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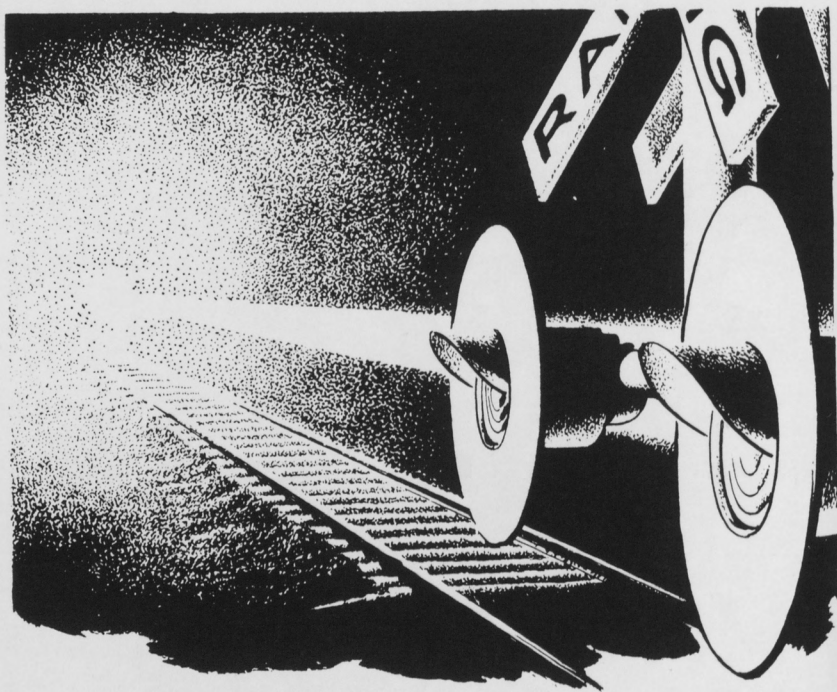
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Volume 59

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Number 2





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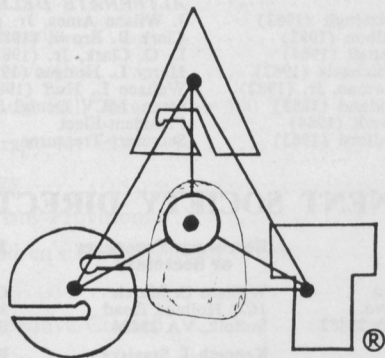
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COVER

VDA President Bennett A. Malbon presents
Dental Health Month Poster to Governor Charles S. Robb

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EDITORIAL

THE MEANING OF CONTINUING DENTAL EDUCATION IN VIRGINIA

MCV's Division of Continuing Dental Education was one of the first approved continuing education sponsors selected by the National Committee on Continuing Dental Education following program evaluation by that organization.

The MCV School of Dentistry, the Virginia Dental Association, and the individual dentists of the State can take pride in this commendable achievement because all three play a vital role in assuring quality continuing dental education in Virginia. Without the cooperative effort of these three agencies the entire CE system would collapse just as a three legged stool would not stand with a missing leg; this illustrates the intermingling dependency of all concerned with maintaining this benevolent project.

The dental school, since it is the State's only School of Dentistry, has an everlasting and lingering responsibility to provide needed CE for its graduates as well as other dentists coming into the Commonwealth to practice.

The Virginia Dental Association, as well, is concerned not only for the education of its dentist members but this implied obligation is coupled with the fundamental aim of preserving the dental health of the citizenry and insuring that obsolescent methods of health care be reduced.

The individual practitioner is obligated to attend and take advantage of the new knowledge he gains. The effort pays priceless dividends that cannot be ignored: Improved practice technics, performed more skillfully and with less effort and time. The better informed dentist is more confident and with that confidence comes an increased feeling of pride in services well performed. Such an air of confidence automatically transfers to his patient who feels better as a mutual good relationship develops. The confident practitioner who takes pride in his accomplishments has no problem in convincing his patient that he cares for his well being. The result is a satisfied patient less apt to be angry. It is the angry patient that is more likely to bring suit, but a caring dentist is rarely sued. Then, above all, the patient has received excellent quality dental treatment at less cost with improved efficiency.

We, in Virginia, have demonstrated good faith in supporting continuing dental education. We have had excellent programs and they will improve as we continue our good faith in supporting CE in the future. To do less would be inviting unthinkable and uncomfortable results of forced CE. A coordinated effort on the part of all parties involved will avoid the evils of keeping external forces out of our CE effort and obviate inappropriate impositions of outside interference where decisions are made for us by people who lack insight into the true needs of the profession. Such an untenable system would diminish good dental health care for our patients and that defeats our primary objective.

Concerted efforts toward insuring the best in Continuing Dental Education in Virginia are wholly dependent on an enduring and harmonious relationship between the triumvirate of the MCV School of Dentistry, the VDA, and the practicing dentists. Aristotle said, "It is by education, I learn to do by choice, what other men do by constraint of fear."

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

CALENDAR OF EVENTS

(Mark your calendar now for these future meetings)

VIRGINIA DENTAL ASSOCIATION COMMITTEE MEETINGS

May 28-30, 1982, Cavalier Oceanfront Hotel, Virginia Beach

VIRGINIA DENTAL ASSOCIATION 113th ANNUAL MEETING

September 9-12, 1982, Marriott Twin Bridges Hotel, Arlington

VDA LEADERSHIP CONFERENCE

October 15-17, 1982, Wintergreen, Virginia

AMERICAN DENTAL ASSOCIATION 123rd ANNUAL MEETING

November 6-9, 1982, Las Vegas, Nevada

CLINICAL CONTROVERSIES

THE CAST METAL-RESIN BONDED PROSTHESIS

THE DAWN OF A NEW ERA?

By *Joseph N. Tregaskes, D.M.D., M.S.*
Richmond, Virginia

Over the past several decades, the field of fixed prosthodontics has seen a number of major changes with the majority of these being related to the area of dental materials. For the most part, however, our basic concepts and techniques have remained the same.

In 1973, Dr. A. L. Rochette first described the attachment of a metal retainer to enamel for periodontal splinting. This was a beginning. Nine years have produced many changes ranging from design and structural concepts, to the development of new materials and techniques for use with the prosthesis. The most significant change occurred in 1979 when Tanaka and Associates described the etching of metal to provide a retentive mechanism for resin veneers on complete crowns. This led researchers to investigate its use with the resin bonded retainer. The result is an enamel-resin-metal bond which is far superior to the enamel-resin mechanical retention mechanism employed in the perforation design resin bonded retainer. Etching techniques for several different metals have been described by researchers at the University of Maryland. Extensive investigations into metals and applications for this prosthesis are also being conducted at the Medical College of Virginia School of Dentistry.

