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COVER

National Children’s Dental Health Month
February, 1983

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Einstein may well become the man of all ages. The names of six hundred great men from all times are carved in the white limestone walls of the Riverside Church in New York; the list includes saints, philosophers, kings, and other greats carefully chosen from the previous fifty-five centuries of recorded history. One panel enshrines fourteen geniuses of the world of science from Hippocrates to Einstein. As we near the end of the century, surely we could name Albert Einstein the man of this century—the period during which he produced his great immortal achievements.

He was born 14 March 1879 in the city of Ulm in South Germany; he completed all of his elementary and secondary education in Munich. For advanced education it was decided he should try the Swiss Polytechnic School at Zurich. In 1895, age sixteen, he took the entrance examination but failed. The following year, after tutoring, he passed the qualifying examinations and was admitted to the Institute in October 1896 with the view of becoming an electrical engineer, a four year course.

He found little to interest him in the formal instruction offered at the Institute and relied heavily on notes taken by a friend, Marcell Grossmann. Missing many of the lectures he spent that time reading original works of great masters in physics such as Kirchoff, Hertz, and Maxwell, including Mach, all of whom probed deeply into the fundamental ideas and assumptions of physics. Consequently his grades at the Institute suffered, not because Einstein was a poor student, as legend would have us believe, but rather because the dull rote method of teaching offered by the school failed to meet his needs, whereas the masters he read he found intensely stimulating.

In spite of this, in 1900 Einstein graduated. Staying in Zurich, he sought vainly to obtain a regular academic position. Becoming a Swiss citizen by the end of the year, he applied and was successful in obtaining a position in the Swiss Patent Office in the city of Bern in 1902.

Albert Einstein was a theoretical physicist, that is, he performed theoretical experiments. One drawer at his desk in the Bern Patent Office he called his ‘laboratory’. It was here he kept notebooks he could turn to when affairs of the office relaxed.

In the year 1905, at age twenty-six, his fertile and agile mind produced five papers. Three of them are among the greatest in the history of physics. One involved a statistical application of law dealing with the phenomenon of Brownian motion, erasing any doubt concerning the existence of unseen and unseeable atoms and molecules.

Another explained Einstein’s theory of the photoelectric effect, deriving a simple formula which showed that light, held to be wave-like, could also act...
as tiny bullets striking electrons bound to a metal surface, freeing them with precise but varying velocities dependent on the frequency (color) of light. The light or photons came in little energy packets he called quanta, a term borrowed from Max Planck.

The third paper was the special theory of relativity which unified, space, time, and matter into one fundamental concept. And the fateful equation, $E=mc^2$ appeared.

Most people think, erroneously, that Einstein won the Nobel prize for his work on relativity because of the popular association of his name with this term. Actually he was awarded the coveted prize in 1921 for his work on the photoelectric effect and received it in 1922.

With these papers and others to follow the concept of the world changed radically compared with the classical theory. Einstein had fathered the world of the new physics, the quantum world, which by 1925 became known as quantum mechanics. It described a world of indeterminancy dealing only with probabilities which Einstein found distasteful for its severe departure from classical concepts of truth; though he reluctantly accepted it because it was the most successful way to explain the behavior of fundamental particles of the universe. When Heisenberg introduced his famed principle of uncertainty, Einstein exclaimed: 'God does not play dice.'

Some have considered Einstein an atheist when in fact he was a man of deep spiritual feelings. Over the fireplace of his room at Princeton there is an inscription in German which translates: 'God is cunning but He is not malicious.' In other words the world has been put together in a very complicated and subtle way, but still the Lord gives us a chance to find out how it is done. He wrote: 'My religion consists of a humble admiration of the imitable superior spirit who reveals himself in the slight details we are able to perceive with our frail and feeble minds. That deeply emotional conviction of the presence of a superior reasoning power, which is revealed in the incomprehensible universe, forms my idea of God.' He added: 'I want to know how God created this world, I want to know His thoughts, the

Albert Einstein died in the early hours of 18 April 1955, his life work unfinished; the definitive closing paragraphs in the description of nature remain incomplete. We live in a world that says: 'To be or not to be is not the question, it is the answer.'

George W. Burke, Jr., D.D.S.
A PRUDENT DECISION

In the early years of 1960 a foresighted group of individuals within the American Dental Association planned for the building of the present Association Headquarters. Call it a brilliant dream, informed shrewdness, astute economic forecasting, or just plain serendipity. Perhaps it was all these and even more, but in the final analysis it was indeed the right thing to do.

Recently, the Executive Director, John M. Coady, D.D.S., circulated a letter revealing many of the details of this entirely successful operation. Perhaps some of you have read the letter, but many of you, I am sure, have not had the opportunity. Though I cannot include all the points he touched I will, at least, hit the high spots so you can see what a superb accomplishment resulted and understand what benefits accrued each member of the A.D.A., the actual co-owners of the building, consisting of twenty three stories including a large basement area; all combined providing 377,531 square feet of space designed wisely for use in a variety of ways.

Construction commenced after the Board directed that financing of the building was to be accomplished without any dues increase, or jeopardy to membership programs as well as expansion of services, and that the Association not-for-profit status be safeguarded. All of these provisos have been rigidly adhered as ordered.

The financing of the project came from several sources: $7.5 million from three mortgage loans secured at the composite interest rate of 4.983%. Imagine trying to procure a loan at five percent or under in light of today's rates— it's something to dream about. The second source came from ADA assets such as the sale of securities, previously owned property, and available surplus providing another $6.77 million. And finally, $427,000.00 came in the form of a grant from the NIH Research Facilities Act to help finance construction of laboratories and research facilities to be located in the building. Actual construction costs at completion were $14,698,000.00 within 0.05% of the original estimate. Try coming that close to original cost estimates in today's inflated and intensely kinetic rate of change in construction costs. The building was completed by late November 1965 when the ADA moved into its new home.

It is reliably estimated that the total value of this investment is now $28.1 million. Dr. Coady answered the question: 'What if the Board of Trustees had not decided to build?' A building management consultant calculated that the Association would have paid for rent, maintenance, and numerous service charges, a total of $19.7 million for the years 1966 through 1981.

In contrast, for that same period the Association paid a total of $9.5 million on the mortgage debt; received almost $16.5 million in revenue from rentals and tenant-related income, and enjoyed an appreciation in the value of the property of $10.8 million. I shudder to think how our present dues would have soared in view of excessively increased rental rates, today's trend.
On December 1, 1985 the ADA will be free of indebtedness for the building as the last mortgage payment is made. The Association did indeed make a prudent decision in 1962. It was also a courageous decision. Shakespeare wisely observed through words he wrote in Measure For Measure:

Spirits are not finely touched
But to fine issues.
For:
Our doubts are traitors,
And make us lose the good we oft might win,
By fearing to attempt.

George W. Burke, Jr., D.D.S.

CAALENDAR OF EVENTS

(Mark your calendar now for these future meetings)

VIRGINIA DENTAL ASSOCIATION COMMITTEE MEETING
June 10-12, 1983, Cavalier Oceanfront, Virginia Beach

VIRGINIA DENTAL ASSOCIATION 114th ANNUAL MEETING
September 1-4, 1983, Omni International Hotel, Norfolk

AMERICAN DENTAL ASSOCIATION 124th ANNUAL MEETING
September 30-October 4, 1983, Anaheim, California

VDA LEADERSHIP CONFERENCE
October 21-23, 1983, Wintergreen Resort, Wintergreen
Patient is a 51 year old male. The duration of this asymptomatic, stationary lesion is unknown. Your clinical diagnosis would be:

a. Squamous Cell Carcinoma
b. Geographic Tongue
c. Hairy Tongue
d. Median Rhomboid Glossitis

DISCUSSION:

Median reactive lesions which may mimic squamous cell carcinoma in the dorsal surface of the tongue and be able to clinically recognize develop considered, but it is imperative the clinician remember that it is rare on the anterior median groove of the tongue can incur a chronic candida infection. Hence, focal candidiasis should be excluded and treated appropriately.

Patients with hairy smokers' glossitis exhibit a loss of filiform papilla in the posterior median groove. The tongue can incur with a chronic candidiasis. The area is evident with a clinical diagnosis. This condition is also characterized by loss of filiform papilla, the area of desquamation.

Your best clinical diagnosis would be Median Rhomboid Glossitis.

THE OVER-TRIMMED DIE

A. Wharton Ramsey, D.D.S.*

How often have we heard the lab technician say, “Well, it fits the die, Doctor.” This paper explains why a crown can fit the die and not fit the tooth. It explains discrepancies in fit that I have long been reluctant to ascribe to distortion of impression, dimensional changes of materials, and bubbles. Laboratory technicians probably almost never under-extend wax margins, and probably frequently over-extend them slightly. Yet if the dentist has a problem with marginal discrepancy, it is almost always that the margin is just a little bit shy. He can feel that little ledge of the bevel with the explorer. The dentist complains that the crown was under-extended or over polished; actually, the reverse is more likely.

