood-vessels in any of the Haversian canals. In the necrotic bone I found traces of former osteitis. The enlargement of the Haversian canals
and lacunae are direct proofs of this; the dissolving out of the basis-substance on the periphery may, on the contrary, have been due to chemical changes, produced by infiltrations from the neighboring inflamed tissues. Billroth has shown that if pieces of bone or ivory are driven into living bone, in which they excite inflammation, they will afterwards exhibit a peculiar dissolving out of basis-substance analogous to that which we see in the primary stage of inflammation. The Haversian systems and concentrical lamellae were unchanged. The lacunae and canaliculi were yet preserved. In the necrotic preparation from the lower jaw I observed many lacunae, in which the protoplasmic body, with its living net-work, was yet distinguishable, especially where the sequestrum had been attached to the periosteum. I found also, in the preparation from the upper jaw, some comparatively unchanged bone-corpuscles. But the majority of the bone-corpuscles, and especially in the neighborhood of the Haversian canals, had the appearance of a Roman numeral II; they were either empty, or their protoplasmic bodies were shriveled up (probably the remains of the living matter), only showing a few coarse granules, but no signs of fatty degeneration could be seen, for the granules were stained violet by chloride of gold. Many lacunae showed no structure at all, the contents looking rather like a mass of coagulated albumen. In none of these lacunae was the characteristic structure of protoplasm recognizable.

To sum up my observations, I found,—

First. The lacunae contain a protoplasmic body, with a distinctly-visible net-like arrangement, to be regarded as the living matter of the protoplasm.

Second. The basis-substance is pierced by numerous and fine canaliculi, communicating with each other, as well as with the lacunae.

Third. The protoplasmic bodies, which do not quite fill the lacunae, send offshoots of the living substance into the canaliculi, but can only be seen in the coarser ones.

Fourth. In necrotic bone, traces of former osteitis are visible, but no blood-vessels present in the Haversian canals, which are filled with micrococci.

Fifth. In necrotic bone, most of the lacunae contain no protoplasm, but either a coarsely granular or a structureless mass,—remnants of the living matter and coagulated albumen.
A Century of Dental Education in Canada: 1875-1975

— JACK G. DALE, D.D.S.
Toronto, Canada

In 1975 the profession of dentistry looks back one hundred years from a complex of dental education which extends from coast to coast and includes ten dental colleges with approximately 2250 students to a pair of rented rooms above a cabinet shop at 46 Church Street in Toronto where eleven students were the very first to receive a formal dental education in Canada. During this year we will take a nostalgic glance over our shoulder at the history of dentistry, and at the same time we will stand tall and fix our eyes to the future of the profession.

In the year 1867 the Fathers of Confederation gathered to create a united Canada. It was a beautiful day in the bustling city of 45,000 people with the temperature reaching 27°F. The city possessed two principal streets – King and Yonge. The buildings on King Street were grander and the shops were more luxurious than those on Yonge. King Street was honoured by the daily presence of aristocracy while Yonge was given over to the businessman, the middle class and the beggar. The practice of dentistry was primitive to say the least. Drills were turned by hand. Gold foil was the principal filling material. Amalgam was not used extensively because of its poor quality, and the biggest news in dental treatment was the introduction of Vulcanite. A bitter rivalry existed between the well qualified resident dentists and the poorly qualified itinerant dentists. Outrageous advertising, price cutting, and secrecy characterized the practice of dentistry at this time.

It was at this time, on January 3, 1867, that nine dentists met at the Queen’s Hotel, the site of the present Royal York Hotel, to form the Ontario Dental Association. Dr. Barnabus W. Day, a resident dentist who practised in Kingston, Ontario, organized this historic meeting. It is interesting to note that Dr. Day, the “Architect of Canadian Dentistry,” and the “Architect of Canadian Confederation,” Sir John A. MacDonald, were both based in Kingston. The other eight dentists to attend the meeting were: C. S. Chittenden and D. A. Bogart of Hamilton, F. G. Callender of Cobourg, John O’Donnell and J. S. Scott of Peterborough, H. T. Wood of Picton, A. D. Lalonde of Brockville and M. E. Snider of Toronto. The purpose of the meeting was to initiate proceedings to bring about the regulation of the practice of dentistry.

On July 2, 1867, the second meeting of the Ontario Dental Association took place in Cobourg. This time 33 men attended and the constitution and by-laws were adopted.

On January 21, 1868, the third and crucial meeting in the history of the Association was convened in St. Lawrence Hall. The prime objective was to prepare a petition to be submitted to the Legislative
Assembly of the Province of Ontario to pass an Act incorporating the Royal College of Dental Surgeons to regulate the practice of dentistry in Ontario. The petition read: “Whereas, it is expedient for the protection of the public, that there should, by enactment, be established a certain standard of qualification, required of each person practising the profession or calling of Dentistry in Ontario. We therefore pray, that an Act be passed requiring that persons so practising shall be examined by a competent Board, as to their qualification to practice the said profession or calling.” This petition was signed by 68 dentists, 28 physicians, one pharmacist, one judge, and the Mayor of Toronto, James E. Smith. On January 23, Dr. Boulter the sitting member for Hastings North, presented the bill. The bill was passed on the final day of the first session of the first Parliament of Ontario, on March 4, 1868. And so, the Royal College of Dental Surgeons of Ontario was established.

On June 1, 1868, Volume I Number I of the Canada Journal of Dental Science was published. It was essentially the first dental journal in Canada and the first article was written by Dr. Barnabus W. Day. Dr. W. George Beers of Montreal was the founder and editor. This journal subsequently became the Journal of the Canadian Dental Association.