Clinical applications are limited only by the adherence to sound basic principles, an understanding of materials, and the imagination of the clinician. Its current use involves the replacement of anterior and posterior teeth, splinting of periodontally weakened teeth, and fixed retention following orthodontic therapy. We may also see application in removable prosthodontics for creating vertical rests and splinting weak abutment teeth.

Advantages of the Resin Bonded Prosthesis:

1. It is a fixed restoration.
2. Conservative tooth preparation. (Usually less than that required of an abutment for a removable partial denture)
3. Generally there is improved esthetics since enamel remains on the abutment teeth.
4. The clinical phase of the restoration is simplified. (This does not apply to the laboratory phase)
5. Major reduction in cost to the patient.
6. The procedure is reversible.

Limitations and/or Disadvantages of the Resin Bonded Prosthesis:

1. Any teeth that do not provide an adequate surface of enamel should not be used as abutments.
2. The restoration is not indicated when the occlusion does not permit adequate metal thickness for the retainer. This will occur primarily in the anterior region.
3. Insufficient clinical crown length can be a problem, especially in the posterior regions. This can, however, usually be altered with crown lengthening procedures.
4. The occlusion is difficult to refine at the time of try-in due to the lack of retention at this point.
5. Bonding procedures are more difficult than conventional cementing techniques.

It has been reported in a study done at the Medical College of Virginia School of Dentistry that careful isolation and etching techniques are essential to the success of the resin-bonded prosthesis. The patient should also be informed that rebounding of the prosthesis may be required, but this does not essentially compromise the usefulness of the prosthesis.

While the resin-bonded retainer is not meant for everyone, or in every instance, by selecting our patients carefully we can provide a great service through this mode of therapy. Only time will tell whether this is indeed a "long term" restoration. Let us hope that the near future provides many new, creative ideas, both for the benefit of our patients, and for dentistry.

ADA SURVEY

The Bureau of Economic and Behavioral Research, in conjunction with the Department of Membership Services, is updating its survey on the distribution of dentists in the United States and its possessions.

In addition to locating all dentists, this year's survey is designed to provide information on the distribution of specialties and types of practice (e.g., private practice, Armed Forces, hospital staff, student).

If successful, this survey will significantly improve the quality of information available for decision-making and planning related to the distribution of dentists. To ensure its success, all dentists are urged to complete and return the form promptly.

Spirit of Darwin Still Alive After 100 Years

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

and

*Felix E. Shepard, D.D.S.***

Charles Darwin died a century ago, 19 April, 1882, in the plain, secluded house, near London, where he had lived for forty years.

He was born at Shrewsbury, Shropshire, on 12 February, 1809, the son of Dr. Robert Darwin, well to do practicing physician in that community, and grandson of the famous Erasmus Darwin, also a physician and English scientist and poet. His mother, Susannah, was a daughter of Josiah Wedgewood who rose to his position of fame as the country's greatest potter. She died when young Charles was but eight years of age leaving him in a household largely run by older sisters.

Widowers were not rare in those days, and Dr. Robert felt no apparent need to act the mother while he had daughters, and servants, able to take that part. Yet, he loved his children despite the conventional picture which usually portrays him as an autocratic, rather overbearing man, the firm master of his house, but neither violent nor unreasonable. His children, six in all, lived the lives they wished, comfortable even to the point of indulgence in the manner of an upper class

English family of the times. The two sons, Charles and his older by four years, Erasmus, never pursued a career that Dr. Robert chose, nor were they ever threatened with economic reprisal for decisions they took, and both, especially Charles, remained on good terms with the father throughout his life.

Charles was educated at Shrewsbury school under the tutelage of the later famous Dr. Samuel Butler. But Charles worked only as hard as he was driven by a sense of duty. Unenlivened by the slightest enthusiasm, he did not distinguish himself in the eyes of his teachers, yet he was not a failure. His best efforts he kept for what really interested him, which was natural history, and an unquenchable itch to collect all forms of life in the surrounding countryside. Since this was not regarded as a mark of scholarly endeavor his elders steadily came to the conclusion that he was essentially indolent—a belief which he also came to share as he was easily moved to feelings of guilt. But his unrewarded interest in nature and all of its elements was to form a continuous drive that dominated his life and led him ultimately to the great fame that came to him and changed man's viewpoint on life as has seldom been witnessed.

The father saw Charles' student

**Professor Emeritus, MCV, presently part-time Department of Oral Pathology.*

***Associate Professor, Department of Restorative Dentistry, MCV.*

years as marred by constant failure. Charles love of shooting was a part of his general delight in observing nature and the open air, and it was also one element in the sporting heritage of a gentleman. Later he would take more pleasure in riding but now it was the gun that fascinated him. But even more than shooting, natural history and particularly the collection of beetles became the focus of his energies.

In 1825, following his father's suggestion, he enrolled at the University of Edinburg to prepare for the medical profession, a mistake that was a greater failure than the Shrewsbury experiment, he was just sixteen years old. Unable to engender the proper energy to stimulate an appetite for the profession his attitudes toward his course of study are best described by items he wrote in his diary. For example: A letter from home was "a great relief after hearing a long stupid lecture from Duncan . . . Dr. Duncan is so very learned that his wisdom has left no room for his sense." And again he remembered Dr. Duncan and his purgatorial lectures on *Materia Medica*: "A whole, cold, breakfastless hour on the properties of rhubarb." As for Munro on Anatomy, "I dislike him & his lectures so much I cannot speak with decency about them. He is so dirty in person & actions." We can add here that these comments by Charles Darwin are not examples of his better creative spirit but they are priceless commentaries, a continuation of the eternal barb of the eternal student and just as eagerly repeated today as they were by Dar-

win as well as those before his time. Darwin simply lacked interest in his course work—he found it unstimulating and boring. Students normally have difficulty performing well in courses outside their realm of interest. It is a tale oft' told, full of sound and fury, perhaps signifying nothing; though some present day educators, lacking the direction of history, would devise all manner of twisted curricular revolutions to the tune of "Say it is'nt so" and to the added chagrin of those who are taught and those who do the teaching. Darwin's undoing as for a medical career perhaps culminated with his experiences in the operating theaters which finally destroyed what medical ambitions he had left. He watched "two very bad operations, one a child, but rushed away before they were completed." He never returned; the agony of patients before the days of general anesthetics was more than he could bear.

Returning to Shrewsbury, thoroughly disenchanted with medicine, he found it even more difficult to face his father. For the activities he shied away from were those his father approved, and those that had captured his imagination were peripheral, in his father's view, to the life of a properly occupied gentleman. The enigma facing Charles was that what he chose to take seriously was regarded by all, including his family and friends, a pleasant hobby. The definition "scientist" as a profession hardly existed. Even in the few universities the sciences were still establishing themselves and those who pursued such

interests were lawyers, medical men, soldiers, sailors, clergymen, or wealthy individuals with little else to do. But Charles was determined and his father tolerant.

