

MOMENTUM

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News & Viewpoints for Eastman Dental Center Alumni & Friends

EDC

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Commencement

The second Friday in June brings the happy excitement of Eastman Dental Center's commencement. The high point of the afternoon for those students who have completed advanced training in general dentistry or one of the specialties is the awarding of certificates. Twenty-eight received them this year.

In three years an interlude of music performed by members of the EDC community has become a traditional part of the graduation ceremony. This year Dennis and Joyce Leverett (he is, of course, chairman of the Department of Community Dentistry) and four of their friends, splendidly played baroque music by J. B. Loeillet on recorders.

Dr. Harald Loë, dean of the University of Connecticut School of Dental Medicine and immediate past president of the International Association of Dental Research, was guest speaker. He delighted the audience that filled the auditorium. Here is what he said.

Rochester certainly has a reputation as a city noted for its bright minds and technological advances. In Connecticut it is also known for sending us much of our winter weather. Oftentimes, all we have to do is find out what the weather was like in Rochester yesterday or today, and we know pretty much what is in store for us in Hartford tomorrow—because that's how the winds blow.

I propose to talk to you today about how the *winds are blowing* in dentistry. More specifically, I wish to discuss the impact that research is having on dental education and practice. Looking at yesterday and today to predict the future, I hope to give you, who are embarking on your careers in dental medicine, some useful perspectives.

Objectives and perspectives are important as you journey on through your lifetimes. They can make you want to jump out of bed, excited about facing a new day. Shakespeare said it in these words: "The day shall not be up so soon as I, to try the adventure of tomorrow." On the other hand, the wrong perspective can make you feel like the rooster who said, "What's the use? Yesterday, an egg. Tomorrow, a feather duster."

Allow me first, for perspective, to look at where it has been.

What is the future of dentistry? Where is our profession going?

IN THE BEGINNING

It is a documented fact that caries has been a human concern for more than 3,000 years. We at the University of Connecticut recently had the honor to host Dr. Chu Hsi-tao, the leading dentist of the People's Republic of China, and he told us that the Chinese character for caries, still in use today, had been found on oracle bones from the Shang Dynasty, dating before 1000 B.C. The character

combines the ideographs for "mouth" and "worm" and shows the worm invading the mouth. That is because it was believed that cavities were caused by a tooth worm, an idea that persisted in some quarters of Europe until about 1850, perhaps because maggots from infested foods were sometimes found lodged in dental cavities.

The oracle bones from the Shang Dynasty, interestingly, were used to make inquiries of the gods. The inscription mentioning caries, presumably, was an early form of dental research. That's how it was. The mysteries of the human condition could only be settled by supernatural powers. The scientific approach was nonexistent. In fact, for most human diseases, *the scientific approach did not exist before the early decades of this century.*

Some of you may say: That's too sweeping a statement, too crude to be true. What about the medicine practiced by Hippocrates and Aristotle? Am I overlooking the contributions of Galen and his followers during the days of the Roman Empire and in the Middle Ages? What about the important discoveries during the Renaissance and shortly after of Vesalius, Michelangelo, Leonardo DaVinci and Harvey?

With all due respect to these giants and others whose discoveries were fundamental to understanding the human body, the fact remains that their work had only minimal impact on the treatment of sick people.

Throughout the ages leading up to the 20th century, the practice of clinical medicine, despite occasional sparks of intuition and inventiveness, was still based on guesswork and crude empiricism. Any plant and any half-baked idea that could be cooked up was tried on sick patients. There was bloodletting, lavements, infusions of various metals and juices from all thinkable (and many unthinkable) plants and animals, along with the weirdest diets, including total fast. The surgery of those times has been described as a veritable massacre, raw, painful and primitive.

The Chinese symbol for "caries" was drawn by Dr. Hsiao-Fann Chia, a second year Pedodontic student from Taiwan.

In retrospect, those 2,000 years up to the middle of the 1800s were characterized by probably the most frivolous and irresponsible experimentation on people ever seen in human history.

The approaches to the management of the diseases of the mouth and teeth were no different. Why should they have been? All treatment of disease was a coarse craft, reflecting the extended ignorance of physiology and pathology. Life was short, and experience difficult.

FROM PASTEUR THROUGH TWO WORLD WARS

And then something extraordinary happened. It happened on a farm at Pouille-le-Fort in France on three spring days, almost 100 years ago—May 5, May 31 and June 2, 1881.