On November 3, 1875, one hundred years ago, the first dental college in Canada was established by the Royal College of Dental Surgeons of Ontario. It was located at 46 Church Street, Toronto (Figure I). The full-time staff included the first dean, James Branston Willmott and Dr. Luke Teskey. The part-time staff consisted of five clinical instructors: F. G. Callender, M. E. Snider, S. Zimmerman, R. G. Trotter, and H. Hipkins. There were eleven students in attendance. There is no doubt that the driving force in dental education during the early years was Dr. James Branston Willmott. He was a staunch Methodist, a good dentist, a clear thinker and an aggressive debater, and he was dean of the college for 40 years.

Today we are filled to overflowing in a modern new building
which was opened in 1959 at 124 Edward Street. The academic staff consists of 50 full-time and 300 part-time teachers. The dean is Dr. Gordon Nikiforuk and the assistant dean is Dr. G. W. Thompson. There are 25 professors, 13 associate professors, 22 assistant professors, 169 associates, 74 demonstrators and nine lecturers. In addition, there are 180 members on the support staff. The total student enrollment is 700. There are 598 dental students and 102 dental hygiene students. The dental course is four years beyond one year of a regular degree programme, and the hygiene course is two years beyond Ontario Grade 13. Postgraduate courses are offered in Dental Public Health, Oral Surgery and Anaesthesia, Orthodontics, Periodontics, and Pedodontics. Dental students may also enroll in degree courses: Bachelor of Science in Dentistry, Master of Science in Dentistry, and Doctor of Philosophy.

The establishment of the first dental college completed the three basic requirements for a true profession: an association, a journal, and a teaching institution.

A PRIVATE DENTAL COLLEGE IS ESTABLISHED

In 1874, one year before the Royal College of Dental Surgeons opened its doors, Dr. John Gennings Curtis Adams opened his practice in Toronto. He was a man of strong convictions, great tenacity of purpose, and unusual foresight, and because of these qualities he soon became convinced that dentistry should emphasize the prevention of disease rather than treatment. Dr. Adams founded Christ’s Dental Educational Institute, a free dental hospital for poor children, and operated it for 25 years. It was said that no poor child in Toronto went without dental care while this hospital was in existence. He is now known as the “Father of Public Health Dentistry” in Canada. For 125 years the Adams family has played a significant role in the development of Canadian Dentistry. John C. C. Adams was trained as a preceptor by his older brother W. Case Adams who began practising in Toronto in 1850. W. Case Adams also trained James Branston Willmott. John G. C. Adams had four sons. All four sons, Herbert, William, Arthur and Frank became dentists. In addition, Herbert and William became physicians, and William earned a third doctorate degree — Doctor of Divinity. He became a missionary in China and was a personal friend of the Chinese statesman and general, President Chiang Kai-shek. Dr. Franklin Adams practised in Toronto for 48 years. His daughter Louise and his son Cameron are dentists. Cameron graduated in 1933, and after 42 years is still practising in Toronto. Dr. Cameron Adams mother’s brother was a dentist and was the dean of the dental college in Richmond, Virginia. In 1965, John R. Adams, son of Cameron Adams, extended the family profession to a fourth generation for the first time in Canada. John’s son has for his initials C.D.A.—Canadian Dental Association. It appears that John’s son is destined to provide a fifth generation practising dentistry in Canada. Cameron also has a couple of cousins practising dentistry in Canada. The original building of Christ’s Dental Educational Institute
is still standing today on Bay Street near the present Faculty of Dentistry (Figure 2).

Christ's Dental Educational Institute as it exists today as a hotel on Bay Street near the present Faculty of Dentistry.

In 1878, the Royal College of Dental Surgeons occupied a second building on the southwest corner of Victoria and Richmond Streets and in 1886 it occupied a third at 13 Louisa Street. The first two college sites are now parking lots, and the third site is a large hole in the centre of the Timothy Eaton building project.

Probably one of the most important events in the development of dental education occurred in 1888 when the Royal College of Dental Surgeons became affiliated with the University of Toronto. The university established a Department of Dentistry and agreed to confer the degree of Doctor of Dental Surgery on students upon compliance with the requirements of the curriculum in Dentistry approved by the University Senate. The first examination for the degree occurred in March 1889, when 25 candidates were successful. They were the first doctorate degrees conferred on Canadian dental graduates outside the United States.

The fourth building of the Royal College of Dental Surgeons was officially opened on October 1, 1896. It was located at 93 College Street, the present site of the Toronto General Hospital.

In 1901 the Dental Department of the Hospital for Sick Children was established. This department was located in the fifth building of the Hospital for Sick Children at 67 College Street. The building, built in 1892, was John Ross Robertson's dream. On March 1, 1875, Elizabeth McMaster founded the Hospital for Sick Children at 31 Avenue Street. Mrs. McMaster is a member of the same family that is associated with McMaster University. The Hospital for Sick Children, like the Royal College of Dental Surgeons, is celebrating its one hundredth anniversary this year.

In 1909, the dental college moved into its fifth building at 240 College Street, later 230 College Street. The building at 93 College Street was demolished to make way for the Toronto General Hospital which was opened in June 1913.

In 1915, Albert E. Webster became the second dean of the Royal
College of Dental Surgeons. Dr. Webster administered the college during the difficult war years of 1914 to 1918. In 1919, the dental course under his administration was extended to five years. He was a pioneer in the use of auxiliary personnel, and was editor of the *Dominion Dental Journal* from 1901 to 1934. Throughout his career he was respected as a splendid teacher, and was often referred to as a “Prince in Canadian Dentistry.”

In 1923, Wallace Seccombe became the third dean of the Royal College of Dental Surgeons. While Webster was a teacher *par excellence*, Seccombe was an administrator of outstanding ability. He was a pioneer in Preventive Dentistry. In 1909, he became the first chairman of the Education Committee of the Ontario Dental Association, known today as the Dental Public Health Committee. In 1911, he established the dental journal *Oral Health*, and in 1916 founded the department of Preventive Dentistry, said to be the first in any dental school. He served as its head until his death in 1936.