In 1828, Dr. Robert Darwin decided to send Charles to Cambridge, this time in pursuit of the DD instead of the MD, for it was the intention of having him qualify as a clergyman that motivated the decision. Charles accepted his fate as an atonement to his father more than any ambition he entertained for life in a vicarage.

He always remembered Cambridge with fondness and moments of nostalgia. His academic performance was poor but not a failure. Yet, he did seek opportunities to give full vent to his peripheral interests by continuing his studies of natural history and found others who were equally stimulated; it was with these friends that he devoted his energies and time. What really played the major role and altered his future was his association with and friendship for Professor Henslow who became Darwin's mentor in natural history. By his second year Charles established an enviable reputation among the small but important nucleus of Cambridge scientists. Henslow had helped construct whole areas of Cambridge intellectual life. He, and the older Sedgwick, organized the Cambridge Philosophical Society promoting the sciences and natural history. It was fitting for Darwin to be a member of the team.

By the end of January, 1831, Darwin knew that he had obtained his degree, a prize that actually made him miserable. He reluctantly faced leav-

ing so pleasant a place as Cambridge. He wrote, "I have so many friends here (Henslow among the foremost) that it would make any place pleasant." Then too the prospect of becoming a clergyman held no appeal for him.

A rare stroke of luck cleared the path of such a dismal future at this crucial moment in Darwin's life. The Admiralty planned to update their charts so as to provide accurate data concerning South American waters. The HMS *Beagle*, a relatively small but substantial ship was outfitted for the voyage and placed in command of the youthful Captain Robert Fitzroy, competent, exacting, and dedicated in his endeavor. Fitzroy, wishing to give the expedition scientific respectability, decided to invite a naturalist to accompany him, and he needed companionship. Indeed, it is possible that he also believed that science would prove the truth of Genesis. With his deeply religious convictions, his ideas were more those of a general fundamentalist. It is a strange quirk of fate that the two men who were at such opposite poles of thought would share such an intimate relationship on this voyage of earthshaking importance. One who could be defined in today's term, a Creationist, the other, progenitor of the Theory of Evolution. And yet they came together and remained friends for many years though Fitzroy finally denounced Darwin publicly following the appearance of *The Origin*, claiming memory of his shipboard protests against his companion's reservations over divine revelation. Fitzroy, ob-

sessed, in his later years, by a growing zeal and monomania for his fundamentalist Christianity, died by his own hand; it was his last gesture of bitter bewilderment for what he considered the irreverent doings of a blasphemous world.

Henslow was responsible for procuring the appointment for Darwin to sail with the *Beagle*. And after numerous delays, mingled with misgivings by Charles' father, who reluctantly consented to the voyage, the small ship slipped anchor 27 December, 1831, two months behind schedule. She was not to return for five long years.

They were five glorious years for Charles, spent completely circumnavigating the Earth. Visiting strange new lands afforded him the opportunity to collect massive amounts of local flora and fauna as well as fossil specimens, all sent back to England from the nearest convenient port. But greater yet, his keen mind, honed to knife edge sharpness, provided him with almost supernatural powers of observation marked with insights and perceptions hastily scribbled in notebooks that guided him to fruition of the implanted nucleus of his evolutionary thesis. It was all in the diligently prepared and seminal nature of the *Notebooks* that he was to draw on for the remainder of his intellectual life. And he was seasick during the entire voyage except on rare occasions when the seas were calm and placid.

Upon return, Darwin was soon wedded to his cousin Emma Wedgwood, and led a life of serenity marred

by intermittent illnesses, during which he was carefully nursed by his devoted wife. At first living in London, within a few years he moved to Down House located sixteen miles from the city in the Kentish chalklands. There he remained for forty years until his death.

The tranquility of the setting of Down gave him refuge from the coal smoke and soot of a million fires in London and the hustling distractions of the city. And yet he was close enough to make needed visits when required, to attend scientific sessions, or visit his small circle of friends. Other than that, he lived the life of a recluse, working from his notes and preparing assorted papers to be read before scientific societies he chose. Then there was the book, a work nurtured for many long years characterized by delayed publication. Purposefully? Meantime he achieved recognition as a scientist of respected eminence.

In June 1858 Darwin was shocked severely upon receiving an essay from Alfred Russel Wallace postmarked from Ternate, a small island in Malaysia, outlining Wallace's own theory of evolution. Independently he had essentially abstracted an unpublished manuscript prepared by Charles in 1844 in which he declared his own theory of natural selection. Darwin placed himself in the hands of Lyell and Hooker who decided to send Wallace's essay and an abstract of Charles' manuscript to the Linnean Society for purposes of a joint presentation on 1 July, 1858. Neither paper created the expected outcry

and furore although Hooker felt that there was an intense interest among the audience.

On November 24, 1859, Darwin published his great work, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. The entire edition of 1,250 copies was sold out on the day of issue. Although others before Darwin had conceived the idea of evolution, none had thought out and marshaled the evidence in a manner bearing any comparison to his. A storm of controversy arose over the book, reaching its height in the ensuing debate conducted that year, 1860, during the annual meeting of the British Association for the Advancement of Science. Though others spoke, Huxley and Bishop Wilberforce were the main opponents. Huxley carried the day for Darwin with his brilliant logic whereas it was quite obvious that the good Bishop, less familiar with the real intent of the book, was more concerned with presenting a sonorous rhetoric, delivered with appropriate episcopal gravity, intended for defence of a Victorian deity. The world was never to be the same again.

Twenty-two years later, and with further publications including more books to his credit, Darwin died in his beloved home Down. By now he was a legendary hero of science. But to others he remained a demon as, indeed, he does today in all the ridiculous guise such a notion purports. About the time of Darwin's death the people of Darwin's native Shrewsbury were proposing to set up a monument

to his memory. An obdurate minority stood out against this decision; they wanted no sign in their town indicating that the godless Darwin had been born and bred there. At the height of this controversy, a gale came slashing across this peaceful section of the West Midlands and tore down the spire of Shrewsbury's St. Mary's church.

Rev. Newdigate Poyntz, the vicar, declared the message as a clear and indisputable expression of God's anger at Shrewsbury for considering such an honor celebrating a heretic; they had been given a divine warning. The *Shrewsbury Chronicle*, however, remarked that "the fall would have been much more impressive, and much more likely to have its intended effect, had it happened upon a windless night"; it also pointed out that "a judgment at St. Chad's, where the vicar is supporting the memorial, would seem more appropriate than a disaster at St. Mary's, where Mr. Poyntz is free from any complicity in the matter."