Those were the dates on which Louis Pasteur first vaccinated 24 sheep against anthrax and left 24 others untreated, then inoculated all 48 animals with a lethal dose of virulent anthrax bacilli and, finally, displayed 24 dead or dying unvaccinated sheep on the grass while, nearby, the 24 vaccinated sheep grazed in perfect health.

Microorganisms and their role in disease had been discovered. In the context of all of human history, Pasteur's dramatic exposé was a brilliant flash after a long darkness of helplessness. It marked the advent of a *scientific approach* in the treatment of human diseases.

The enigma of infectious diseases had historically been of the gravest consequence to people's health. Millions had died in the plagues that swept at intervals across the European continent. Suddenly, Pasteur had changed all that. The impact of his research was, of course, profound and gave increasing support of the concept that, if the *causes* of disease and the disease *mechanisms* were understood, man's diseases could be controlled. His discovery led to the infection theory and the concept of specific etiology of human diseases. Other discoveries augmenting this *theory of specificity* were to follow, among them, vitamins, hormones, sulfa drugs and antibiotics. Within 50 short years, the majority of human infectious diseases were under control and, mind you, research, much of it without recognizable application in patient care, had made it possible.

It is interesting to note that as Pasteur, Koch and Ehrlich worked to refine the clinical application of the first microbial and antimicrobial discoveries at the end of the 19th century, the same principles of specific etiology were applied in the research on dental diseases. Like everybody else, W.D. Miller was fascinated by the dazzling developments in microbiology, and as everybody knows, he conducted a series of fundamental experiments on the ability of salivary microorganisms to produce organic acids through the process of fermentation and the relationship of these acids to the dissolution of tooth enamel. This work laid the foundation for the "Chemical-Bacterial Theory" of the development of dental caries. However, this theory was to have little impact on the research into the etiology of caries or the prevention and treatment of dental caries during the next 50 years.

There are several explanations for the relative absence of efforts to follow up this research during subsequent years. One was that the dental research enterprise was generally weak; another was that several important developments in research in nutrition and in biochemistry tended to direct attention to other problems. Perhaps the most prominent factor influencing the treatment of dental diseases between the two world wars was the theory of *focal infection*.

The focal infection theory held that infections of the dentition had several medical consequences, and that these at

times could be life-threatening. There followed, as some would remember and others have experienced, a worldwide extraction fury, during which millions of teeth were removed on dubious criteria, and the prosthetic art flourished. This movement represents an excellent example of what might happen when erratic, non-substantiated and non-scientific concepts gain access to the clinical repertoire. The fact that it did happen is explained by the weakness of dental research, especially in the educational institutions. Dental education at that time was essentially a technical training in exodontia, "drill and fill," and in the production of prosthetic appliances.

Through World War II the diseases and conditions under the purview of dental medicine were at best treatable, and even as late as 1950 it is difficult to classify any of the main oral diseases as preventable.

Caries. The caries preventive effect of fluorides was fundamentally and experimentally clarified at that time and practice modes of application were introduced to a limited extent. Clinical assessments of long-term exposure to systemic or local administration of fluorides during the last three decades have produced a wealth of statistical data demonstrating that optimal treatment with fluorides will reduce the prevalence of tooth decay by 40% to 60%, and more recent assessments of the cumulative systemic and local effects of fluorides indicate a reduction of caries close to 75%. Rampant caries is now a rare find in communities with water fluoridation or in children who are the beneficiaries of systematized topical application of fluorides. Since loss of teeth is also a major cause of malocclusion and masticatory problems, it follows that the reduction in caries also decreases the need for orthodontic treatment during adolescence and for prosthodontic appliances during later adult life.

A RESEARCH RENAISSANCE

The postwar period saw a resurgence of oral microbiological research. There is now agreement that caries is an infectious disease, that this infection is transmitted, and that the cariogenic streptococci as part of their energy metabolism are capable of fermenting sugar, and thereby producing organic acids, which in turn will dissolve the tooth enamel. It is important to note that the results of this basic microbiological research are already applied in clinical education and patient management, and that it is now possible to make bacteriological diagnoses prior to the initiation of the caries attack and to identify individual high-risk patients and risk groups for special treatment and counseling. Using current information from caries microbiology and immunology, animal experimentation is well underway to explore the possibility of developing a vaccine against dental caries.

Periodontal Diseases. Perhaps the most dramatic scientific contribution to dental medicine during the last 30 years relates to the understanding of the etiology and pathology of periodontal diseases and their treatment and prevention. In order to fully understand the revolutionary importance of this research, it is necessary to have experienced the complete confusion that dominated this problem area, even as late as the 1950 s. Now, 25 years later, scientific research has defined in broad principles and, in some cases, finer details of the mechanisms of initiation and progression of these diseases. Based on the fundamental realization that the active pathogenic agent is bacterial in nature, and that control of these microorganisms can be accomplished through mechanical and/or chemical means, there are now substantial data to show that periodontal

disease is preventable, a fact that, along with the advances in modern cariology will have a dramatic impact on dental education and dental practice.