On July 1, 1925, the College of Dentistry of the Royal College of Dental Surgeons became the Faculty of Dentistry of the University of Toronto. The Royal College relinquished to the University its function as a teaching institution and retained its role as a licensing body of the Province of Ontario. Dr. Seccombe possessed the ability necessary for this change, and was largely responsible for the satisfactory conversion. Thus, Dr. Seccombe became the first dean of the Faculty of Dentistry, University of Toronto, and it was he who was responsible for the introduction of graduate programs there.

In January 1936, Dean Seccombe died and was succeeded by the fourth dean, Arnold Denbow Alfred Mason. Throughout his career as a leading educator in dental science, Dr. Mason displayed many fine qualities which supplemented and gave poise, dignity, and stature to all
his undertakings. Artistic in temperament he made friends with many artists in the community including members of the Group of Seven. A portrait of Dr. Mason by Frederick Varley hangs in the McMichael Canadian Collection at Kleinburg. He was the dean of the faculty during World War II. In 1944 he established a diploma in Dental Public Health, and in 1945 diplomas in Oral Surgery and Anaesthesia, Orthodontics and Periodontics.

Dr. Mason retired in 1947, and was succeeded by the fifth dean, Dr. Roy Gilmore Ellis (Figure 3). Dr. Ellis was dean of the faculty for 22 years. In 1949, he established the diploma of Pedodontics. In 1951, he established the diploma of Dental Hygiene, and in 1952, organized the Division of Dental Research.

The sixth building at 124 Edward Street presently occupied by the Faculty of Dentistry, University of Toronto.

In 1959, the dental community experienced a moment of nostalgia when the old school closed, exactly 50 years after its proud opening in 1909. But the new building, the sixth building, at 124 Edward Street, in Toronto's "hospital district," offered facilities the founders could not have dreamed of—a five floor area of 180,000 sq. ft. providing lecture rooms, laboratories, clinics, library and research facilities as well as equipment for closed circuit television (Figure 4). Dr. Ellis with his superb organizing ability masterminded the conversion.

In 1969, Dr. Ellis retired and Dr. Gordon Nikiforuk became the sixth and present dean of the college (Figure 5). He brings to the position an international reputation in scientific investigation, and has enjoyed a brilliant career as a scientist. He is interested in broadening the scope of dental education to include a greater emphasis on behavioral sciences.

The second dental college in Canada was the dental college of the Province of Quebec established in 1892. The first dean was Dr. W. George Beers. This college later became two faculties: the Faculty of Dentistry, McGill University in 1920, and the Faculty of Dentistry, University of Montreal in 1921.

The Maritime Dental College, established in 1908, was the fourth
The sixth and present dean of the College, Dr. Gordon Nikiforuk.

dental college in Canada. It became the Faculty of Dentistry, Dalhousie University in 1912. The first dean was Dr. Frank Woodbury.

The Department of Dentistry, Faculty of Medicine, University of Alberta, was established in 1918. It became the Faculty of Dentistry, University of Alberta in 1942. The first dean was Dr. H. E. Bulyea.

The Faculty of Dentistry, University of Manitoba was established in 1958. Dr. J. W. Neilson is the first dean.

The faculty of Dentistry, University of British Columbia, was established in 1964. Dr. S. Wah Leung is the first dean.

In 1966, a Faculty of Dentistry was established at the University of Western Ontario. The first dean of the faculty is Wesley J. Dunn. Dr. Dunn has exceptional ability as an administrator and is gifted with oratorical eloquence.

The ninth college of dentistry was established in Saskatoon at the University of Saskatchewan in 1968. The first dean was Dr. K. J. Paynter.

The most recent dental college to be established in Canada is in Quebec City at Laval University. It was established in 1968 and the first dean was Dr. Gustave Ratte.

THE FIRST CANADIAN WOMAN DENTIST

1975 is International Women’s Year, and because of this, I feel that it is appropriate to make a few comments about the first woman dentist in Canada. She was Mrs. Caroline Louise Josephine Wells, the first Canadian woman to graduate from a dental college who completed the course at the Royal College of Dental Surgeons in 1893 (Figure 6). She practised for 36 years and is credited with initiating dental services in Ontario mental hospitals. She died in 1939 in her 83rd year. Of her
The first woman dentist in Canada
— Dr. C. L. Josephine Wells.

five children, the youngest, the Honourable Dalton C. Wells, was appointed Chief Justice of the High Court of Ontario in 1966.

(This paper was presented to the members of the Royal Canadian Institute and to the public at Convention Hall, University of Toronto, January 18, 1975.)

DR. DALE, who was the Chairman of the Centennial Committee for dentistry, is a member of the Faculty of Dentistry, University of Toronto. His address is 1849 Yonge Street, Toronto, Ontario, Canada.

Dr. Ake B. Lofgren (right) of Goteborg, Sweden, an Honorary Member of the American Academy of the History of Dentistry, being awarded Honorary Membership in the Goteborg Dental Society by Dr. Malte Hulstam, President of the Society, on December 14, 1974. Dr. Lofgren, who is recognized as one of the world's outstanding dental historians, is wearing two decorations bestowed on him by the Swedish government for his significant contributions to scholarship in that field: on his chest the decoration of a Knight of the Royal Northstar Order and around his neck the Great Gold Medal of the Royal Patriotic Society. Dr. Lofgren is also the recipient of a fellowship of the Odontological Faculty of the University of Goteborg which allowed him to go to Oslo and Copenhagen in November for research in dental history at the odontological libraries of those cities.
Notes and Queries

NEW DENTAL MUSEUM OF THE UNIVERSITY OF THE PACIFIC SCHOOL OF DENTISTRY

It was announced by Richard A. Enger, Associate Director of Public Relations of the University of the Pacific that dedication ceremonies had been held February 9, 1975 for the dental museum which the School of Dentistry had established at its main building in San Francisco.