In his seven decades, Darwin had altered the way human beings thought about the world they inhabited, the creatures they shared it with and, above all, themselves. He had proposed and seen accepted a history of living things quite different from that which prevailed when he was young. He had outlined the processes of change through which life expressed its unrestrainable restlessness. As a result, an earth which had been thought essentially immutable, at rest with the eternal concern of its creator, could be seen as an interplay of forces suf-

ficient, in context of eons, to bring into being a myriad of life forms.

When his book was published, there began controversies which have never entirely died down. A century after his death, both the validity of evolution within science and the confrontation between science and other less objective forms of knowledge remain live issues. The debate which his ideas have engendered can still not be put

to a concluding vote. When he died a century ago, he died fulfilled.

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ADA NEWS

NEW AVIS CAR RENTAL PROGRAM

Effective February 1, 1982 the American Dental Association has negotiated an exclusive car rental discount program with AVIS Rent A Car. Members of the American Dental Association will have two great ways to save on car rentals in the 48 contiguous states and the District of Columbia. On the Commercial Daily Rates (which offer Free Unlimited Mileage), an 8% discount will be extended to members. In addition, members are eligible to receive a 40% discount on AVIS Normal Time and Mileage Rates. The Wizard of AVIS computer system will compare rates and automatically assign the most economical rate for the rental.

To take advantage of this money saving program, members need only to present the ADA Membership Card or the AVIS-ADA Identification Card along with a valid driver's license and an AVIS honored charge card at the AVIS rental counter.

FLUORIDE THERAPY

E. Joseph LeCompte, D.D.S., M.S.

and

*Arthur P. Mourino, D.D.S., M.S.D.**

I. History of Fluoridation

Throughout the dental literature, surveys have reported the prevalence of dental caries in all parts of the world. Almost 100% of the population is affected by dental caries in Europe and North America (98% in the U.S.). Studies by many investigators have shown that the presence of small amounts of fluoride in drinking water is associated with a marked reduction in dental caries (60-65%).¹⁻⁸

The history of fluoridation is approximately 80 years old: In 1901 Dr. Frederick McKay, a new dentist in Colorado Springs, Colorado, noticed that many of his patients had permanently stained teeth, known to the local inhabitants as "Colorado Stain". McKay called the stain "mottled enamel".^{9,10}

In 1905 McKay moved to St. Louis to practice orthodontics. In his 3 years there he never saw a case of mottled enamel, whereas in Colorado Springs he saw cases every day. He returned to Colorado Springs in 1908 and began investigation into the cause of this unique stain. He got the local and state dental societies involved in the research and in 1916 he approached Dr.

G. V. Black who projected his expertise into the investigation.¹⁰

The initial seeds had been planted and investigations of causes for the stain began worldwide. In 1918 McKay and other investigators were convinced that the cause of mottling was from some mysterious element in the water supply but not until 1931 was the causative agent, fluoride, identified. At this time (1931) the U.S. Public Health Service assigned a young dental officer, Dr. Trendly Dean, to pursue full-time research on mottled enamel. He began an indepth study of the relationship between fluoride concentration in drinking water, mottled enamel and dental caries. He showed conclusively that the severity of mottling increased with increased fluoride concentration in the drinking water. He also confirmed that caries experiences in the high fluoride areas were markedly lower than caries experienced in communities with little or no fluoride in the water.

In 1942 a study completed by Dean showed that near maximal reduction in caries experience occurred with a concentration of 1 ppm in the drinking water.¹¹ At this concentration, fluoride caused only sporadic instances of the mildest forms of dental fluorosis of no practical esthetic significance.

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In December 1944 the Public Health Service began a study in Grand Rapids (experimental town) and Muskegon (control town) Michigan to test the effects of artificially fluoridated community water supplies. On January 25, 1945 sodium fluoride was added to the Grand Rapids water supply, the first community to receive a fluoride additive in a communal water supply. The results after 6½ years of fluoridation were clear: caries experience of 6 year old Grand Rapids children was almost half that of the 6 year old Muskegon children.

On May 2, 1945 sodium fluoride was added to the drinking water of Newburgh, N. Y. (experimental town). Kingston, N. Y. served as the control town. After 10 years the caries experienced was reduced approximately 50% in the Newburgh children.⁸

Since these early studies, numerous other studies have confirmed the caries preventive benefits of water fluoridation.¹⁻⁸ It is interesting to note that today only about 50% of the U. S. population receives optimally fluoridated water and that cities like Los Angeles, California and St. Petersburg, Florida are among the many large metropolitan areas that have not adopted water fluoridation for their community.

II. Professional Fluoride Therapy

Fluoride is a desirable micronutrient necessary for the optimum formation of crystalline structure in mineralized tissues such as bones and teeth. The crystalline structure of enamel formed under the influence of fluoride becomes morphologically and chemically

better suited to withstand the attack of decay causing microorganisms.¹²

Many professional and self-applied fluoride products have been tested with mixed results. The following is a summary of the recommended techniques and the overall results of clinical trials.

Professionally applied fluorides include topical solutions and gels as well as fluoride containing prophylactic pastes.

Sodium Fluoride (NaF) was the first topical fluoride agent introduced to the dental profession (mid 1940's).¹³⁻¹⁵ A series of 4 consecutive treatments, 1 week apart are given at ages 3, 7, 10 and 13 in order to maximally effect newly erupting groups of teeth.

Stannous Fluoride (SnF₂) topical solution was introduced to the dental profession in 1957 by Gish and Muhler at Indiana University. Application is recommended every 6 months and a fresh solution of stannous fluoride must be prepared for each day of utilization because the fluoride component becomes ineffective over time.^{13,14}

Acidulated Phosphate Fluoride (APF) solutions and gels were introduced in 1963 by Brudevold, et. al.¹⁶ The use of an APF gel or solution is based on research showing that slightly decalcified enamel will acquire more fluoride than sound enamel. An APF solution is prepared by adding 0.1 M phosphoric acid to sodium fluoride. Most APF gels and solutions have a pH of between 3.0 and 3.8 (Luride APF gel: pH = 3.2). The APF gel or solution is applied once every 6 months and does not require a daily

preparation as the fluoride ion concentration in this system is stable over time.^{13,14,16}

The caries inhibitory effect of all the professionally applied fluoride solutions and gels in a non-fluoridated area is about equal and averages approximately 30 to 35%. In fluoridated areas SnF₂ and APF are superior to NaF and provides approximately an additional 15-20% reduction in caries.