Dental Materials. The first results from experiments with new filling materials were reported from Eastman Dental Center some 15 to 20 years ago, including composites and acid etch techniques for bonding of synthetic restorations to enamel. Dental treatment including these materials and methods is now commonplace. In addition, the status of the research in this area is such that strong and durable adhesive bonding between synthetic materials and dentin is to be expected within the not-too-distant future. Research in dental materials has already had significant impact on clinical dentistry but, if and when adhesive bonding to both dentin and enamel is perfected, the practice of dentistry will be profoundly altered. Principles for cavity preparation, which have been in effect for almost 100 years, will be radically changed, and it has been estimated that as much as 80% of the drilling will be eliminated. I do not have to spell out to this audience what this would mean. Suffice it to say that the effects on both dental education and dental practice of these developments will be radical.

There are several other areas that deserve mentioning: cranio-facial research; the use of computer technology in diagnostic, therapeutic, and prognostic approaches to orthodontic problems; the new technologies in imaging in radiology; research activities in pain control; and last, but not least, the entire area of behavioral sciences.

Yes, the last 30 years have seen a great advance of the frontiers of dental knowledge through scientific research. We have gone from ignorance to understanding. Caries and periodontal disease, man's major dental diseases, are now clearly controllable and essentially preventable. This fact alone is bound to affect dental education enormously at pre- and postdoctoral levels and to influence the nature of general practice and the need for specialties.

THE FUTURE

It is my judgment, based on my own biases and perceptions and those of others, that the impact of research on our profession over the next 20 years will be gradual, but profound.

The declining incidence of dental decay in children, for example, will reduce the need for restorative care in the young, and so reduce the need for pedodontic practice as we know it today.

Also, realizing that the basis for diagnosing periodontal diseases has greatly improved, the rationale for various treatment approaches is well defined, and the fact that most procedures utilized in the prevention and treatment of these diseases are relatively simple, it is my opinion that the predoctoral curriculum will be rearranged to prepare general practitioners for assuming responsibility for the management of the majority of periodontal diseases in the future. Such a development would, of course, have a profound effect on the need for periodontists.

Tooth mortality is decreasing significantly and will continue to decrease. The need for full and partial dentures will decrease accordingly.

The demand for fixed appliances (crowns and bridges) replacing occasionally lost teeth is likely to increase, and recalls will be more frequent.

Family dentistry is sure to become more widespread as pressure builds for dentists to be more versatile and able to cope with the full scope of oral problems and a multitude of preventive and therapeutic procedures. Incidentally, these developments are already taking place, and are estimated to

hit the profession with full impact around the turn of the millennium.

The coming changes in our profession, some of which I have mentioned, need not be threatening, even though they may appear to approach crisis level for some. They can be handled, if we are prepared for them and remain adaptable.

I am reminded that the word for "crisis" in the Japanese language is "kiki." When written, the first syllable is represented by a character that means "threat" and the second syllable by another character that means "chance." I find it intriguing that a crisis can be shown as being *half threat and half opportunity*.

To reinforce that point, I will leave you, in closing, with a little experience of mine, which I offer as a kind of parable.

A few years ago, some colleagues and I were doing research on a tea plantation in Sri Lanka, formerly known as Ceylon. We were setting up a clinical facility to perform oral examinations of the laborers on the plantation, but the house we were to use was in very bad shape. A window, especially, needed a great deal of repair. I found a Sinhalese carpenter and drew a little sketch for him, showing how it should be fixed. I went on with my own business and, when I came back several hours later, I found that the carpenter had made a pretty bad mess of things. It was going to be difficult ever to make that window look like a window again.

The poor carpenter sensed my unhappiness and meekly explained that he had tried to follow instructions. When I asked him why he had not used his common sense, he pulled himself up to his full height and replied with great dignity, "But common sense, sir, is a gift of God. I have only technical knowledge."

To the graduates here today I say: Don't be like that carpenter. Use your technical knowledge, yes. But use your common sense, too. If you do, I promise you that you will not only weather the changes, but you will be able to use them to your advantage. Remember: life is on the side *not* of those who sulk on rainy days, but those who make umbrellas! I wish you fulfilling careers and great happiness in your lives.