Reames have been written on the possible reasons that cast crowns fail to seat properly. Margins that are “almost” good enough plague all of us from time to time and this problem is especially perplexing when the operator has paid particular attention to preparation of the die and has personally marked the margins, trimmed, and die-spaced. Frequently the culprit is the “over-waxed” die; that is, the wax is extended slightly beyond the trimmed margin.

It is inevitable that many dies in a dental laboratory are over-trimmed at some point on the margin. Try as we will, our impressions frequently do not achieve Imm extension past the margin all the way around the tooth. Often the impression terminates right at the gingival margin in one or two areas. This calls for extremely careful die trimming. Trimming is usually done by undercutting with a round burr and/or knife and when trimming to a sharp margin, it is practically impossible not to under-trim a little in one area and over-trim a little in another. Nobody can hit it perfectly, and this in itself is a major cause of concern. Also, if the dentist feels the impression picked up “enough” of a steep bevel but may not have “gotten it all” in one area, this too calls for extremely careful trimming to preserve as much of the bevel as possible. Since the die will be trimmed to a point past where the margin was, we will also call this an over-trimmed die.

The problem occurs when even the most minutely over-trimmed die is over-waxed. The casting will still fit the die (don’t they all!) but it will be high on the tooth by the amount that the die was over-waxed! If the die was over-waxed Imm in an area that was even just barely over-trimmed, the casting will be a full Imm high.

Theoretically, it should be easy to wax a well defined margin but in practice this doesn’t always work out. In the first place, the sharp red pencil

*Dr. Ramsey is engaged in the private practice of dentistry, 507-707 Building, 707 South Jefferson Street, Roanoke, VA 24011.
line you placed on the die when you sent it to the laboratory gets obscured very quickly when separating liquids and wax are applied. (If the line is on there when you get the polished crown back, it's because the technician drew it on just before it left the laboratory.) Also, the red pencil line is not finite. Under magnification it appears pretty wide and often not as smooth as we intended. Attempting to trim the margin to a more acute angle by undercutting a bit more further weakens the margin and increases the likelihood of over-trimming. Hence, the technician can't always be exactly sure of his wax margin and may err on the side of over-waxing "just to be sure". Additionally as wax is thinned at the margin, it becomes translucent and therefore more difficult to detect its extent. Or, if the technician is preparing a somewhat thicker margin, he is attempting to trim back to a line he can't see. Finally, I believe that it just goes against all instincts of a laboratory technician to under-wax; he wants all margins met, and therefore is more likely to overwax a little bit in some areas.

See the accompanying illustration. In Example 1, the over-trimmed margin is not over-waxed, and a tight fitting cast results, though it is shy one margin of the tooth. In Example 2, the over-trimmed margin of the die was over-waxed, and a "high" casting results. Ironically, the only place the casting appears to fit the tooth tightly is the very area where the problem is being caused—the over extended area. Also note that painting the inside of the crown to reveal a "high" spot will be of no benefit.

You may determine if you have this problem with your laboratory by making two dies and keeping one in the office. Then ask to look at the wax-up. Try the wax pattern on the die and carefully check the margin all the way around. If it is overwaxed at any point, discuss the situation with your laboratory technician and impress on him the importance of NOT overwaxing. You may find crowns seating a little easier in the future.

With today's excellent equipment, materials, and techniques, superbly fitting crowns and bridges should be routine for every conscientious dentist.
EXAMPLE 1

DIE
OVER-TRIMMED AREA

WAXED EXACTLY TO OVER-TRIMMED MARGIN

TOOTH
CROWN FITS TOOTH Tightly AND IS NOT HIGH

EXAMPLE 2

DIE
OVER-TRIMMED AREA

OVER-WAXED AT OVER-TRIMMED AREA

TOOTH
DOES NOT FIT AND IS HIGH
The development of anesthesia

Audrey B. Davis, Ph.D.*

Techniques of controlling pain transformed the practice of nineteenth-century medicine, particularly surgery and dentistry.

The doctor’s dilemma before the discovery of inhalation anesthesia in 1846 was immense—whether or not to remove a pain-producing and life-threatening obstruction, organ, or tissue at the cost of inducing additional unbearable pain. One physician graphically described the amputation of his own limb, an experience he had not expected to survive: “The operation... necessitated cruel cutting through inflamed and morbidly sensitive parts. ... Suffering so great as I underwent... fortunately cannot be recalled... but the blank whirlwind of emotion, the horror of great darkness, and the sense of desertion by God and man, bordering close upon despair, which swept through my mind and overwhelmed my heart, I can never forget, however gladly I would do so.”

Opium and alcohol, the drugs most commonly employed to lessen the pain of surgery and other medical procedures in the early nineteenth century, obviously were not satisfactory.

The earliest known painkillers were intoxicants, mainly alcohol. Other methods for the control of pain, some of which have been in use for thousands of years, include plant products such as opium, mandragora, and cocaine; chemical derivatives like acetyl salicylic acid from the willow tree; physical methods including the application of heat and cold, tourniquet bleeding, and acupuncture; and psychological methods such as distraction, mesmerism, and hypnotism.

In many early civilizations intoxicants were preferred to substances specifically intended to relieve pain because to show pain was considered disgraceful, while drunkenness was usually condoned. Until the eighteenth century, doctors were reluctant to use chemicals to alleviate pain because they accepted the religious and moral beliefs of their day that claimed the pain was beneficial for the body and the soul of the patient. The technical developments in the control of pain are clearly related to social, cultural and scientific factors; this article will describe a few of these relations.

The chemistry of the last quarter of the eighteenth century that extended the therapeutic arsenal of painkillers began with the discovery and

*Audrey D. Davis received her Ph.D. from The Johns Hopkins University. As Curator of Medical Sciences at the National Museum of American History, she focused her historical studies on the relations among medical practice, technology and their social and cultural settings. Her latest book, published by Greenwood Press in 1981, is Medicine and Its Technology. Dr. Davis, who is Secretary of the History of Science Society, is now working on aspects of Twentieth-century medical technology. Address: 1214 Bolton St., Baltimore, MD 21217. Her paper, appeared in American Scientist, Vol. 70, September-October, 1982. It is reprinted with the kind permission of both author and publisher.
preparation of a number of gases by European investigators. Among the earliest discoveries were those of Joseph Priestley, who reported on nitrogen and its compounds in 1772 and who discovered oxygen in 1774. In 1808 Humphrey Davy published the results of his careful study of nitrous oxide, which included an assessment of the painkilling properties of this gas and its possible use during surgical operations (Fig. 1). Davy was predisposed to medicine by having served an apprenticeship to a physician, and by having been made Superintendent of the Pneumatic Institute, which was founded by his mentor Thomas Beddoes in Bristol in 1798 to study and apply a series of gases to patients with lung diseases. James Watt, better known for his steam engine, designed the apparatus used in the Institute to test the effects of nitrous oxide and sulphuric ether, among other gases.

This type of treatment, known as “inhalational therapy,” continued throughout the nineteenth century, and was seen as a possible cure for tuberculosis and the many other lung ailments that attacked and often killed a large proportion of the European and American populations. Davy and Beddoes encouraged all who visited the Pneumatic Institute to inhale nitrous oxide, or “laughing gas,” and describe their experiences; Samuel Taylor Coleridge and Robert Southey, among others, recorded pleasurable effects, and the inhalation of nitrous oxide became a popular pastime among students. Sulphuric ether, which had similar effects, had been discovered in 1540 by Valerius Cordus, who called it sweet oil of vitriol. It was given the name aether by August Siegmund Frobenius in 1730. Various methods of vaporizing and warming it were described beginning in the 1790s.

Portable apparatus for administering gases and vapors was available by 1796. Erasmus Darwin, grandfather of Charles Darwin, was among those who wrote about inhalers (5). When anesthesia was discovered to result from the inhalation of specific gases and vapors, especially ether and nitrous oxide, regular medical practitioners were therefore prepared for this type of interference with normal respiration and were familiar with ether (6). They also had access to the basic technology involved in early anesthetics, especially inhalers, vaporizers, and containers to hold the gases and liquids to be applied. Ether, chloroform, which was discovered in 1831, and nitrous oxide were soon manufactured in purified form for medical use (7).

Although the relevant chemical knowledge was widely disseminated among British and American medical students in the eighteenth and nineteenth centuries, the first recorded applications of inhalation anesthesia were made by those who were not part of the medical mainstream. Nitrous oxide and ether were first used for relief of pain by dentists, who were not then considered medical practitioners. Nonetheless, dentists were among the earliest to realize the medical implications of public demonstrations involving chemicals.