The facility has been named the A. W. Ward Dental Museum in honor of the late periodontics pioneer Dr. Abraham W. Ward who died in 1973 at age 93. Dr. Ward developed a myriad of instruments and techniques, examples of which may be found in dental offices throughout the world. He was a 1902 graduate of the school which at that time was known as the College of Physicians & Surgeons of San Francisco.

Dr. Walter Wong, curator of the museum, inspects a Ritter X-ray machine, circa 1925.

Dr. Paul Thomassen studies a set of dental instruments with ivory and mother-of-pearl handles, used around 1850.

In tribute to Dr. Ward for his work in organizing the California Academy of Periodontology, the academy donated three large cabinets which are used to display historical items about the academy, including a set of “surgical pyorrhea instruments” developed by Dr. Ward and a set of 144 C. M. Carr scalers dating from 1915.

The museum also is furnished with five other custom-built cabinets, two antique display cases, the late Dr. Spencer Atkinson’s an-
tique rolltop desk, and the conference table and chairs formerly used in
the library of the old P&S school.

Among the many artifacts displayed are an antique dental chair
and treadle-operated handpiece, circa 1860; a collection of early
gnathostatic instruments including a gnathostatic camera; a portable
dental field chair from World War I; and a 1917 cabinet with
switchboard for distributing current to electrical dental devices.

Dr. Frederick West examines an antique pedal-driven handpiece and an 1860 dental chair in the
new dental museum at the University of the Pacific.

A collection of oral surgery instruments that are 100 or more years
old includes the "Pelican" used to extract teeth in the 15th to 18th cen-
turies; a combination extracting forceps, lever and elevator such as was
used aboard the "Mayflower" in 1620; and numerous examples of the
dreaded "Turnkey" from the Revolutionary War period.

Items in the museum came from the old P&S school, plus private
collections such as that of the late Dr. Maurice J. Owens who left $15,-
000 worth of historical memorabilia and books to the school.

The museum has been established by a committee of faculty,
alumni and student representatives headed by Dr. Paul Thomassen,
chairman of the school's Department of Oral Diagnosis and Radiology.
It is being financed solely by contributions to the A. W. Ward Museum Fund, which was started in 1970 with proceeds from a $100-a-plate dinner held in observance of Dr. Ward’s 90th birthday.

A rare 1576 edition of what is considered to be the first printed work on dentistry has been added to the Clarence J. Grieves Dental Historical Collection in the Health Sciences Library at the University of Maryland at Baltimore. The 30-page book entitled Zeen Artzney (Treatment of the Teeth) measures about 3½ by 5 inches. It has an illustrated title page and is printed in heavy gothic script. It is composed of extracts of works on dentistry written by various earlier authors, and was intended for the general public. Numerous editions were printed, with at least fifteen being issued in 45 years. The 1541 and 1549 editions are also part of the Grieves Collection.

ORAL HISTORY PROJECT IN SAN FRANCISCO

"Dentists have always been individuals, and they've always been isolated." These are the words of William B. Ryder, D.D.S., one of a number of noted dentists in the San Francisco Bay Area, who were part of a series of interviews conducted several years ago. The History Collection of the Library of the University of California San Francisco campus, has received from the Regional Oral History Office at the Berkeley campus of the University, the transcripts and tapes of the Dental Oral History project begun in 1967. The project received its initial impetus from Dr. Robert F. Brigante, (now Assistant Dean of Student Affairs in the School of Dentistry), who obtained funding through Willard Fleming, D.D.S., then Chancellor of the San Francisco campus. The interviews were carried out by Warren Longhurst, a senior student in the School of Dentistry, in 1967, under the direction of Dr. Brigante, and with the aid of the ROHO staff at Berkeley. The
transcriptions were made by ROHO.

Interviews with fourteen dentists instrumental in shaping the growth of the dental profession in the area are included: Dickson Bell, Reuben L. Blake, Willard C. Fleming, George Hughes, Leland D. Jones, George McGee, C. E. Rutledge, William B. Ryder, Jr., Herbert J. Samuels, Joe Sciutto, William Smith, Harvey Stallard, George Steninger, and A. W. Ward. In many cases copies of reprints, photographs and related materials have been included with the transcripts by the interviewees. The transcripts may be consulted in the History Collection or at the Regional Oral History Office in the Bancroft Library. Copies of the transcripts are available at cost.

A fascinating cross section of the history of dentistry is revealed in these interviews. Early dental education — in the 20's and 30's — was less than satisfactory. Until the publication of the Gies report to the Carnegie Institution in Washington (1926), many schools required only graduation from high school of entering students. Teaching was amateurish, and it "was not uncommon to find a lecturer whose idea of a lecture was to read out of a textbook," notes Dr. Fleming. Student attrition rate was as high as 30%, and bound to be so until more rigorous standards were required of students. "The change between 1918 and 1967, as I see it, has been terrific in the improved caliber of the dental student. As a matter of fact, this is posing a problem. Is the practice of dentistry, is dental education, keeping up to the improved caliber of the student?" asks Dr. Fleming. "I have a suspicion it isn't." These were the men who founded the local dental societies, men such as Herbert Samuels, who was involved in the Alameda County Dental Society, the Oakland Dental Study Club and the California Gold Foil Club. They were caught up in the rapidly developing areas of dental science such as the change from the use of gold foil to gold crowns; research in the germicidal properties of cement; the development of new instruments and techniques in handling such problems as periodontal disease. All of this is reflected in these interviews, along with the humorous and personal anecdotes, the jokes played on student and teacher in school, the memories of famous patients and of dental service in World War II. Throughout, concern is expressed with the future of dentistry, with the needs of the patient, and with the role of the dentist in society. Researchers in many areas will find these materials to be rich in information and sidelights into human as well as professional history. It is hoped that funding will make possible future interviews to widen the scope of the project.