Staff News

In Memory

Michael G. Buonocore, chairman of EDC's Department of Dental Materials and clinical associate professor of dental research at the University of Rochester School of Medicine and Dentistry, died of Hodgkin's disease on Tuesday, July 7. He was 62.

He has been called "the father of adhesive dentistry," and certainly his work on adhesives ushered in a new era in dentistry.

He received a B.S. and an M.S. in chemistry from St. John's University, and earned his D.M.D. from Tufts Dental College. He served a two-year stint as a captain in the United States Army Dental Corps. He was a member of the ADA, the AADR, the New York Academy of Science and a

Fellow of the American College of Dentists.

The ADA honored him with its preventive dentistry award in 1971 and the IADR with its science award in oral therapeutics in 1974.

He was the author of several score papers and abstracts and edited the volume, "The Use of Adhesives in Dentistry," a definitive text.

Two friends spoke at the memorial mass for Michael. The first eulogy was by Dr. Odd B. Sveen.

"Michael Buonocore was a very special man. He was a man of quality. Quality was reflected in all aspects of his life and was very obvious in his chosen profession.

"His numerous talents and the ability to utilize them projected him to the forefront of his field. . . The results of his research brought a new era to dentistry and will continue to influence the direction of dentistry in years to come.

"Not only was Mike a researcher. He was also an excellent clinician. The quality of his clinical work like his research was outstanding.

"Michael Buonocore was also a teacher. His students came from all parts of the world. . . He guided them to their goals with encouragement, stimulation and patience. . .

"His many accomplishments did not change his nature. He was a gentle man who showed deep concern for others. He was a dear and true friend. . .

"He will always be remembered for his many contributions, his fairness, enthusiasm and optimism.

"He will be missed by us all."

Dr. D.G. "Andy" Andronoco said:

"Each of us remembers different Michaels. . .

"Michael remembered. The young dental student, already interested in research, earning honors at Tufts but enjoying the student life.

"Michael remembered. A firm friend through our years of growing families and developing careers, pursuing a wide range of interests, from exploring caves to playing cards.

"Michael Buonocore remembered. What an appropriate surname! Michael Goodheart, loving and kind, as a family member, there when needed, helping us to grow to meet our own goals, and trying not to beam with unseemly pride in the achievements of Myra and Dr. Janet and Dr. Michael.

"Michael remembered, who during these last trying weeks asked for a passage from Kahlil Gibran's *The Prophet*.

'Fare you well, people of Orphalese.

This day has ended.

If in the twilight of memory we should meet once more, we shall speak again together and you shall sing to me a deeper song.'

"And for as long as we remember these Michaels, so will he live."

At the request of the Buonocore family, those wishing may make donations in memory of Dr. Michael G. Buonocore to EDC's research fund.

Alumni News

MARILYN J. BRADSHAW, Intern '50, was one of ten periodontists on the panel at an NIDR workshop, "Surgical Therapy for Periodontitis," held at NIH in May. She writes from Honolulu, Hawaii, where she practices periodontics, "The purpose of this state of the art workshop was to assess the surgical treatment of adult periodontitis. . . (and) one major concurrence beyond the scope of the workshop was that earlier diagnosis and referral by general dentists would resolve the need for as much surgery as is currently indicated." A summary statement from the workshop will be published.

JAMES H. BUTLER, Perio '67, is now chairman of the Department of General Dentistry at Virginia Commonwealth University School of Dentistry. He says, "This is a new department resulting from a merger of Community Dentistry and Occlusion. Previously I had been chairman of Occlusion."

FRANK VALENTINE, Pedo '69, has been elected president of the New York State Association of Pediatric Dentists. He will serve a one-year term.

CHARLES M. BRENNER, GenDen '74, Pedo '76, was invited by the American Board of Pedodontics to display his case histories at the table clinic session of the annual meeting of the American Academy of Pedodontics in Philadelphia in May.

ANTHONY M. MAZZATTO, GenDen '75, is practicing periodontics in Toronto.

ALAN H. GOLDEN, Pedo '76, was recently appointed assistant clinical professor in the Department of Pedodontics at the Medical College of Virginia. He is the Washington metropolitan area media spokesman for the American Academy of Pedodontics.

PATRICK ELLIS TREASURE, GenDen '77, M.S., '81, and **DEBORAH ELLIS TREASURE**, formerly secretary to EDC's director, "announce with joy their marriage" on Saturday, April 11, in Seattle, Washington.