Professionally applied fluoride prophylaxis pastes were first tested by Bibby in 1946.¹⁷ Since then many different formulations have been tested with a great variance in results.^{2,13,14} The composition of these products is basically a fluoride vehicle (NaF, SnF₂, MFP) incorporated into an abrasive system (lava pumice, silicone, silex). Presently this remains an area of controversy in dentistry.¹⁴ In clinical tests on humans, prophylaxis of the teeth has historically preceded topical F application. It was initially thought a prophylaxis prior to topical fluoride application enhanced the uptake of fluoride by enamel and maximized the formation of fluorapatite crystals. This hypothesis had little substantiation at the time of the initial trials and in fact recent research has provided some documentation that a pumice prophylaxis may actually be detrimental to the long term retention of fluoride by enamel.^{18,19}

Teeth erupted in the oral cavity for more than 12 months are not very amenable to forming fluorapatite following topical fluoride application.¹⁹⁻²³ Rather, a thick layer of calcium fluoride precipitate forms on the outer enamel surface. This calcium fluoride

precipitate is removed from the outer enamel surface over a period of 4-8 weeks by mastication and the washing action of saliva.^{13,19} After this initial 4-8 week period, the enamel fluoride concentration at the surface is back to baseline (i.e., the level prior to topical F application).^{14,19} Prophylaxis of enamel prior to topical F application removes the outer 2-5 microns of enamel, the fluoride rich layer.^{14,24,25} Enamel fluoride concentrations 6-10 weeks after a pumice prophylaxis and topical fluoride treatment are often lower than the pretreatment control levels.¹⁹ If a prophylaxis is indicated for reasons other than acid etching, it should be performed with a fluoride containing prophylaxis paste.

A prophylaxis for a child patient serves two major functions:

(1) It acclimates the new child patient to the sound of the handpiece and to rotary instruments being used in the mouth.

(2) It removes extrinsic stains which otherwise would not be removed by toothbrushing.

In the child or adult patient who practices fairly good oral hygiene (lack of stains and calculus on teeth) and who has become accustomed to dental treatment, a prophylaxis probably is not indicated prior to professional fluoride application. Often this time can be better spent by having the patient complete what he considers is a thorough toothbrushing, then staining the teeth with disclosing solution, and showing him how to remove plaque in areas missed. *If a prophylaxis is done, it should be done with a fluoride containing prophylaxis paste and*

followed by a topical fluoride treatment. In non-fluoride areas research has shown that a prophylaxis with a fluoride containing paste followed by topical treatment has a small additive benefit in reducing caries compared to patients treated with a non-fluoride prophylactic paste and topical fluoride.¹³ More research is needed in this area before recommendations can be definitely made.

III. Self Administered Fluoride Therapy

Self applied fluorides include dentifrices mouthrinses and home applied fluoride gels.

Crest was one of the first fluoride containing dentifrices tested and was the first to formally be given approval by the American Dental Association Council on Dental Therapeutics in 1964.^{13,26} Since then a number of fluoride dentifrices have been approved including Colgate, Macleans, Aim and Aquafresh. Other fluoride dentifrices not officially approved by the ADA Council on Dental Therapeutics are available for purchase (e.g., Gleem). Fluoride dentifrices contain approximately 1 mg F per inch of paste (1 mg F per gram of paste or 1000 ppm).

The effectiveness of fluoride dentifrices for caries prevention in a non-fluoride area typically ranges from 20 to 30%. Greater preventive benefits (35 to 40%) are achieved by increasing the usual toothbrushing frequency in children from once daily to two or three times per day.¹³

Fluoride rinses were originally developed and evaluated for use in dental public health programs as a means of

providing preventive benefits with a minimal expenditure of dental manpower. Caries preventive benefits from fluoride rinses are typically of the magnitude of 30-35% in non-fluoride areas but may range considerably depending on the age individuals begin mouthrinsing and also whether a daily or weekly regimen is performed. Presently, little data attest to the effectiveness of fluoride rinses in fluoridated communities. In spite of these deficiencies in supporting data, there does exist data showing beneficial effects in patients who have orthodontic appliances and in those with poor oral hygiene.^{27,28}

The use of fluoride rinses by individuals age 5 and above, whether they reside in an optimally water-fluoridated or non-fluoridated community, can be safely recommended. Children 4 years and younger can not effectively rinse and expectorate.^{29,30} Two-tenths percent NaF solution is recommended for weekly rinsing and 0.05% NaF solutions for daily rinsings. Neutral sodium fluoride solutions are usually specified for mouth rinsing because more mouth rinsing studies have shown efficacy with neutral sodium fluoride than with other agents and the cost is less for NaF solutions.³¹⁻³⁹ Also, NaF solutions do not have the objectionable taste of some stannous fluoride products.^{36,37,39}

PROCEDURE: the children "swish" 5 ml. of the solution around in their mouths for 60 seconds with their lips tightly closed and their teeth in contact. When "swishing", the solution should be slowly strained back and forth through the spaces between

the teeth. After 60 seconds, the solution is expectorated and the children should be instructed not to eat or drink for a period of 30 minutes following the rinse.³¹

Individuals age 6 and above can be relied upon to rinse and expectorate properly and neither acute nor chronic toxicity (e.g., fluorosis) would be a critical factor of concern.

Daily fluoride rinses ought to be considered for patients:⁴⁰

1. with moderate to extremely high caries activity in fluoridated or non-fluoridated areas.

2. who have been subject to factors which are decidedly caries promoting, e.g. orthodontic appliances, saliva depressing medicines, or patients with thick saliva, partial dentures, etc.

3. with hypersensitivity in the cervical areas of teeth.

4. after gingival or periodontal operations.

In these latter cases, the rinses will rapidly eliminate the sensation of pain on toothbrushing and thus be instrumental in the maintenance of the necessary proper post-operative dental hygiene. Under unsupervised conditions, the use of fluoride rinses prior to retiring at night is desirable for possible maximum cariostatic effectiveness.⁴⁰

The use of daily home or school self-applied fluoride solutions and gels was initiated by H. R. Englander in the 1960's.⁴¹ In Englander's research, custom-fitted polyvinyl mouthpieces filled with 5 to 10 drops of 1.1% sodium fluoride gel (0.5%F) were applied to the teeth by the children for 6 minutes each school day over a

period of 2 years. Caries reductions of 80% were found with the acidulated phosphate fluoride gel. Even after a two-year period following cessation of the treatments, examination showed that there still existed excellent caries reductions in the 55 to 63% range.⁴¹ However, because of the potential for toxic effects in children, this therapy can not be recommended in an unsupervised setting.

Daily fluoride gel treatments can cause partial arrest of active carious lesions, prevent the initiation of new lesions, and they can induce teeth to be caries resistant. The caries resistance will persist long after the treatments have ended.^{42,43}

The indications⁴³⁻⁴⁸ for use for daily fluoride gels would be in older children or adults with:

1. rampant caries
2. a loss of salivary gland function
3. root surface hypersensitivity and root caries
4. decalcification of teeth due to orthodontic bands

The most popular home and professional fluoride gels contain between 0.5 and 1.94% F ion (5000 to 19,400 PPM) and should not be swallowed. (See Figure 3).