NEW HISTORICAL COLLECTION OF THE HEALTH PROFESSIONS AT THE UNIVERSITY OF PITTSBURGH

The historical collection of the Falk Library of the Health Professions was formed from the union of the historical materials of the former libraries of the Schools of Medicine, Dental Medicine, Nursing, and Pharmacy of the University of Pittsburgh. It thus represents the tastes and interests of many collectors as well as the acquisition of
A great impetus was given to the development of the dental collection by Dr. H. E. Friesell, Dean of the Pitt School of Dentistry from 1904 to 1946 and one of the founders of the American College of Dentists. Many of the valuable titles were acquired during his administration. It was also through his efforts and those of Dr. William Harry Archer, University Professor of Oral Surgery at the School of Dental Medicine, that the library has a special collection on the historical development of surgical anesthesia.

The entire story and ensuing controversy among Crawford Long, W. T. G. Morton, Horace Wells, and Charles T. Jackson, over the discovery of surgical anesthesia is documented. Some of the important early works in the collection are: Researches, Chemical and Philosophical, Chiefly Concerning Nitrous Oxide or Dephlogisticated Nitrous Air and its Respiration (Sir Humphrey Davy, 1800); a circular: Morton’s Letheon (W. T. G. Morton, 1847); and Horace Wells’ A History of the Discovery of the Application of Nitrous Oxide Gas, Ether and Other Vapors to Surgical Operations (1847).

On display are photographs and glass negatives pertaining to the history of anesthesia and the apparatus utilized; journals relating to the history of anesthesia, especially to the centennial celebration of its discovery by Wells; and oil portraits of some of the men famous in the history of anesthesia, including Wells, Morton, Gardner Q. Colton, Henry H. Hickman, Sir James Y. Simpson, and John Snow.
A portrait of Sir James Y. Simpson and some of his more important works on anesthesia and obstetrics (as donated by Dr. Archer) are currently displayed in cases outside the Historical Collection room.

HORACE WELLS

Dr. Archer has continued to strengthen the collection with his gifts — especially those relating to Horace Wells, one of the four claimants to the honor of discovering surgical anesthesia. Wells, whose name is inscribed on the mace of the American College of Dentists, is one of the immortals of dentistry. In the Wells collection are scrapbooks containing clippings, pictures, and photostatic copies of documents belonging and relating to Wells — a collection resulting from the efforts of Dr. Archer, author of The Life and Letters of Horace Wells, The Discoverer of Anesthesia. In addition, Dr. Archer also wrote articles about William Thomas Green Morton and the history of anesthesia. Morton, who first publicly demonstrated ether anesthesia, had been a former student and partner of Horace Wells.

A bust of Wells and a copy of his death mask were presented to the Library by Dr. Archer. The bust is a reproduction of the original modeled by Hartley and signed 'J. Farina' (a dental student), and '46 (Class of . . .). The bust was originally presented to Dr. Archer and the School of Dentistry on June 11, 1946, by the Omicron chapter of Alpha Omega, national dental fraternity.

The original death mask of Wells is in the Boston Medical Library. It was made in Hartford, Connecticut, by Dr. John Riggs at the request of Joseph Wales, who defended Wells in the controversy over who should be credited with the discovery of anesthesia.

OTHER WORKS

There is a significant number of other works on dentistry in the Library, including Pierre Fauchard’s Le chirurgien dentiste ou traite des dents, (1728); John Hunter’s The Natural History of the Human Teeth (1771); and Antonio Campani’s Odontologia oissia trattato sopra i denti (1786), the rare first edition of the first Italian dental book. There is also a representation of books published in the United States during the nineteenth century.

These and other landmarks, not only in dentistry but medicine as well (including both the 1st and 2nd editions of De humani corporis fabrica libus septem by Andreas Vesalius, a publication supposed to be the greatest event in medical history since the works of Galen), and periodicals, archives, facsimiles, and the like, line the shelves of the Historical Collection of the Maurice and Lena Falk Library of the Health Professions, University of Pittsburgh — a must-see for everyone, scientist or not.
EARLIER REQUIREMENTS FOR SENIOR DENTAL STUDENTS: SWAGED GERMAN SILVER DENTURES

Looking back from the vantage point of more than a half century, it is interesting to compare the requirements expected of a generation and more ago with those of today. Dental prosthesis has come a long way in this time, and technical ability expected of a dental student has changed immeasurably if we consider the work a student had to put in to achieve a swaged denture, constructed of German silver, if he were to be allowed to graduate.

Each student had to make a full upper denture using a die made of Babbit metal or zinc, and a counter-die of lead, with the German Silver being swaged between them. After the base was properly swaged and trimmed to its proper outline at the periphery, it was necessary to grind in 14 single gum-section teeth to accurately fit the base, secure proper articulation, and most important, each gum-section tooth had to be ground to achieve a butt joint with the adjacent tooth. This plus the fact that the teeth had to be ground into proper articulation with the teeth of the opposing arch.

A completed swaged German-silver full upper denture. Note how each continuous-gum tooth has been individually soldered to the denture base.

After this was accomplished, all the teeth had to be backed up with metal and the pins of the teeth bent over the metal so as to make sure the backings were properly held in place. The teeth would then be waxed in place and invested. The wax was then boiled out — the invested case was heated up on a stove, after which the teeth had to be soldered to the base with all 14 teeth properly placed and soldered in position.

After the mold was cooled, the investment was opened, and the teeth had to be closely examined for checks or breakage. If there was any damage to teeth, they had to be replaced, going through the same process. When all was in order, it was then necessary to burnish a German Silver strip across the labial and buccal to fit the area of the base. This band would also have to reach over the gum section of all the teeth so that the gum section edges would be covered. The band would
be soldered to the base, trimmed, finished and polished. Today this is a lost art. But when a student would complete this operation, he got a terrific insight into some of the things he had to know.

While this procedure has long been discarded, it really was a requirement. There is no question that many of the elderly members of the profession may remember those days. The procedure is a far cry from today's teaching in prosthetic dentistry.