Such demonstrations in physics and chemistry, based on similar demonstrations in England, were part of
science teaching and lecturing in America. Planned to be dramatic and amusing as well as instructive, the American demonstrations employed fascinating equipment imported from Europe. Among the most popular of these demonstrations, however, was one requiring not only equipment but also audience participation. It was the administration of nitrous oxide and ether vapor to spectators. One of the earliest such demonstrations to be documented occurred in February 1824, when Joseph Dorfeuille, Director of the Western Museum in Cincinnati, Ohio, gave nitrous oxide to a dozen spectators (8). The demonstrations were called “frolics” or “ether frolics” because of the elated and frolicking behavior of those who inhaled sufficient quantities of either gas. This excited response to nitrous oxide and ether kept physicians from appreciating their potential as drugs to quiet and calm a patient by removing pain.

THE DISCOVERY OF ANESTHETICS

A few nineteenth-century European and American dentists, surgeons, and physicians purposely sought an effective method of removing the immediate pain of surgery, and their successes provide the first ingredient in the rise of modern surgery. These early successes were not based on knowledge of the differences between anodynes, which reduce overall pain, analgesics, which alleviate localized pain, and anesthetics, which reduce pain, remove consciousness, and lessen the memory of pain. These differences were clarified and described in terms of the action on the human body only after the successful trials of ether, nitrous oxide, and chloroform in the 1840s. In fact, ether acted more like an analgesic during the first few years of use, when most operations for which it was administered required only short time to complete.

Crawford W. Long, a physician from Georgia; William E. Clarke, an American chemist who later became a physician; and Humphrey Davy, among others, noticed the pain relief provided by ether or nitrous oxide gases which were being used for other purposes. Davy remarked on the pain-killing qualities of nitrous oxide; Long in 1842, and Clarke, in 1844, successfully used nitrous oxide or ether on a few patients, after observing that inhaling either gas or vapor for recreation produced insensibility (9). Long published his experiences seven years after his first ether anesthetic operation and continued to use ether in his own practice until his death in 1874. However, none of these men developed their techniques sufficiently widely publicized and instructed others in their use. Their efforts should be distinguished from those of the acknowledged discoverers and promoters of anesthetics, Henry H. Hickman, Horace Wells, W. T. Morton, and Carl Koller (10). Except for Hickman, these discoverers were not astute chemists and relied on others to provide them with anesthetic gases or substances. As early as 1822, Hickman, an English physician, gave carbon dioxide to animals to put them to sleep before operating on them.
Koller, who was never involved with inhalation anesthesia, was encouraged by Carl Ferdinand von Arlt, one of his teachers in Vienna, to search for a painkilling drug to put into the eye before surgery. He discovered the desensitizing effect of cocaine in 1884 and thus initiated local anesthesia (Fig. 2) (11).

Wells, a Boston dentist, was first the teacher and then the partner of Morton during 1843-44, until their lack of success led Wells to ask Morton to continue the practice by himself (12). In his Essay on Teeth, published in 1839, Wells argued against the extraction of teeth (9). Despite his dental philosophy, he was inspired to try nitrous oxide for himself after witnessing a demonstration of the gas in Hartford, Connecticut, by the popular lecturer Gardiner Quincy Colton. On 11 December 1844, Wells had Dr. John Riggs pull a wisdom tooth after administering nitrous oxide, and discovered that he felt no pain during the extraction. On awakening he declared: “A new era in tooth pulling. It did not hurt me so much as the prick of a pin” (8). Wells subsequently used nitrous oxide on his own patients.

After Wells ended their partnership, Morton’s specialized practice of prosthetic dentistry prospered. His method, which was unusually thorough for that time and which foreshadowed the excellence achieved in American dentistry of the twentieth century, included removing the stumps and roots of teeth before putting in the prosthesis, an especially painful procedure. Like most dentists, Morton dealt with pain in his daily practice, and had a great pecuniary motivation to alleviate it. Those who introduced improvements into dentistry by using more elaborate and pain-producing methods to repair and replace teeth knew they had to solve the problem of pain if their methods were to be generally accepted. Realizing the financial opportunities in this situation, Morton began to study various painkilling substances, and on 30 September 1846 he first used ether to anesthetize a patient. On 27 October he filed a patent with Charles T. Jackson, his former landlord and a noted Harvard geologist and chemist, clearly stating the contributions he believed he had made to the conquest of pain: the use of ether vapor to lessen pain and the muscular action that interfered with surgery, and the introduction of the painkiller through the lungs rather than the stomach, which permitted a closer and safer regulation of the patient’s unconscious state (5).

Morton was castigated by contemporaries and historians for taking out patents, in collaboration with two associates, on ether, which was disguised with a red dye and received the name letheon after it was patented, and on two types of inhalers. Surgeons and other dentists, who were jealous of Morton’s success and apprehensive about the physiological effects of ether, objected to the patent and to the fact that the substance was labeled a “secret remedy,” although the process of making ether and the other ingredients added to it were spelled out in the patent. However, it was accepted convention in the nineteenth century for a dentist to keep his new
methods or devices secret or to obtain a patent for them. Since ether was primarily of use in dentistry at this time, Morton was acting properly in protecting his discovery. The novelty of the discovery may be seen by the fact that Perry Davis's "Celebrated Pain Killer," which appears to have been the first drug produced in the United States solely to relieve pain, was originally marketed only one year before Morton filed his first patent.

In seeking his patent and including Jackson, who understood the chemical properties of ether and instructed Morton in its use, Morton was taking the advice of R. J. Eddy, son of the commissioner of patents, Caleb Eddy. Jackson would soon claim that employing ether as an anesthetic had been his idea, thus initiating the first of a continuing series of debates over the issue of who discovered the first anesthetic. Morton had to give up patent protection on ether since he had not discovered this substance, although he had suggested a new use for it.

Morton planned a worldwide scheme of advertising and promotion of ether. The fees he expected to collect for the use of ether were based on the size of the city in which the anesthetic was to be used. In cities with 150,000 residents, a license to use ether for a period of seven years cost $200; the fee was less for smaller cities. Morton presented inhaling apparatus to various surgeons and charitable institutions in the United States and abroad, and sent several expensive models to the chief sovereigns of Europe (5).

One of Morton’s glass inhalers is shown in Figure 3. The apparatus was cumbersome and proved unsatisfactory in inducing anesthesia, and it was soon abandoned by Morton and others in favor of a plain sponge or cloth soaked in ether. Morton had already mentioned this method in his first patent, and he recommended it in a subsequent statement he published on his discovery. In fact, when Morton anesthetized his first dental patient, he had to abandon the glass container he had received from Charles Jackson and substitute a handkerchief soaked in ether (13).

ANESTHETISTS AND SURGEONS

The unequal relationship that existed between American anesthetists and surgeons began during an operation at the Massachusetts General Hospital on 16 October 1846. The prominent surgeon and teacher John Collins Warren was to remove a tumor from the neck of Gilbert Abbott, a patient who had consented seven days earlier to participating in the first surgical trial of ether. Morton, who had agreed to administer the ether fifty minutes late in arriving in the operating room. His excuse for the delay was the final preparation of the ether inhaler. However, he arrived just in time and Warren remarked: "Well, sir, your patient is ready." After a few minutes of giving the patient ether, Morton said, "Your patient ready, sir," thus emphasizing the ancillary and brief role of the anesthetist and the fact that the surgeon was full...
in charge of the patient who had been put to sleep (14).

The simple equipment used and the relative ease with which anesthesia was obtained in the nineteenth century did not provide a challenge to the American physician, who left the role of anesthetist to the medical student, or bystander. The surgeon maintained control over both the patient and the anesthetist until the 1940s, when the technology and application of anesthesia became more complex (5). The direct relationship between the surgeon and the patient that excludes the anesthetist, except for his subordinate role in the operating room, is only beginning to be challenged by modern anesthetists. To make a patient insensitive to sensory stimuli and free of pain requires the administration and monitoring of a critical balance of chemical gases, vapors, and oxygen. Yet physician anesthetists, known as anesthesiologists in the United States since 1945, still have less than equal status with surgeons, perhaps because of past subservience displayed by nurse anesthetists (15).

Morton's discovery of ether anesthesia increased the professional authority of the physician but gave anesthetists little prestige. Morton's own status was affected by his persistence in seeking commercial success, which prevented him from becoming a respected member of the medical profession. When he continued to publicize his discovery and patented another inhaler, the glory of his discovery was tarnished among the American medical leadership. Professional standards of behavior for physicians did not permit them to seek financial gain for a discovery of use to all in treating or curing disease. Indeed, in 1847 the American Medical Association passed the first code of medical ethics in the United States, which explicitly discouraged physicians from patenting or advertising medical discoveries or inventions.