PETER R. BARNETT, GenDen '79, is now assistant director for administration, Office of Clinic Management, at the University of Pennsylvania. He says, "Daughter Regina, 14 months, has been walking for five months, but only has five teeth. Saw **ALAN SELTZER**, GenDen '79, at a course in Philadelphia on capitation dentistry. Talked with **BOB ADLER**, GenDen '79, who's setting up his own practice in Toronto. Saw **STEVE ABEL**, GenDen '79, and **PHYLLIS BRUNETTE**, **STAN HANDELMAN**, **BEJAN IRANPOUR** AND **BILL MCHUGH** at AADS in Chicago."

CHUNG-MING TSE, GenDen '79, writes from Australia: "My six-month appointment with the Perth Dental Hospital was terminated in March 1981. Since then I have been with the Public Health Department in the Dental Health Service as an Itinerant Dental Officer. I am working on a mobile clinic and travelling widely in Western Australia to deliver dental care to the remote outback area. I really enjoy this position because I am meeting friendly, interesting country folks, and I am touring some of the most scenic spots of



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Australia. The work load of dentistry is demanding and the working condition is harsh at times though. Right now I am writing from Esperance region, where I shall stay for about four weeks taking care of farmers and school kids."

Board of Trustees

DOUGLASS C. HARVEY, JAMES C. HENDERSON, PHILLIP HORSLEY and EDWARD T. WENTWORTH have recently been elected to EDC's Board of Trustees.



Mr Harvey is executive vice president and general manager of Eastman Kodak Company's U.S. and Canadian photographic division. He is a member of the board of Kodak and is active in numerous civic organizations. He is chairman of both the Rochester YMCA board and the Clarkson School of Engineering advisory council. He is a trustee of Alfred University, a director of the Memorial Art

Gallery, a member of the executive board of the Otetiana Council of the Boy Scouts and a member of the Rochester Rotary Club and Chamber of Commerce.

He is also a member of the National Academy of Engineering, the American Optical Society, the Photographic Society of America, the Society of Professional Scientists and Engineers and the Rochester Engineering Society.

Mr. Harvey graduated with highest distinction from Purdue University where he received a B.S. degree in mechanical engineering.



Mr. Henderson, who graduated from Syracuse University with a B.S. in physics in 1953, is president and chief executive officer of Rochester Telephone Corporation. He has many affiliations both in corporate and community sectors. He is a director of Rochester Telephone Corporation, Marine Midland Bank, Ontario Telephone Company, Trumansburgh Home Telephone Company and Genesee

Brewing Company. In addition to his responsibilities for Rochester Telephone, he serves as president and director of

Sylvan Lake Telephone Company, Highland Telephone Company and Rotelcom. He is a trustee of the Industrial Management Council and the Rochester Philharmonic Orchestra Fund, a member of the founders committee of the Rochester Convention and Publicity Bureau and a director of United Way of Greater Rochester.

Mr. Henderson is a licensed professional engineer in New York, Pennsylvania and Ohio.



Mr. Horsley is vice president for investments at the University of Rochester. Before joining that institution, he was affiliated with Dominick & Dominick, Inc., as vice president, and with Citibank, N.A., as assistant vice president.

He was appointed to EDC's finance committee and says, "I am very excited about my election to the Board of Trustees of Eastman Dental Center."

Mr. Horsley received his bachelor's degree in economics in 1960 from the University of Utah and earned an MBA with a concentration in finance from Cornell University Graduate School of Business and Public Administration in 1962.

He is a member of the Rochester Society of Security Analysts and the Institute of Chartered Financial Analysts. He sits on the investment performance review committee of United Way of Greater Rochester.



Dr. Wentworth, a dentist in private practice, earned his B.S. from Harvard in 1943. He was a captain in the U.S. Army field artillery during World War II. In 1950 he received his D.D.S. from the University of Pennsylvania.

He is an attending dentist in the Department of Dentistry of Rochester General Hospital and a clinical instructor in the Department of General Dentistry at Eastman

Dental Center.

An active member of numerous professional societies, he has served as president of the dental section of the Rochester Academy of Medicine, the Rochester Dental Study Club and the Monroe County Dental Society. He is currently chairman of the ethics committee of the Seventh District Dental Society and has chaired the peer review committee of the Monroe County Dental Society.

In addition to his dental commitments, Dr. Wentworth is a dedicated member of the community. He is an elder and past Sunday school teacher at Third Presbyterian Church. He has been a missionary dentist in Puerto Rico. In 1968 he organized the dental clinic for the Monroe County Penitentiary.

Alumni News Notes are due by September 15, please!

Name _____ Dept. _____ Year _____

New Home Address _____

New Business Address _____ New Title or Position _____

Other News _____

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