CORRECTIONS AND ADDITIONS TO THE BIBLIOGRAPHY OF FACSIMILES

Dr. Asbell has done a great service compiling a bibliography of facsimile reports of books on dentistry. (Bulletin, June 1975.) This can be of inestimable value to scholars. However, I found that there were some unfortunate misprints and errors which I would like to point out, in order to enhance the bibliography's value:


Item 4. . . . Schwäbisch Gmünd. 43 pp., 1 fig. on the first page. (Pp. 44-49, comments and references by the editor. Edition limited to 400 copies.)


Item 7. The Operator for the Teeth. Dublin, 1686. 22 pp. (On page vii of his introduction Cohen says that all three editions had 60 pp. but the reprint of the book has only 22 pp.)

Item 9. Translator is Driak. There are 95 numbered and 43 unnumbered pages in the reprint.

Item 12. . . . Dentition; or, The . . . Children; (There are also seven unnumbered pages.)


Item 14. This work includes 104 engravings.

Item 17. . . . 5 unnumbered pages, 3 unnumbered leaves. (On "sick" teeth and mouth, Chapter xxviii-xxxi, 11 unnumbered leaves, xxix-xxxii.)

Item 23. This is a "Pirate-Edition"! Lindsay's book appeared in 1946 in London. xvi, 184, 128 pp. 42 pl., 1 frontisp.

In addition to the reprints listed by Dr. Asbell, I should like to add several which I have found. Note that the parentheses refer to the number of pages without pagination:

108


— DR. AKE B. LÖFGREN
Göteborg, Sweden

The new officers of the American Academy of the History of Dentistry, installed at the Academy’s annual meeting in Chicago, October 24, 1975. Left to right: Dr. Milton B. Asbell, Secretary-treasurer; Dr. Malvin E. Ring, Editor; Dr. Frank J. Orland, President-elect; Dr. J. Henry Clarke, Immediate Past-president; Dr. Robert Sproull, President; Dr. Kenneth Randolph, Vice-president; Dr. Ernest Beerstecher, Jr., Historian.
To the Editor:

For a number of years I have been privileged to receive the Bulletin of The History of Dentistry of which you are the scholarly and devoted editor. It is all a labor of love on your part and the kind of meritorious labor which few undertake.

Sometimes, after going through each issue, I wonder how many of our professional colleagues appreciate the significance of the area involving historical culture. Too often do we forget that if it were not for the past there would be no present in terms of advanced dental art and science. Your splendid undertaking deserves wide support. George Santayana said: "The sole advantage in possessing great works of literature lies in what they help us become." I wish you all possible continued success.

Sincerely,
Joseph H. Kauffman, D.D.S.

(DR. KAUFFMAN is the Historian of the Dental Society of the State of New York and the distinguished Editor of the Bulletin of the New York State Society of Dentistry for Children.)

To the Editor:

Since joining the Academy earlier this year, I have received editions of the Bulletin from June and December, 1974, and am looking forward to receiving the June 1975 issue. I thoroughly enjoyed the issues I have received and I would like to comment on or reprint articles I have read in our school newspaper. Are there any legal implications involved in my doing so?

Very truly yours,
Bruce Kent

(MR. KENT is a student at the School of Dentistry of the University of
To the Editor:

I would appreciate being placed on your subscription list.

MED is a medical communications company involved in the production of promotional programs for the health-care industry. Part of our effort includes the development of advertising and direct mail copy for a variety of health-care clients.

Thank you for your attention to this matter and if you need any further information, please do not hesitate to contact me.

Sincerely,

Dr. Robert Portman, President
MEDical Education Dynamics, Inc.
East Brunswick, New Jersey

To the Editor:

Our magazine, Junior Dental, treats of dental news and it would interest us very much to receive the Bulletin of the History of Dentistry. We are anxious, therefore, to receive a sample copy, and to know the conditions of subscription. Awaiting your courteous reply

Sincerely yours,

G. Manassero, Editor
Junior Dental
Turin, Italy

To the Editor:

I had the opportunity of visiting with Dr. H. Freihofer, the President of the Federation Dentaire Internationale during the ADA meeting in Chicago and we discussed the Academy of the History of Dentistry and its objectives. In the course of conversation, the Bulletin was mentioned. He stated that he was not acquainted with it, so I volunteered that I would send him a copy. However, as I began thinking about it I decided to send him a year's subscription and I am enclosing my check for $10.00 for it.

Sincerely,

Henry A. Swanson, D.D.S.

(DR. SWANSON was President of the American Academy of the History of Dentistry in 1970-71.)

To the Editor:

Very many thanks indeed for sending me ten copies of The Bulletin for December. These I am delighted to have, because you have written such a wonderful obituary, and I shall have great pleasure in
distributing them among really interested persons.

You must be thinking me extremely rude, but they arrived only this morning — where ‘surface mail’ spends the time, I really cannot imagine!!!

I should have told you that at the time of Menzies’ death, the number of advertisements between 1709 and 1850 had reached the figure of 1175 — once a collector always a collector! The volume containing them is still here, but will eventually join the rest of his library in the Royal College of Surgeons of England, and, of course, it bears their book-plate.

I should also have explained that, as was the custom while serving a pupilage (in contradistinction to an apprenticeship), he was allowed sufficient free time to attend classes, this being part of the agreement. Therefore, to be exact, ‘Upon leaving Mr. Angus’ should read ‘While with Mr. Angus.’ I only mention this detail to keep the record straight.

Further, a pupil paid a fee and served three years, while an apprentice received a very small wage, slightly increased each year and served five years.

I am extremely appreciative of the very high opinion you have of Menzies’ work and of the number of times you have expressed this in print.

With heartfelt thanks and kindest regards,
Yours very sincerely,
Mrs. Margaret W. Menzies Campbell
Glasgow, Scotland

To the Editor:

I shall appreciate your effort in helping me secure good references — books, journals, exhibits — on the history of dentistry.

I have just completed a year of study leave in the U.S. where I learned of your address.

I sought and was given the task of teaching History of Dentistry to dental students at my school.