Morton chose to pursue financial gain rather than scholarly fame and notice. But an ambitious young surgeon, Henry Bigelow, saw the advantage of linking his name and future to ether anesthesia in the minds of his medical colleagues. Bigelow had seen Morton extract teeth from patients who had been given ether, and witnessed Morton's successful anesthesia of Warren's patient (13). Immediately recognizing the importance of Morton's anesthetic substance, Bigelow spoke about its effective use at a meeting of the American Society of Arts and Sciences, published a report in medical journals in the United States and Great Britain that was extracted in the daily press, and presented an account to the Boston Society of Medical Improvement, all by 9 November 1846, about a month after the use of ether in Warren's operation. Bigelow assured himself of further publication of his news abroad by having a copy of his published report sent to an English physician whom he had met when he studied in London.

Bigelow's quick response assured recognition for Morton, the Massachusetts General Hospital, and himself. Gifted at putting into words what he had witnessed, Bigelow declared of the first surgical use of anesthesia, "I
have seen something today that will go around the world” (16, p. 92). He later defended Morton’s patents on ether by arguing that because ether could be abused and was not thoroughly understood, its use should be restricted to responsible persons (17).

Unlike Morton, however, Bigelow did not concentrate solely on popularizing anesthesia. He continued to study other potential anesthetics, even investigating new drugs, and published his results. He emphasized the effectiveness of ether over all other anesthetics. The ease of preparation and delivery of ether in comparison to nitrous oxide, which Bigelow established created asphyxia and was required in a large volume to make the patient insensible (18), made ether a more satisfactory anesthetic, even though it was more irritating to the patient.

The differences between surgery and dentistry in this period, in many ways reflected by the different goals and tactics of Bigelow and Morton, made it essential for medical professionals to distinguish their practices from those of nonprofessionals. However, the relief of pain by ether, chloroform, and nitrous oxide introduced an element of control, novelty, and uncertainty into all medical specialties that challenged and inspired their practitioners.

ANESTHESIA AND THE MEDICAL PROFESSION

Did new methods of pain relief change attitudes toward pain, or did changing attitudes and medical aspirations promote the effort to find more effective forms of pain relief? American historical records about the earlier use of anesthetics in surgery show that the answer to both questions must be yes. In modern Western society surgery has been the only painful assault on the human body that is acceptable, and aversion to even this pain has grown. Other practices that inflict pain or damage the body are tolerated only as a form of punishment or to develop courage in the young. There is some evidence that beginning in the late eighteenth century, public opinion began to reject physical punishment for lawbreakers. The new methods of punishment that were developed included solitary confinement and isolation, which stressed emotional deprivation and advent stimulation instead of bodily torture (19). Another indication of changing attitudes is the use of mesmerism in the 1840s to relieve the pain of surgery. Although mesmerism, which was first used in eighteenth-century France, was not accepted by the medical community, several instances of its success have been recorded (20).

What is now considered regular medicine and dentistry did not provide the major source of medical care in the 1840s, but competed with many medical sects such as homopathy and hydropathy that flourished in nineteenth-century America among all classes of society. All medical practitioners became increasingly conscious of the sensibilities of patients, who were in an enviable position of being able to choose from a variety of medical therapies. Americans could insist on
m painless and effective medical treat-
iment, or at least select their physi-
cians from among those who pro-
vided this type of treatment.

Demanding patients led to a more
critical search for pain control,
especially among dentists. It had been
accommon for dentists, often known
to as "tooth pullers," to travel from
town to town, acquiring patients
primarily through advertising. These dentists re-
mained for only a short period in each
town and therefore seldom had to con-
tend with the consequences of their
methods or the pain they may have
caused. However, if a dentist could
provide painless treatment he was as-
sured of satisfied clients, and it was
thus feasible for him to remain in one
area in the expectation of treating the
same person, as well as the person's
relatives, on more than one occasion.

Dentists' interest in painkillers was
also heightened because dental treat-
ment was evolving from mainly tooth
extraction to tooth preservation. Pre-
serving decaying teeth by excavating
and filling cavities was even more pain-
ful than extracting them (21).

Dentists, still not considered medical
professionals, had organized the first
dental school in 1839 in Baltimore and
were beginning to study medicine
(22). When Morton, a dentist, dis-
covered something of value not only
to his own practice but also to surgery,
the split between dentistry and other
medical practices appeared capable of
being healed. However, pain con-
trol did not serve as a uniting force
among medical practitioners, but
rather inspired debate and culminated
in the rise of yet another specialty,
that to do with anesthetics.

Morton's discovery had an impor-
tant effect on dentistry. American den-
tists were beginning to assert their
excellence in tooth repair and re-
placement (Fig. 4), and to succeed
in this endeavor and to retain the
cooperation of the patient, control of
pain was crucial. Local anesthetics
such as novocaine, which are less com-
plex to use and less dangerous to the
patient, are now used in dentistry.

General anesthesia is more common
in surgery, a field changed remarkably
by its discovery. After 1846, surgeons
no longer needed to operate quickly
to spare the patient pain, nor did they
need as much mechanical dexterity
(23). The tools used in surgery
changed within a decade of the dis-
covery of anesthesia from relatively
large and cumbersome instruments
characterized mainly by sharpness to
move delicate, specially adapted, and
refined implements. The number of
operations increased each year after
the first use of anesthesia. For example,
at the Massachusetts General Hospital
there were 184 operations in the five
years before 1846, and 487 operations
in the five years after 1846. Surgery
advanced slowly and steadily in the
United States. More dramatic progress
occurred in London hospitals, where
the number of operations had doubled
five months after the introduction of
ether (24).

The almost immediate rise of the
anesthetist as a specialist in Britain led
to greater use of anesthesia there and
in the United States, and the develop-
ment of a variety of inhalers (Fig. 5)
and other technology to administer the gases. Chloroform was first used as an anesthetic in 1847 by James Y. Simpson, a Scottish physician (25). Plastic surgery, ophthalmology, and urology were facilitated by the surgeon's greatest control of the anesthetized patient. After the introduction of antiseptic methods in 1880, successful surgery of the thorax, abdomen, and skull also became feasible. Anesthetists and surgeons continued to experiment with new substances, seeking the best anesthetic; in 1912 the American chemist Charles Baskerville compiled a list of hundreds of anesthetic substances. The list was published two years later by James Gwathmey in the first American textbook on anesthesia (26).

Anesthesia was crucial to the development of a second major improvement in nineteenth-century surgery: asepsis. Asepsis required detailed precautions together with prolonged and precise placement of tissues and antiseptic drugs. Closure of the wound to prevent leakage of body fluids necessitated careful stitching in a patient lying immobile. Therefore the patient had to be anesthetized if careful aseptic procedures were to be followed in the operating room (27).

Perhaps the most significant effect of the use of anesthesia in surgery was the diminished attention paid to pain by the medical practitioner. Some physicians and surgeons rejected anesthesia at first, either as a quack remedy, or on the ground that it was unsafe or that pain was an important component of the healing process (28). However, surgeons discovered that with anesthesia they no longer had to fear the resistance of the patient during the operation, and within several decades they came to consider anesthesia an essential complement to surgery. They willingly learned new methods of checking on the response of the patient's body to their manipulations, required because the anesthetized patient could not report physical sensations.

When a new generation of surgeons, who had never witnessed surgery without an anesthetic, appeared, the problem of pain for the patient was pushed further into the surgeon's consciousness. Other advances in medicine and improvements in anesthesia led to the attitude that surgical pain had been conquered and only required that the proper analgesic or anesthetic drug be administered. Patients demanded anesthetics, Americans preferring those that would make them unconscious. Individuals of a more sensitive nature began to practice surgery more consciously.

Putting a patient into a state of some unconsciousness, semiconsciousness, or pain-free wakefulness has been the prime concern of the anesthetist, while the study of pain physiology and pathology has been left to neurologists, neurosurgeons, neuroscientists, behavioral scientists, psychologists, and psychiatrists, among others (29). Some of these scientists developed theories of pain that centered on the physiology of the nervous system as the mode of transmission of pain sensations. The emotional, psychological, and personal elements of pain were forgotten and relegated to nonmedical consideration.

Only in the last several decades have
Physicians and surgeons provided a medical institution that incorporates the belief that the existence, development, and relief of pain are based on multiple factors, not all of which are amendable to scientific interpretation and control. The rise of the pain clinic in its myriad forms is a testimony to the varieties of pain and its control that have been established (30).

The only modern institution that deals exclusively with pain, the pain clinic presents an opportunity for a host of medical specialists and scientists to combine their talents and knowledge in understanding and controlling pain. Since anesthesia will probably never be able to eradicate pain, but will only reduce and confine it (31), the questions these experts must now ask are: What method of pain relief is most effective for each type of pain? And, perhaps more important, who exercises the control of pain?