IV. Mechanisms of Fluoride Action

The multitude of fluoride products available to the prevention oriented practitioner can be confusing. Knowledge of the mechanisms of action through which the fluoride ion is able to clinically reduce dental caries will enable the practitioner to better facilitate the use of these products. The days of fluoride simply "making the

tooth harder" have stepped aside to more sophisticated and complex theories. Today several theories on the mechanism of action have been established however, the final composite picture is far from completion.

There are three major mechanisms of fluoride action which are currently recognized and substantiated in the dental literature.⁴⁹⁻⁵⁵ Briefly stated, these mechanisms are:

1. incorporation of fluoride ion into the enamel matrix as fluorapatite.
2. remineralization of demineralized enamel.
3. bacterial static action (i.e. reduction in bacterial acid production).

These three mechanisms of action by the fluoride ion may occur by systemic ingestion of fluoride or by topical application of fluoride (self or professional application).

Incorporation of fluoride ion into enamel basically occurs by substituting fluoride ion (F^-) for hydroxyl ions (OH^-) in the hydroxyapatite crystal thereby resulting in the formation of fluorapatite crystals.^{49,50} The higher the concentration of fluoride in enamel the more resistant it is to acid demineralization.⁴⁹⁻⁵¹ This benefit is not infinitely additive however, as evidenced by increasing caries rates in patients with severe dental fluorosis.

This incorporation of fluoride into enamel structure occurs pre-eruptively during tooth mineralization and post-eruptively within the first year after eruption of the tooth into the oral cavity. The tooth is only 60-70% mineralized when it erupts and has to go through a maturation phase.^{25,50} Cal-

cium and phosphorus are the major elements absorbed but if F is available, it too will undergo substantial absorption.

Pre-eruptive fluoride incorporation requires a systemic approach. These methods include public or school water fluoridation, fluoride drops and fluoride tablets. The most reliable and effective means of systemic fluoride ingestion is through the public water supply. If this mode of ingestion is not available (i.e. the patient lives in nonfluoridated area or uses well water containing little or no F ion), then prescription fluoride drops or tablets may be indicated. Presently, the ingestion of fluoridated water from birth is the most effective way of reducing dental caries.

Post-eruptive fluoride incorporation mainly occurs by a topical effect (dentifrices, mouthrinses, professional fluoride application, etc.). The most efficient means of incorporating fluoride into newly erupted tooth enamel is by way of professionally applied fluorides.^{13,14,25} These products have a very high concentration of fluoride, compared to mouthrinses and dentifrices and tend to result in maximal incorporation of fluoride into maturing teeth. Once a tooth has matured (approximately one year after eruption), the ability to incorporate fluoride permanently into enamel as fluorapatite is practically nonexistent. Following tooth maturation, fluoride products work mainly by increasing remineralization of enamel and by decreasing bacterial acid production.^{13,14}

The second mechanism of fluoride action is remineralization. This is en-

hanced by topical application. The ability of enamel to remineralize increases with the frequency of the use of products containing low fluoride concentrations; however, increasing fluoride concentration is of little value and contraindicated when used daily in high concentrations. Incipient enamel lesions in permanent teeth (approximately halfway through enamel) may completely remineralize in the presence of fluoride ion. Daily use of fluoride dentifrices and particularly fluoride mouth rinses have a profound beneficial effect on enamel remineralization.^{52,53}

The third mechanism of fluoride action is the reduction of acid production by oral micro-organisms. This effect occurs topically but how it occurs is not completely understood. Clinically, fluoride ions alter bacterial metabolism resulting in decreased bacterial growth and acid production. The bacterial static action works best with fluoride products that can be used on a daily basis such as low fluoride concentration products (fluoride mouthrinses).^{54,55} High fluoride concentration products (professional APF gels) are not recommended for daily use because of their potentially toxic effects.

Fluoride products are not strictly "systemic" or "topical" in their effects, but rather act in both ways. Anytime a topical fluoride product is applied, a percentage will be swallowed and therefore, have systemic effects as well. Likewise, although fluoride may be ingested for systemic purposes, it will also have a topical effect through saliva and crevicular fluids.

Knowledge of the mechanisms of action of fluoride ion should allow the dentist to recommend the appropriate fluoride therapy necessary in a preventive program and offer appropriate recommendations to inquiring patients.

V. *Fluoride Metabolism*

Fluoride is virtually 100% absorbed by the GI tract (mostly the small intestine) when ingested by a fasting individual.^{56,57} It is approximately 60% absorbed when ingested with milk.⁵⁶ Absorption is rapid and peak plasma fluoride levels are obtained in 30 to 60 minutes.^{56,57,58} About 70% of the absorbed fluoride will become bound by hard tissues in children, where mineralization of these tissues is abundant. The majority of the remaining 30% will eventually be excreted by the kidney in the urine. The pH of the urine in the kidney tubules plays a major role in the amount and efficacy of fluoride clearance.⁵⁹ The lower the pH, (acidic) the greater the retention of fluoride in the body. In acute toxic overdoses, alkaline products (milk, pepto bismol, sodium bicarbonate) not only bind some of the free fluoride ions in the G.I. tract, but also their absorption into plasma ultimately affects the glomerular filtrate of the kidneys with a net result of raising the pH of urine. This increases the efficiency of the kidney in removing absorbed fluoride from the body.

VI. *Fluoride Toxicity*

The acute lethal dose of fluoride is approximately 35 mg of fluoride per

kilogram of body weight (35 mg F/kg). The number of deaths reported from severe fluoride ingestion have been few.⁶⁰ However, there are a number of negative side effects attributed to non-lethal levels of fluoride ingestion. Among these complications are: (1) a kidney concentrating defect, (2) stomach irritation and ulceration and (3) dental fluorosis.

Dental fluorosis is the entity which has received the most attention in the dental literature. Fluorosis has been well documented in children and adults who were born and raised in areas where the water contained greater than 2 PPM fluoride and has been attributed to chronic ingestion of high levels of fluoride over many years. Recently, however, evidence has evolved suggesting that dental fluorosis may occur after acute ingestion of fluoride (e.g. after topical F treatments). This hypothesis has been supported in research with rats, showing enamel fluorosis after acute ingestions.^{61,62} This phenomenon may help to explain why some children in high water F areas exhibit severe dental fluorosis and others have either mild or no fluorosis. For example, one child may drink a large volume of water in a very short time period thereby resulting in an acute peak plasma fluoride concentration whereas another child may drink small volumes of water several times a day thereby having a minimal effect on plasma fluoride concentration. Many clinical investigations over the past few years have shown substantial oral retention and ingestion of fluoride following professional ap-

plication of topical fluorides.^{21,57,58,63,64} Whether ingestion of these amounts of fluoride causes a clinically significant fluorosis is not yet known, but it certainly warrants careful use of high concentration F products.