Please kindly offer suggestions on how to proceed with this exciting subject.

Sincerely yours,
Dr. H. A. Mosadomi
College of Medicine, Division of Dentistry
PMB 12003
Lagos, Nigeria

The first book on dentistry, the Zene Artztney was intended for the general public and not the dental practitioner. In fact, with the exception of only a handful of books, among them Fauchard’s monumental work and Pfaff’s treatise and a very few others, most books on dentistry were, until very recent times, intended to edify and educate the laity to the value of dental treatment. Even R. C. Skinner’s Treatise on the Human Teeth, the first dental book to be issued in America, was intended for the lay reader. In the 1800’s literally hundreds of pamphlets and booklets were issued by dentists across the length and breadth of this country, striving to help Americans achieve better oral health through better dental care.

That the public is still seeking this information is evident in the large volume of sales of books of this type recently. Unfortunately many of them which have been issued in recent years denigrated the position and role of dentistry and did more harm than good to the profession they purported to represent. One need only look at the book authored pseudonymously by “Paul Revere” to see how sensationalism and falsehoods which were spawned by popular misconceptions were used to mislead and befuddle an already confused public.

In this little volume, The Miracle of Dentistry, Dr. White has done an excellent job of bringing together a host of popular notions, fallacies and beliefs, answering them honestly and satisfactorily in a forthright, professional manner. The topics he deals with range from “At what age should a child first be taken to the dentist?” to “How shall I pay my dentist?”

The book also puts forth the entire philosophy and psychology of the man behind the drill. But more than that it leaves us with some sobering food for thought: an estimated 40 million people in America
are today wearing full dentures, yet few of them know exactly why!

As far as this reviewer could see, the book contains no errors of fact and could do much to help the public understand the importance of early and continuing dental care.

One sentence in the book, however, impressed me the most for it seems to epitomize the author’s feeling about this great profession of ours: “A physician or dentist has to be a great deal more skillful even than the public thinks he is or than even he thinks he is.”


The year 1975 marks the 50th anniversary of the University of Rochester School of Medicine and Dentistry, and this unique volume was issued to commemorate this event.

Chapter 9 is especially of interest to us. It is entitled “Where’s the Dental School” and was written by William D. McHugh, D.D.S., the Director of the Eastman Dental Center, which serves as the graduate school for dentistry of the University. Although Rochester doesn’t have an undergraduate dental school, the graduate program there which encompasses fields ranging from pedodontics, periodontics and orthodontics to basic dental research ranks among the nation’s best.

Rochester has played an important part in the development of dentistry in this country. Even at the turn of the century the city had an unusually enlightened dental profession. The first free dental clinic in the United States was established here in 1901, with the objective of providing free dental care for those who were unable to pay for the services of a private practitioner. The leading dentists of the day donated their services, and funds for supplies and instruments were provided by Captain Henry Lomb, a wealthy industrialist and one of the founders of the Bausch and Lomb Company. It was the establishment of this clinic that sparked George Eastman’s interest in dentistry and which ultimately led to his building a world-wide network of dental clinics and research centers.

Dr. McHugh in a smooth, lucid fashion writes the history of the dental department of the University and it is a fascinating account, culminating in the story of how the University has embarked on a building program to provide a new dental center in direct proximity to the medical center so as to enhance the quality of both learning and of health care.

In a similar fashion, other members of the Medical Center have written of other aspects of the school’s history. Of great interest to this reviewer was the story of how the medical library at the University has developed to its present state of prominence. It is well written by Henry L. Lemkau, M.L.S., who is the Director of the Edward G. Miner Library and who has done so much to build the library’s collection as well as to increase the library’s service to the academic community. A world renowned Rabbi, Philip S. Bernstein, has written of the impact of the medical school and university on the community, while other
members of the school’s faculty cover the story of the advances in the medical center itself.

This is a novel way to write a history; it is a refreshing change from a straight chronological account and it can be picked up and opened at any point and it will immediately hold one’s interest. And one needn’t be connected with the University of Rochester to enjoy the book and to benefit from Rochester’s experience.

The book is not for sale but is being distributed free of charge to alumni, faculty, staff, and friends as long as they last. A number of copies are available for individuals outside the institution who wish one. Requests should be made to Dr. Gordon M. Meade, University of Rochester Medical Center, Rochester, New York 14642.


This volume is the eighth of a series of annual bibliographies of the history of medicine, the series being cumulated every five years.

Since the majority of the journal citations included have come from the NLM’s Index Medicus the emphasis is overwhelmingly medical, with dentistry being only a small portion of the book. However, this coverage has improved immeasurably since the last Bibliography was issued. The former ones didn’t index even the Bulletin of the History of Dentistry. Now this oversight has been fully rectified and many other journals are indexed as well, both from this country and abroad.

The Bibliography is a valuable tool for any worker in the field of dental history and its modest price makes it an excellent buy. It may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 by paying the $4.40 and specifying Stock No. 1752-00151.


The author is a general practitioner in Meadville, Pennsylvania whose career in dentistry has already exceeded fifty years. He follows the career his father also engaged in and is so brim-full of anecdotes and stories about those many, many years of dentistry that he just had to get them off his chest. So he wrote this book. And since he is a small-town dentist he just had to write it in a folksy, down-to-earth “y’all” style. For instance, there’s the anecdote about the elderly woman who brought to the dentist a handful of fragments of an upper denture with the request that he tell her “… how much it will cost to get a half-dozen teeth put back on it so I can chew my victuals better.” After expressing his surprise at the state of the denture, the dentist asked how it got into that condition.
You see, she began, I never sleep with ‘em in at night. I always take ‘em out and put ‘em in the pocket of my nightgown. Quite a spell back, I forgot to put ‘em in, in the morning and as it was Monday, I put the nightgown in the wash. Well, sir. I never thought nothin’ about my teeth while I was doin’ the washin’. The first I thought about them was when I ran the nightgown through the wringer and I heard a snappin’ and a poppin’ like somebody breakin’ through a frozen mud puddle. I knowed it was my teeth so I stopped the wringer and picked the pieces out of the nightgown pocket. I set ‘em aside and went ahead with the washin’. That night the pieces was all dried out, so I got an old darnin’ needle — I was goin’ to throw it away anyhow. I got a good holt on it with a pair of pinchers my man had out in the tool shed, an’ I het that needle red-hot in a table lamp, an’ I burnt a row of holes on each piece of that plate just like puttin’ buttonholes on a dress. When I got the holes all finished, I sewed them teeth together with thread an’ I been wearin’ ‘em ever since.