Anesthesiology, which remains the medical specialty devoted to pain relief during surgery, has developed from a simple drugging of the frightened patient to a multifaceted procedure including preparation of the patient through counseling, selection of specific drugs to meet the physiological and psychological needs of the individual, and use of a variety of anesthetic substances to sedate the patient sufficiently while avoiding excessive strain on the body and enabling a quick and comfortable return to consciousness. Through computer-controlled technology, it will soon be possible to take into account the many variables of human biology and anesthetic chemistry in order to provide safe and effective pain control in the operating room.

Figure 2. The first local anesthetic, discovered by Carl Koller in 1884, was cocaine. This early hypodermic syringe, which holds 1 cc, was used to inject cocaine and other desensitizing drugs before operations such as eye surgery. It has a glass barrel and ivory tips. (Photo courtesy of Smithsonian Institution.)

Figure 3. This inhaler was once believed to be the first used by W. T. G. Morton, the discoverer of inhalation anesthesia; it is now known to be one of his early inhalers, but not the first. The writing on the stand, which is a replica of the original, refers to Morton's patenting of ether, an act that damaged his reputation in the eyes of the medical community. (Photo courtesy of Smithsonian Institution.)
Figure 5. The patient in Figure 4 is holding an inhaler for nitrous oxide similar to the one, patented by the S. S. White Company, a leading dental manufacturer, on October 1877. The valve close to the mouthpiece is for oxygen; the level regulates the amount of nitrous oxide passing through the inhaler. (Photo courtesy of Smithsonian Institution.)

Addendum: Figs. 1 and 4 were not available for printing.
Mrs. Barbara Norris Wilson was elected and installed as District II Trustee of the Auxiliary to the ADA at the Annual Meeting in Las Vegas last November. The states included in District II are Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and District of Columbia. She will serve on the 1982-83 Board. This organization has 18,000 members.

Mrs. Wilson is a resident of Danville, Virginia. She is area Chairman and President-Elect of the Danville Heart Association; member of the Wednesday Club, Danville Museum of Fine Arts, and the Epiphany Church. She has served as past President of the State and Local Auxiliary organization. Her husband, Dr. Phillip P. Wilson, is a practicing dentist in the city of Danville.

The Virginia Dental Association takes pride in announcing this signal honor which comes to one of its Auxiliary members.
REPORT OF 123rd ADA MEETING IN LAS VEGAS

Dr. French H. Moore, Jr., Chairman, Virginia Delegation

The City of Las Vegas, Nevada welcomed approximately 32,000 registrants to the 123rd Annual Meeting of the American Dental Association during the week of November 7-11, 1982. Las Vegas continues to be one of the top attractions for ADA meeting sites. The theme of this year’s meeting “Dentistry—A Caring Profession” featured more than 120 scientific lectures and 750 exhibits designed to provide continuing education to dental professionals and improve the nation’s dental health.

Delegates and Alternate delegates considered 116 resolutions through the long hours of reference committee hearings, district caucuses and floor debates. A brief synopsis of these actions are as follows:

- Adopted a budget of $31.2 million dollars with a projected revenue of $31.9 million.
- Approved a marketing proposal for the ADA including the establishment of a Marketing Services Department responsible for coordinating all marketing research and program development activities to offer a broad selection of marketing aids for individual practitioners, constituent, and component societies.
- Provided that the current single representative of dental students in the ADA House of Delegates be afforded a vote in all matters before future ADA Houses.
- Reintroduced the Baseball Futures Program in the ADA program for public relations and dental health education activities.
- Authorized a national campaign to increase membership in the ADA and its state and local societies.
- Amended the ADA Principles, Ethics and Code of Professional Conduct such that “Dentists who announce as specialists must have successfully completed an educational program accredited by the Commission on Dental Accreditation, two or more years in length as specified by the Council on Dental Education or be diplomates of an ADA recognized certifying board. The scope of the individual specialist’s practice shall be governed by the educational standards for the specialty in which the specialist is announcing.”
- Took the position that dentists should delegate the task of taking x-rays only to personnel who have had a structured course in such procedures, and that a structured course in radiography is defined as a planned sequence of instruction of specified content designed to meet stated educational objectives and include evaluation of attainment of those objectives.
- Discontinued funding of the National Health Professionals Pla
ment Network and suggested that placement programs be continued on a regional or constituent level.

- Instructed the ADA to encourage all third party carriers to include the following statement in all communications to subscribers: "Any difference between the fee charged and the benefit paid is due to limitations in your dental benefit plan contract."

- Instructed the Council on Dental Care Programs to investigate the problems associated with lump sum payments made by carriers to dentists for covered services rendered to multiple patients, and a proposal be developed to individualize such payments in order to facilitate proper cash receipts application.

- Asked the Council on Dental Care Programs to work with insurance carriers and service plans to develop a universally accepted method of eliminating the signature requirement on claim forms.

- Authorized the ADA Board of Trustees to actively pursue the acquisition of office property in the Washington, D.C. area for the ADA Washington office.

- Approved a pilot study by two state dental societies to demonstrate the advisability of a staggered dues paying concept for ADA members.
A number of other actions were taken by the ADA House of Delegates. These actions will be reported in future issues of ADA News and are on file in the VDA Central Office in the Official Transactions of the meeting.

Dr. Burton H. Press was installed as President of the American Dental Association in an impressive service conducted by Dr. Harry Lyons, Dean Emeritus of MCV School of Dentistry. The Virginia Delegation was extremely proud of our past ADA president who did this requested honor with his usual intellectual dignity and sense of humor. Dr. Donald E. Bentley of Hawley, Minnesota was elected ADA President-Elect. Dr. Bernard Snyder was reelected Speaker of the House. Elected First and Second Vice Presidents were Dr. Wilfred A. Springer of New York and Dr. Roger M. Heim of Florida.

VIRGINIA DELEGATION

The Virginia Delegation was composed of Delegates: Doctors J. Wilson Ames, Jr.; Bennett A. Malbon; Virgil H. Marshall; Dwight W. Newman, Jr.; Earle W. Strickland; Douglas Wendt; and Curtis R. Woodford. Alternate Delegates: Doctors Clark Brown; Harry L. Hodges; Wallace Huff; Emanuel W. Michaels; Frank H. Moore, Jr.; and David A. Whistock. Mrs. Pat K. Watkins serves as Secretary for the Delegation. Doctors L. Clark, Jr. and William B. FitzHugh were unable to attend due to illness and Dr. James E. Kennedy was unable to attend due to his mother's illness.

The Virginia Delegation attended Caucuses, Reference Committee Hearings and House of Delegates sessions.
Virginia Delegates at 123rd ADA Meeting
Doctor James W. Holley, III was awarded fellowship in the American College of Dentists and the Academy of General Dentistry at recent meetings in Las Vegas, Nevada and Boston, Mass.

Dr. Holley is a past president of the John L. McGriff, Old Dominion National Dental Associations. He is also a member of the American Dental Association, Portsmouth-Suffolk Dental Club, Chicago Dental Society, Pi Fauchard Academy; as well as many other civic organizations. He is immediate past chairman of Tidewater Regional Transit and a twelve year member of Portsmouth City Council.

HINMAN 83

The Thomas P. Hinman Dental Meeting scheduled for March 19-23, 1983 at Marriott and Hilton Hotels, Atlanta, Georgia. Dr. Peter A. Jensen, Jr., General Chairman.

For Information:

Dr. Peter A. Jensen, Jr., General Chairman
The Thomas P. Hinman Dental Meeting
615 Peachtree Street, N.E., Suite 814
Atlanta, Georgia 30308
The American College of Dentists awarded Fellowship to Doctors J. Wilson Ames, Jr., James R. Batten, and John T. Kelly at recent meeting in Las Vegas. Also awarded Fellowship was Doctor James W. Holley, III of Portsmouth.

ANNOUNCEMENT

The District of Columbia Dental Society, at its 51st Annual Spring Postgraduate Meeting, April 17-20, 1983, will again be the host at a luncheon for the Medical College of Virginia Dental School, Virginia Commonwealth University Alumni on the 19th of April at the Shoreham Hotel, Washington, D.C., from 12 Noon to 2:00 p.m. Our speaker will be the Dean of the MCV School of Dentistry, Dr. James E. Kennedy, and we are planning on an excellent turnout.
The Tidewater Dental Association is extremely proud in having the President of the American Dental Association as its speaker for the Spring Meeting. Dr. Burton H. Press will speak on "Dentistry and the Future" on Monday, April 25, 1983 at the Lake Wright Motel in Norfolk. This program on practice management is part of the Virginia Dental Association's continuing education program and is open to all V.D.A. members.