The amount and concentration of F ingested may help to explain why children and adults often complain of nausea and occasionally exhibit vomiting following professional F applications. Easman, et. al.⁶⁵ have shown disruption of rat gastric mucosa following the administration of amounts and concentrations of F lower than those used in many clinical studies.

The amounts of F ingested after topical F treatments may also have a nephrotoxic effect. From studies in rats, a correlation has been shown to exist between kidney dysfunction and increased plasma F concentrations.⁵⁹ This defect in the concentrating ability of the kidney has been reported in patients following methoxyflurane general anesthesia.⁶⁶ The mechanism behind this phenomenon is not known. The clinical implications of the concentration defect are probably only significant to patients with renal diseases.

It is strongly recommended, especially for children with developing enamel, that suction be applied during and after topical F treatments and that the patient be allowed to expectorate following these applications. Further investigations into improving application techniques and reducing the amounts and/or concentrations of fluoride products applied professionally are presently under investigation.

VII. Community Fluoride Efforts

COMMUNAL FLUORIDATION efforts include both municipal water fluoridation and school water fluoridation programs. The optimum concentration of fluorides in municipal water supplies is dependent upon the annual average of maximum daily air temperatures in the individual community. According to U.S. Public Health Service Drinking Water Standards, 1962, the recommended concentrations are as follows.⁶⁷ Note that the optimal fluoride concentration is not the same for every community.

Annual Average of Maximum Daily Air Temperatures	Recommended Control Limits Fluoride Concentrations in mg/l		
	Lower	Optimum	Upper
50.0-53.7	0.9	1.2	1.7
53.8-58.3	0.8	1.1	1.5
58.4-63.8	0.8	1.0	1.3
63.9-70.6	0.7	0.9	1.2
70.7-79.2	0.7	0.8	1.0
79.3-90.5	0.6	0.7	0.8

Children who drink fluoridated water (1 PPM) continuously from birth, develop approximately 50-60 percent fewer carious lesions in their deciduous and permanent dentition than children who are raised in a non-fluoridated area. The smooth surfaces of teeth, especially in the anterior part of the mouth, receive greater protection than the pits and fissures.^{68,69}

When children develop rampant caries in areas having an optimal amount of fluoridated water the destructiveness of their bacterial infection exceeds the protective potential of the fluoridated water. This may be caused by infrequent drinking water,

the more frequent consumption of soft drinks containing sucrose, etc.⁴³

School Water Fluoridation: In non-fluoridated areas, schools have added 3-7 times the 0.7-1.0 ppm levels used in municipal systems. The higher concentrations added to school water are supposed to compensate for the fact that fluoride is only available during the time children spend at school. Children who drink school fluoride fortified water develop approximately 30% fewer carious lesions in their permanent teeth than children in an unfluoridated area who do not have their school water systems fortified with fluoride.^{70,71,72}

VIII. Supplemental Fluorides

The utilization of supplemental fluoride is no substitute for public water fluoridation. The reasons are:

1. Water fluoridation makes the fluoride ion available to all children residing in the area served by the water supply.

2. Water fluoridation requires no conscious and sustained effort on the part of the individual.

3. Water fluoridation automatically restricts the dosage of fluoride to levels which have been proven safe for everyone.

The indications for supplemental fluoride usage are:

1. When there is a fluoride concentration of less than 0.7 ppm in the existing domestic water supply.

2. When the child's dental health is of intense parental concern. If the parent is not extremely concerned about the child's dental health there

will be little possibility that the supplements will be taken regularly, thus nullifying any positive effect they might otherwise have. One study of highly motivated health professionals demonstrated that even among these type families cooperation was poor. The major reasons given by parents for discontinuing fluoride supplements are "too much trouble" and "did not get around to renewing the prescription."⁷³

Guidelines for Prescribing:

The fluoride content of the water supply must be ascertained. Non-fluoridated public water supplies and private sources, i.e., wells, etc. contain varying quantities of fluoride from the earth's crust. In some areas the naturally occurring fluoride level is an optimum 1 ppm. If the concentration is unknown, the water can be analyzed by a private or state laboratory. Most state health departments maintain information on the fluoride content of towns with a central water supply. If the patient has a private well, the water must be tested before recommending the proper dosage of fluoride supplement. State public health officials will supply you with a plastic container in which to furnish a water supply for analysis. (*Glass is not suitable as fluoride absorbs to the glass resulting in incorrect measurements*). Consolidated Laboratories at 14th and Main Streets in Richmond, Virginia, can supply the necessary plastic containers and analysis of the water supply for fluoride content.

The proper dosage of fluoride has

been estimated based upon the daily water intake of adults and children drinking water fluoridated at 1 ppm. In areas devoid of fluoride in the water 1.0 mg. daily of a supplemental fluoride is equivalent to the amount of fluoride ingested from water fluoridated at 1 ppm. For infants between birth and two years of age 0.25 mg daily is the equivalent.⁷⁴

In areas where some fluoride exists in the water but is less than 0.7 mg., the supplemental fluoride dosage is reduced accordingly. A practical and efficient guide for a daily supplemental fluoride schedule is:⁷⁴

Level of Natural Fluoride	Patient's Age		
	0-2	2-3	3 and over
0.0 ppm to			
0.3 ppm	0.25 mg	0.50 mg	1.00 mg
0.3 ppm to			
0.7 ppm	0 mg	0.25 mg	0.50 mg
0.7 ppm and over	no supplement required		

Fluoride supplements are available in chewable tablets or liquid drops. For children age three and under prescribe the drops (1 drop = .125 mg fluoride), and for older children prescribe the neutral NaF tablet. No more than 264 mg. of sodium fluoride (120 mg fluoride) should be prescribed at any one time. This provides a daily supply of 1 mg. of fluoride for 4 months. If the entire 120 mg of fluoride were consumed accidentally at one time no acute toxic (lethal) effects would result. However, stomach discomfort, nausea, vomiting and dental fluorosis in the young patient could possibly occur.

There are two types of chewable fluoride tablets: Phos-Flur† (APF) tablets and Luride† (neutral NaF). A

neutral sodium fluoride supplement is recommended because they are less expensive and are just as beneficial as the Phos-Flur (APF) tablets.⁷⁵

There are three types of Luride Lozi-tabst: (1) Quarter-strength lozi-tabs (0.25 mg. F/tab), (2) Half-strength lozi-tabs (0.5 mg F/tab) and (3) Full-strength lozi-tabs (1.0 mg F/tab).