And sure enough, Dr. Sturdevant has a nice photo of that amazing contrivance.

The book is pretty much of that style all the way through. He used a fictional name for the little boy who after watching wide-eyed as his daddy reduced a luxated jaw grew up to go to dental school and open practice in a little rural community. But we know all along that it is only modesty that prevents the author from writing his story in the first person using his own name.

I am sure there are thousands of dentists who have countless stories of their experiences with patients that would match Dr. Sturdevant’s. Yet few of them bother to set their tales to paper. However, there are men like the author who want to tell their experiences to the world, and in this respect Dr. Sturdevant is no different from the myriad physicians who have flooded the literary world with reminiscences of their medical experiences. And Dr. Sturdevant proves that lots of interesting things happen to dentists, too. Things that rightly should be made into TV dramas to rival all the medical shows!

There’s nothing offensive about Open Wider, Please. It is just sad, that in these times when no publishing house has been willing to invest in a scholarly history of dentistry, not a single book in English being in print, a story which really doesn’t add to the sum of man’s knowledge concerning one of the most important branches of the healing arts is readily published.

The choice of the book’s title was unfortunate since the title Open Wider, Please was used a few years ago by the Oklahoma State Dental Society for the history of the profession in that state.


There has never before been as great emphasis on the delivery of medical care as there is today. Nations have been changing the institu-
tion of medical practice by the introduction of state regulated medicine as in Britain, and dentistry has not been immune to these changes. Consequently, much investigation has been undertaken on how best to achieve optimum health care and what experience has been where new methods have been tried. Witness the article in this issue of the Bulletin by Goldberg and Hagins on the experience Great Britain has had with socialized dentistry.

Professor Stevens has set out to fully explore the nature of health care and this book is the second in a trilogy. The first volume, Medical Practice in Modern England: The Impact of Specialization and State Medicine was published by Yale in 1966.

The study began with a single question: What is the effect of specialization in medicine on the organization and politics of health services, and how far is the effect one which is common to different countries at a similar stage of technological development? To answer this question the author in preparing this volume embarked on a tremendous study of the history of medical care in the United States, with especial emphasis on the development of specialties and specialty boards. Since the book is based on sound historical research, it is a valuable tool for gauging future trends, allowing us to benefit from past experiences.

The book is divided into five parts: the first gives a historical view of the professional setting of American medicine and medical education up to the 20th century; the second discusses the early specialties and their organizations and boards; the third and fourth describe the impact specialization has had on health care and the last deals with the problems involved in financing health care as well as this government’s role in establishing health care delivery systems such as Medicare and Medicaid.

Although this book contains nothing about dentistry per se it is nonetheless of great importance to us, for what is happening in the field of medicine will invariably happen to dentistry. And whatever we can learn about the experiences of our sister profession will benefit us. The book is well and scholarly written and contains a wealth of historical information which is of immense value to a student seeking to determine historical trends. It contains a fine bibliography and a good workable index, and its low price because of its paper-back format puts it within the reach of all.


Although Dr. Pilz’s name appears on the cover of this splendid text, he is in reality co-author with Prof. Dr. Wolfgang Reimann who is the Director of the Institute for Medical Jurisprudence of the Medical Academy, “Carl Gustav Carus,” of Dresden, while he himself is Professor of Preventive Dentistry and Pedodontics at that Academy.

For many years there has been a dearth of books on the legal aspects of dentistry; however, the field has been assuming new impor-
tance as juridical as well as law enforcement officials have become aware of the potentialities inherent in dental investigation of legal puzzles. Thus it was that Drs. Cameron and Sims in England wrote their fine book on forensic dentistry which was reviewed in the Bulletin (December, 1974). But there is so much that has to be said about this relatively new field that each book that comes out has a good deal of valuable information to add.

This latest book by Pilz and Reimann covers ground not formerly touched on by the others, although it does adequately discuss the entire field of legal dentistry. It is divided into two main sections, the first being a general discussion of the problems involved in pursuing dental studies of criminal and other legal procedures such as the rights and obligations of the examining doctors, the handling of the material under examination, the nature of criminal laws, etc. The second section, which is the bulk of the book, is written by Dr. Pilz and deals with all the special problems of dental investigation. But he goes further than previous books on the subject. He covers, for example, liability of the dentist in cases of injury to the patient during dental procedures such as root canal treatment, discussing for example the problems involved where the patient has swallowed a broach or reamer. He also deals with the manifold problems arising out of the administration of local anesthetics, the extraction of teeth as well as accidents during operative procedures on the teeth. He details the injuries done to children and the way these are evidenced in the mouths of these youngsters. These are topics which have not been covered in other books of this nature.

The last part of the book deals with criminal investigation and is similar to the earlier work mentioned, although there is much new and different material here, with numerous excellent photographs helping understanding immeasurably. He makes clear how it can be determined exactly how a bite of the flesh was administered, as well as what force was used to achieve it, and this has been of value where corpses have shown signs of bites and mutilation with the teeth.

The book features an extensive bibliography. Unfortunately, all of the works cited are in German. This, however, attests to the interest and importance attached to the field of forensic dentistry in European countries. It would be a valuable addition to the literature if a book such as this were translated into English so that many more could benefit.
This Publication is Available in MICROFORM from...

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