The T.D.A. Legislative Committee met at the Lake Wright Motel on December 12, 1982 for a luncheon meeting. Despite a snowy, blustery day there was a good turnout of legislators from Norfolk and Virginia Beach and of committee members. We were pleased to have V.D.A. President Earle Strickland in attendance.

Component I dentists were invited to the Annual Dental Tri-Service Professional Meeting on January 18, 1983 at the Naval Air Station in Norfolk. This is another example of the good relationship between civilian and military dentist in this area.

Congratulations to Ira Goldar and Harry Ramsey on their election to the International College of Dentists at the A.D.A. meeting in Las Vegas.

The Seventh Annual Southeastern Virginia Dental Symposium in Williamsburg is shaping up as one of the better meeting. This outstanding program will feature an all day session by the Stern-Gold Company entitled "You Wanted To Know About Attachments, But Didn't Know Who To Ask". The last two days will have Dr. Ronald Goldstein from Atlanta giving his excellent program on "Esthetics in Dentistry". Don't miss the meeting at the Fort Magruder Inn, March 3, 4, 5, 1983 in Williamsburg.
Punxatawney Phil stuck his head up at Gobbler's Knob, saw his shadow and said, "there'll be six more weeks 'til the Southeastern Symposium." Actually, not quite . . . BUT, March 3, 4, & 5th we'll be enjoying another outstanding program. We hope you'll join us at Ft. Magruder. Check your mailing for fees and if you need any clarifications, call our primary hostess Dot Ferris at 627-8534 in Norfolk. As mentioned, Thursday's program for Auxiliaries will be a good one. Ms. Lee Milteer, a Career Strategist, will excite the attendees with her presentation, "Professionalism in the Office." According to rave reviews of Lee's former presentations, this should be a delight. For the Docs, Dr. Ronald Goldstein will give his presentation of "Esthetics in Dentistry", which is a quality program by a nationally known speaker, and Gunnar Bershin from Stern Gold will present "Precision Attachments", there'll be no stones left unturned for your knowledge of attachments.

February being National Children's Dental Health Month, we're following through with T.V. presentations, dental fairs, school programs, etc. Also, Dr. Jeff Bass has organized a program in the Newport News school system where we've been participating in Dental Health Fairs since last October. These fairs are ongoing, and will be a total of ten as of February.

Special thanks to Dr. Bob Allen who organized, coordinated, and facilitated our recent X-ray head inspections along with the PDS office. If you see Bob glowing around a street corner, say hello to him. Seriously, it was a job well done and appreciated, and the glow Bob wears is from continued satisfaction with service to Component II.

So, as we progress from Groundhogs to April showers, I bid you well 'till then. See you in Williamsburg!
It was an enjoyable evening. Our component's First Dinner and Fellowship Evening. A great idea that will get better with every passing year. And then, Dental Health Week! Again, another successful and well-organized Dental Fair. The result of a lot of work, and good organization. Our thanks again to the Ladies Auxiliary and Southside Hygienists who cooperate and blend so well into one committee. Let's give them credit and not take them for granted.

At 6:30 in the evening of Tuesday, March 1st, the Social Hour of the Mid Winter Meeting starts at the Holiday Inn South. On Wednesday, March 2nd the all day meeting speaker will be Dr. Hill Tatum—His Top Implants.

The year is starting full steam ahead. We have received a mailing from Wayne Browder with the year's schedule. This will help us plan and should bring up our attendance at the events listed.

Let's carry on!
Doctor Joseph M. Doherty, Director of the Dental Division of the Virginia State Health Department, spoke at our monthly meeting on the timely topic of "Fluoridation and Radiation Safety". There seems to be a renewed effort on the part of the antifluoridationists to undermine the efforts of organized dentistry in this area. It is incumbent on all of us to stay current with information in the area of fluoride, as well as radiation safety. This meeting was attended by U. S. Representative Thomas J. Bliley, Jr., as well as members of our State Legislature.

The Richmond Dental Society commends the efforts of Doctor Harry L. Hodges, Chairman, and the Long-Range Planning Committee. The future belongs to those who plan today, and Harry and his committee are doing just that. His committee is comprised of Doctors Les Webb, Bob Gilliam, Jim Kennedy, Richard Wood, Hugh Wrenn, Richard D. Wilson, C. D. Richardson, William Comer, Frank Foster, Rip Radcliffe, Charles Cuttino, Charles Clough, and Past Chairman Gary Maynard. We thank all of them for the long hours they have put into this committee activity.

The Society would like to thank Doctor Charles D. Kirksey for all of his efforts in organizing the CPR courses for our Society.

The Richmond Dental Society would like to invite everyone to attend our two-day Pankey Institute Program. The speakers will be Doctors James Potts and Melvyn Steinburg. Notification of the date, time, and place will be published at a future date.
Another one of those stimulating fall meetings. This time at the Lynchburg Hylton on November 5. President Bert Osborn opened the affair and then turned the meeting over to incoming President Dr. James Johnson. Dr. Gene Ayers of Martinsville introduced the speaker, Dr. Ed. Skidmore of W.Va.U. whose topic was "Endodontics Beyond Root Canal Treatment". The clinician made a right decent lecture and most of those in attendance appeared to have a learning experience. This contrasts with a lousy lunch which was surprising from a classy hostelry like the Hylton.

The business sessions were typical. It was announced that the spring meeting would be April 15 and 16 at The Homestead (one night). The next fall meeting will be November 5 (1983) at the Dutch Inn in Martinsville. The following spring meeting will be at Hotel Roanoke on May 1, 1984. And that's it for the business. We might mention the new brothers who made the cut: Drs. Robert Carlish-Danville, John Harris-Salem, Dr. Spritzer-Buena Vista, John Rocha-Collinsville, Kyle Midkiff-Covington, Tom Warwick-Lynchburg, Noel Kornett-Stuart, Richard Poe-Appomatox, Steve Kanetzke-Vinton, William Randolph-Chatham, Carl Roy-Forest, G. Sprinkle-Salem, Teresa Schwartz-Lynchburg, and Robert Bielawaski-Roanoke.

And in conclusion, let's hear it for The Homestead—April 15 (afternoon) and April 16 (morning).
Dr. Charles Blair of Blair and Associates, Inc., Kings Mountain, N.C. presented a program entitled “Tax Wise Investing” to members and spouses of the Southwest Virginia Dental Society Friday, November 19, at the Martha Washington Inn in Abingdon. Dr. Blair explained key provisions of the Tax Equity and Fiscal Responsibility Act of 1982, as well as suggesting various means of investing appropriately.

Component VI welcomed Dr. F. B. Wiebusch from our School of Dentistry as well as guests from other components.

Members newly inducted into life memberships include Dr. Duard McDaniel, Gate City, and Dr. C. L. Hampton, Galax. These gentlemen were honored during the business meeting.

New members in Component VI are Dr. Merrill Dickson, Abingdon, M.C.V. ’82, and Dr. Steve Lutz, Tazewell, M.C.V., ’82.

Healthco Dental Supply Company presented concurrently a program for dental assistants on small equipment maintenance and repair. Thanks are extended to Healthco for providing this well-attended program.

After the regular quarterly business meeting, members were invited to an open house at the home-office of Dr. John Lentz, secretary-treasurer of the society. Members enjoyed this pre-holiday opportunity for socializing.

In a continuing effort to provide educational courses for dental auxiliaries, a radiology safety and technique course will be offered during the Society’s February 25, 1983, meeting at Blacksburg. Also on February 25, 1983, at the Marriott Inn, Blacksburg, Dr. Joe Paget will present “Current Topics in Pedodontics”. Guests from outside Component VI are welcome and should register by contacting Dr. David Wilson, P.O. Box 338, Wytheville, Virginia 24382.
COMPONENT VII

SHENANDOAH VALLEY
DENTAL ASSOCIATION

William B. Hanna
Associate Editor

During the Fall meeting of the Shenandoah Valley Dental Association, the following officers were installed for 1983:

President ............ Dr. Ray Collins
President-Elect .. Dr. Richard Heath
Secretary-Treasurer 

Dr. J. Darwin King, Sr.
Executive Counselor

Dr. Michael Kivlighan

A certificate of appreciation was presented to outgoing President, Dr. Robert Markley of Staunton for the outstanding job he performed this past year.

The following Doctors from Component VII have become eligible for life membership in the ADA VDA:

Dr. James Davis
Dr. C. Kirtner Johnson
Dr. Orville O. VanDeusen, Jr.
Dr. Eugene L. Kerewich

The next meeting of Component VII will be on Friday, March 18, 19... at the Lee-Jackson Motel in Winchester. A program on "Review and Update of Composite Resin Materials and Restoration" will be presented by Dr. Willie D. Crockett.
IN MEMORIAM

It is with regret that we announce the death of Doctor Peter A. Triani on Thursday, December 2 after an extended illness.

Doctor Triani was the Director of the Division of Dental Health for 18 years until his retirement on August 31, 1977. Prior to becoming Director, he had served as the Public Health Dentist in Buena Vista and Crewe and in the counties of Dinwiddie and Chesterfield. His field experience included working with portable equipment and a school dental trailer, as well as in fixed facilities. This experience gave him a broad understanding of the problems experienced in the field.

During Doctor Triani's directorship, the number of dental positions increased from under 20 to over 80 full and part-time positions. He was instrumental in providing dental services in the Appalachian area of Virginia in the early '70s in cooperation with the Appalachian Health Services Program.

Upon completing dental school at Temple University in Philadelphia, he served in the U.S. Army as a forward regimental dental officer during World War II in the fields of France. He was awarded the Bronze Star during this period of service.

He returned to service during the Berlin Airlift and Korea serving with the U.S. Air Force in the Azores from 1948 to 1951. He was the only dental officer assigned to Azores Island chain and furnished dental services to the American Forces as well as those of the Portuguese constabulary forces.

Doctor Triani served with the West Virginia Health Department between his two active military tours.

Pat, as he was affectionately known by his co-workers and health department employees throughout the Commonwealth, was interested in gardening, hunting and fishing and had a great love for all sports but especially football which he played at Gettysburg Academy and College.

Doctor Triani was a member of many organizations associated with dentistry and public health dentistry, particularly at the national level where he served as an advisor or consultant.

Doctor Triani is survived by his wife Nell, his daughter Theresa Carol in Richmond and one step-son Joseph Dockery in Columbia, South Carolina.

Memorial tributes may be made to the Scholarship Fund, School of Dentistry, Medical College of Virginia.
VDA STATEWIDE PROGRAM OF CONTINUING DENTAL EDUCATION IN VIRGINIA

March 2, 1983
SOUTHSIDE DENTAL SOCIETY

Best Western America House
405 East Washington St., Petersburg, VA
“Dental Implants”
Oscar H. Tatum, D.D.S.
Private Practitioner
St. Petersburg, Florida

March 18, 1983
SHENANDOAH VALLEY DENTAL ASSOCIATION

Lee-Jackson Motor Inn/Best Western
711 Millwood Avenue, Winchester, VA
“A Review and Update of Composite Resin Materials and Restorations”
Willie D. Crockett, D.D.S.
Professor of Restorative Dentistry, MCV/VCU
Richmond, Virginia

April 15-16, 1983
PIEDMONT DENTAL SOCIETY

The Homestead
Hot Springs, VA
“Oral Surgery/Pharmacology”
Martin J. Dunn, D.M.D.
Private Practitioner (practice limited to oral surgery)
Brockton, Massachusetts

April 20, 1983
RICHMOND DENTAL SOCIETY

Holiday Inn/Fanny’s
6531 West Broad Street, Richmond, VA
“Implant Dentistry”
Paul A. Homoly, D.D.S.
Private Practitioner
Hildebran, North Carolina
April 25, 1983
TIDEWATER DENTAL ASSOCIATION
Lake Wright Motel
6280 Northampton Boulevard, Norfolk, VA
“Practice Management”
Burton H. Press, D.D.S., President
American Dental Association
Pittsburg, California

April 29, 1983
PENINSULA DENTAL SOCIETY
Sheraton Patriot Inn
3032 Richmond Road, Williamsburg, VA
“New Thoughts on Operative Dentistry”
Bruce L. Bartos, D.D.S.
Private Practitioner
Fort Lauderdale, Florida

May 6, 1983
SOUTHWEST VIRGINIA DENTAL SOCIETY
Doc Run Lodge, Mile Post 189
Blue Ridge Parkway, Hillsville, VA
“Dynamic Practice Management”
Linda L. Miles
Consultant in Dental Practice Management
Virginia Beach, Virginia

May 11, 1983
NORTHERN VIRGINIA DENTAL SOCIETY
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Edward Hallberg
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For additional information refer to the Brochure you have on the Statewide Program of Continuing Dental Education in Virginia, March 2 through May 11, 1983.
Fluoride Program Reduces Decay by 49 Percent in Nelson County

Eight years after the initiation of a combined, self-administered fluoride program, tooth decay has been reduced by 49 percent among school children living in a fluoride-deficient area. Moreover, decay-preventive effects of the fluoride treatments still could be found after children had discontinued their participation in the program.

These encouraging findings were reported at the general session of the IADR by Dr. Herschel S. Horowitz and his coinvestigators at the National Caries Program, NIDR. The study began in 1972 in Nelson County, VA, a rural area where drinking water contains a fluoride concentration of less than 0.2 parts per million. Under the supervision of their teachers, children in elementary grades (1-6) chew, once-a-day, a sodium fluoride tablet containing 1 milligram of fluoride, and rinse weekly with a 0.2 percent sodium fluoride mouthrinse. In addition, a fluoride toothpaste is provided for home use. In 1978, 7th graders were added to the program and in 1979, 8th graders were included.

Before initiating the fluoride program, three NIDR dentists examined 2200 students in grades 1-12 to determine the existing prevalence of dental decay. In 1980, dental examinations of children 6-14 years of age, who had continuously participated in the program for one-to-eight years, depending upon their grade, showed an average of 3.22 decayed, missing and filled tooth surfaces, whereas, children the same ages who were examined at the start of the program had a score of 6.31 DMF surfaces. A 49 percent reduction in dental decay had occurred from 1972 to 1980.

Dr. Horowitz reported that fluoride treatments provided protection against decay in all three types of tooth surfaces. Since 1972, decay had been reduced by 37 percent on chewing surfaces of teeth, by 41 percent on the surfaces of teeth facing the cheeks and the tongue, and most strikingly, by 86 percent on the surfaces between teeth which are areas most difficult to clean and to detect if they decay.

Evaluation of 15-17-year-olds, whose treatments had been discontinued upon leaving elementary school three to-five years ago, showed evidence of strong post-treatment benefits, particularly in the surfaces between teeth.

The NIDR investigators point out that the combined fluoride program requires little time to administer, economical, and is well-accepted by the children. Participation has averaged about 90 percent in elementary school and about 70 percent in junior high school.

Fluoride Mouthrinsing in Schools Adds to Fluoridated Water Benefits

NIDR investigators report that mouthrinsing in schools with a diluted solution of fluoride either daily...
Weekly gives considerable additional protection against tooth decay in an area where the community water supply is already fluoridated.

In a recent study, Dr. William S. Driscoll and his team found no statistical difference in efficacy between daily and weekly rinsing. They advise that the weekly rinse is the better choice for school programs, because it requires less time, effort, and money.

Materials for a weekly rinse amount to about 60 cents per child per school year, whereas those for a daily rinse cost about four times as much.

The study was done in nine junior high schools in Des Moines, IA, where the water supply has been fluoridated since September 1959. Before rinsing began, Dr. Driscoll and a colleague examined 966 seventh graders to determine the existing amount of tooth decay. Each child was then randomly assigned to one of three study groups. One of the groups rinsed daily with a solution of 0.05 percent sodium fluoride; another rinsed weekly with a 0.2 percent sodium fluoride solution; and the third group rinsed weekly with a solution without fluoride to serve as a control. The 524 children remaining at the end of the 30-month test period were re-examined by their original examiners. Although their findings differed, both examiners showed clear-cut, decay-preventive benefits for both fluoride rinse procedures, compared with the control. The percentages of reduction in tooth decay ranged from 22 to 55 percent.

The Des Moines water has been fluoridated throughout the lifetime of these children, and scientists have shown that lifelong residents of fluoridated communities have only about half as much tooth decay as residents of communities with insufficient fluoride in the water. This study was undertaken to learn whether the decay that remains could be further reduced by fluoride mouthrinsing and, if so, to what extent. The findings strongly support the use of a weekly fluoride mouthrinse procedure in schools in fluoridated communities.
SEXUAL PROBLEMS ASSOCIATED WITH ORAL AND FACIAL INFIRMITIES

by

Marvin E. Pizer, D.D.S., M.S., M.A., F.I.C.D.*
and

David D. Dubois, B.S., M.S., Ph.D., F.R.S.H.**

SYNOPSIS

This article is intended to alert the general dentist and dental specialist regarding subject matter that is rarely found in dental and medical literature. Competent dental care includes a comprehensive knowledge of the patient's biological functions. The dentist should be alerted, therefore, to the sexual problems which may result from the treatment of the oral and maxillofacial region. Included are some suggestions for the management of these sexual problems.

The purpose of this article is to review and remind the dentist of sexual problems in the patient who has sustained injuries and infirmities of the oral cavity and face. There is minimal information available in the literature about the psychosexual aspects related to oral and facial injuries and infirmities.

The extent of an oral or facial injury may vary from a simple displaced tooth to complex multiple facial fractures. The complex injuries of the facial bones often result in damage to the ears, nasal cavity, paranasal sinuses, and orbital rims. Lacerations of the facial skin, lips, tongue, as well as loss of teeth are frequent findings.

Most patients are concerned about physical deformity and function. Numbness of the lips and face may accompany oral and facial fractures. Double vision is manifested when there are blowout fractures of the floor of the orbit. The patient can be reassured that surgery and dentistry can restore the face to normal appearance with good oral function.

Patients do ask questions that allude to sexual dysfunction; they frequently avoid asking specific questions regarding sexual function. They usually respond gratefully when the sex issue is mentioned by the doctor. A careful examination of the relationship between oral-facial injuries and sexual activity explain the patients' concern.

A common psychosexual disturbance can be caused by a blowout fracture of the orbital floor where vision is altered. Double vision, or diplopia, is a common result of this kind of injury. Grinker and Robbins (1954) report that loss of vision is associated...
with castration anxiety. The importance of the eyes in maintaining contact with reality must be emphasized. Sexual arousal is enhanced by visualization of the body and the movement of sex partners. Self-image of the patient may affect his/her sexual activities.

The external auditory canal of the ears is injured by some condylar fractures of the mandible. Grinker and Robbins (1954) refer to the erotogenic aspect of the external auditory canal as a source of excitation between lovers. Injury or surgery in this area could preclude erotic stimulation at this site.

Midface fractures frequently involve the nose. The treatment of nasal bleeding and fractures often necessitate the use of nasal splints or intra-nasal packing. The symbolic aspects of the nose, when injured, becomes a potential inhibition to sexual activity. The fact that the nose protrudes and discharges secretions make it identifiable with the penis. It also contains orifices and occasionally bleeds to symbolize the female genitals, according to Grinker and Robbins (1954). Lucente (1975) and Grinker and Robbins (1954) agree regarding the physical and psychological inadequacy which patients suffer with respect to the appearance of their nose. Though clinically unrelated to the pleasure of sexual activity, it is interesting to note that histologically the uterus and penis have erectile tissue similar to the nose. Grinker and Robbins (1954), Lucente (1975), and MacKensie (1884) described distention of the nasal erectile tissue during sexual excitement. These authors report sneezing, with watery discharge, after orgasm. Holmes (1950) noted that the mucosal changes in the nose during intercourse are affected by guilt or inhibition. Olfactory stimulation leading to sexual excitement was described by MacKensie (1884) and Kaplan (1974). Lucente (1975) and Kaplan (1974) speculate that human beings secrete odoriferous substances which stimulate and release sexual responses in the opposite sex. These are called pheromones and are possibly secreted by the apocrine glands of the male and female prepuce. Injuries to the nose impair the sense of smell, and therefore might diminish sexual arousal.

The minimal treatment for a simple fracture or dislocation of the teeth and alveolus is immobilization, and frequently, intermaxillary fixation. As a result of this operative procedure, the oral cavity is often hygienically neglected and halitosis results. Dubois and Pizer (1978) reported that kissing is undesirable, oral sex impossible, and breathing difficult during the stress of sexual intercourse. Speech is disturbed by the immobilized mandible, possible lacerated tongue, and loss of teeth. Inadequate verbal communication between sex partners is another deterrent to the sexual relationship.

The mouth acts as an organ of sensory pleasure, tactile exploration and social interaction. The oral cavity and lips are erogenous zones. Prugh (1956) indicates that in the older child and the adult these functions are utilized for sexual response. Facial accidents frequently involve a loss of teeth. Mellgren (1974) reported that to many people the loss of teeth means
incipient aging and associated desexualization. The loss of teeth may affect the patient's self image resulting in sexual disturbances.

Fracture appliances on the face, and intraoral and extraoral lacerations produce disabilities which prevent normal tactile sensation and personal closeness. Areas of sexual arousal are without sensation, and sometimes even painful. Sexual behavior is thus altered.

Post-operative pain or complications may decrease libido. The pain medication alone may interfere with sexual performance. Codeine, commonly used to control pain, is a central nervous system depressant and probably depresses the sex centers according to Kaplan (1974). Slow healing, infection, or other complications affect the patient's attitude which may result in mental depression and impaired arousal. Findings by Dubois and Pizer (1978) strongly imply that depression, stress, and fatigue resulting from facial and oral injuries produce profound sexual disturbances. The mechanism of impaired sexuality is not known. Some believe it is psychogenic in origin, yet others contend that the physiologic and endocrine alterations affect the central nervous system, the neurotransmitters, and the androgen level. Sexual activity may not be desired by the patient or partner for any of the above (or other) reasons. However, studies completed by Dubois and Pizer (1978) indicate that some patients, in spite of their disabilities, continue to maintain sexual activities.

The dental partitioner should be alerted to the psychosexual complexities related to oral and facial injuries.

Some suggestions the dentist can offer might include the encouragement of good oral and facial hygiene and assurance that the oral-facial impairment is only a temporary condition. When the patient does not respond to this reassurance, or when sexual dysfunctions persist, consultation with a psychiatrist or sex therapist is indicated.

SUMMARY

General dentists, orthodontists, and maxillofacial surgeons and other surgical specialties operating in the head and neck should be familiar with the potential psychosexual dysfunctions of these patients. Competent patient management includes the treatment of local disease or injury and the patient as a whole human being.

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CONTROLLING QUALITY

Chester A. Halterman, C.D.T.*

QUALITY CONTROL

Quality control is another way of avoiding errors—retakes and remakes due to mistakes—by controlling the quality of the work that leaves the laboratory. Quality control is directly linked to the correct interpretation of the dental laboratory prescription. Cost effective preventive measures regarding remakes saves the practicing dentist chair time and eliminates excessive trauma and stress for the patient. The dental technologist is indirectly responsible for retakes and remakes affecting patient care.

POSITIVE APPROACHES TO REMAKES

It is mandatory that the professional dental laboratory technologist fully understands that it is not his/her responsibility to practice dentistry or to assume that he/she knows what the dentist wants, but the technologist is responsible for correctly interpreting written and oral communication that explains the professional approaches and techniques that are used in the treatment plan. Errors can originate from three sources: 1. the dental office; 2. the dental laboratory; and 3. in transition from one to the other i.e., an alginate impression must poured immediately otherwise the impression can shrink and/or distort transition from the dental office to the dental laboratory. In turn, if the laboratory pours the same impression and does not take care to pour stone or plaster, the same effects occur with similar results. The following guidelines are helpful, positive approaches to take in order to avoid mistakes.

1. Clarification of prescription by the dental laboratory, translating the professional requests onto a laboratory work order.
2. Dialogue—Constant, continuing and ongoing dialogue with the dentist is mandatory concerning step-by-step procedures. This ongoing dialogue will result in real work between the dental technologist and the dentist, and is a courteous gesture on the part of the dental technologist.
3. Evaluation—One way to minimize mistakes is to evaluate the technical competency of the neophyte employee before assigning tasks. Start the new employee with minor projects.
4. Explanation—Explain unfamiliar jobs and emphasize the importance of accomplishing these tasks and how they affect the technical side of the dental laboratory organization.

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Discussion—When a technical error is made, there are three ways of discussing the error to prevent a recurrence. The technologist can say: 1. Here are the technical steps performed; 2. This is what actually went wrong; and 3. This is what can be done about it.

Employee participation—To resolve technical errors, a participatory approach should be used involving the laboratory staff, the employees, and utilizing guideline Number 5. Both management and personnel should have the opportunity and responsibility of solving and/or resolving technical problems.

Boredom sets in doing a job repeatedly without knowing why the job is necessary and by not becoming, or being allowed to become, involved in the overall manufacturing process.

Discipline—Consistency, firmness and respect is the route to take concerning remakes. Management should refrain from overreacting or “blowing up” under stress or irritation and should attempt to show enthusiasm and understanding when dealing with retake/remake problems. This positive approach is infectious and helpful in avoiding future errors. Reprimands should be methods of teaching and verbalized in the form of positive statements.

SUMMARY

Principles of leadership and guidance are established through trial, error, and mistakes. Employees are people, not puppets or robots, therefore it is a mistake to think people are not going to make errors. In fact, it is necessary first to teach and train employees about mistakes in order for them to learn to avoid making them. A leader who can make a mistake and learn from it is more successful than one who cannot make up his/her mind or admit to making a mistake. There should be an exerted effort on the laboratory’s part to avoid retakes and remakes by controlling the quality of the work. The technical staff’s total involvement and commitment is required to minimize technical errors and resolve technical problems.
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