Supplemental fluorides are many times combined with *vitamins* for administration to children. This practice enhances the possibility of the child taking the preparation on a regular basis but should only be prescribed by the child's physician. A standard fluoride vitamin is Poly-Vi-Flor.* It is available in drops (containing 0.25 or 0.5 mg fluoride) or tablets (containing 0.5 or 1.0 mg fluoride). The drops are supplied in plastic bottles of 30 and 50 ml. and the tablets in bottles of 100. There is no evidence that the inclusion of vitamins will enhance the effectiveness of fluoride and there is no indication for the dental practitioner to prescribe vitamins.⁷⁴

In order to conform to the dosage recommendations of the Committee on Nutrition of the American Academy of Pediatrics, the manufacturers of fluoride vitamin preparations have repackaged their preparations so the fluoride is available in three convenient doses (0.25, 0.5, and 1.0 mg) in combination with the appropriate dosage of vitamins. Similarly the dropper for fluoride drops (Luride) has been repackaged and calibrated to conform

to these doses for dispensing the correct amount of fluoride. Each drop will dispense 0.125 mg of fluoride and thus two, four, or eight drops will dispense correspondingly 0.25, 0.5 and 1 mg. of fluoride.

It is wise to consult with your local pharmacist before prescribing fluoride supplements in order to insure their availability and dispensing modes for your patients.

Because of the topical benefits, fluoride tablets should be made in a chewable form that will slowly dissolve in the mouth so the fluoride has a maximum topical effect. For the same reason fluoride supplements should not be discontinued at age 5 or even 12 years of age, as previously thought. The teenage years are particularly caries susceptible thus fluoride supplementation should be continued past the teenage years until young adulthood.⁷⁶ The ingestion of daily fluoride supplements from birth for a minimum of 3 to 4 years will cause an average caries reduction in the primary dentition of 50% to 80%.^{73,77,78,79} Fluoride tablets given daily at school will reduce caries approximately 20% to 50% after two or more years of fluoride ingestion.⁸⁰⁻⁸⁴ Fluoride supplements ingested daily for 8 to 11 years may have caries reductions as high as 80%.⁷⁹ The benefits of fluoride supplements vary depending on the frequency of use and the age at which the supplements are begun.

Summary

The topic of "fluoride therapy" is an extremely vast and complex one and at times can be overwhelming.

†Hoyt Laboratories

*Mead Johnson Laboratories

Figure 1—Sample Prescriptions

All Prescriptions should read: CAUTION: Store out of reach of children.

1. Luride Drops 0.125 mg F /drop
Dispense: 40 ml.
Sig: drops each day
CAUTION: Store out of reach of children
Label
Refill 4 times A. P. Mourino, D.D.S.
(For infants or small children can be added to juice)

 2. Luride Lozi-Tabs—Full Strength 1.0 mg F /tablet
Dispense: 120 tabs
Sig: Following evening brushing and flossing, chew one tablet and immediately “swish” the chewed tablet and saliva for 60 seconds before swallowing. Do not eat, drink or rinse mouth for 30 minutes.
CAUTION: Store out of reach of children.
Label
Refill 4 times A. P. Mourino, D.D.S.

 3. Thera-Flur Gel-Drops 1.1% NaF (.5% F)
Dispense: 24 ml.
Sig: Following evening brushing and flossing, place 5-10 drops of gel in the applicator and wear for 6 minutes. Spit out. Do not swallow the gel. Do not eat, drink or rinse mouth for 30 minutes.
CAUTION: Store out of reach of children
Label
Refill 0 times E. J. LeCompte, D.D.S.
-

*NOTE: Most APF products are expressed in percent F ion whereas most other products, especially NaF and Stannous Fluoride products are expressed in percent fluoride medium (i.e.) 2% sodium fluoride or 8% stannous fluoride. These latter percentages don't represent the percent of F ion—this must be calculated from molecular weights, but for ease of conversion, sodium fluoride products are approximately $\frac{1}{2}$ fluoride ion and stannous fluoride products are approximately $\frac{1}{4}$ fluoride ion.

Figure 2—Fluoride Products

I. Definitions

A. PPM = Parts Per Million

- 1 PPM equals 1 milligram (mg) of agent (e.g. fluoride) per 1 liter (L) of solution (e.g. distilled water).
- 1 PPM equals 1 milligram of agent (e.g. fluoride) per 1 kilogram (kg) of solid (e.g. methylcellulose gelatin).

B. % = Percent

- 1% equals 1 gram of agent (e.g. sodium fluoride) per 100 milliliters of solution (e.g. distilled water).
- 1% equals 1 gram of agent (e.g. sodium fluoride) per 100 grams of solid (e.g. methylcellulose gelatin).

II. Conversion Table

A. 1% = 10,000 PPM

B. 1 PPM = .0001%

C. 1 PPM = 1 mg/L or 1 mg/kg

D. 1% = 10,000 PPM = 10,000 mg/L or 10,000 mg/kg

III. Example: To make a 1% fluoride solution, take 1 gram of fluoride (2.2 grams of sodium fluoride) and add distilled water to the 100 ml mark. This is equivalent to 1000 mg of fluoride (F) per 100 ml of solution or 10 mg F/ml.

Figure 3—Fluoride Products

*Stannous Fluoride topical solution:	8.00% SnF ₂ solution (119:38 or 3.14:1 = 1.94% F)	= 19,400 ppm	= 19,400 mg/L	= 19.4 mg/ml	= 97 mg/5ml
*NaF Sodium Fluoride topical solution:	2.00 % NaF solution (23:19 or 1.2:1 = .9% F)	= 9,000 ppm	= 9,000 mg/L	= 9 mg/ml	= 45 mg/5ml
APF Gel	1.23% F solution	= 12,300 ppm	= 12,300 mg/L	= 12.3 mg/ml	= 61.5 mg/5ml
Thera-Flur gel	.5% F solution	= 5,000 ppm	= 5,000 mg/L	= 5 mg/ml	= 25 mg/5ml
Point-Two Rinse (.2% NaF)	.1% F solution	= 1,000 ppm	= 1,000 mg/L	= 1 mg/ml	= 5 mg/5ml
Toothpaste	.1% F solution	= 1,000 ppm	= 1,000 mg/kg	= 1 mg/gm	= 5 mg/gm
Omni gel (.4% SnF ₂)	.1% F solution	= 1,000 ppm	= 1,000 mg/ml	= 1 mg/ml	= 5 mg/5ml
Fluorigard Rinse (.05% NaF)	.023% F solution	= 225 ppm	= 225 mg/L	= .23 mg/ml	= 1.1 mg/5ml
Phos-Flur Rinse	.02% F solution	= 200 ppm	= 200 mg/L	= .2 mg/ml	= 1 mg/5ml

This paper has in no way attempted to reach the depths of the topic but rather has intended to update the clinically practical information on fluorides and relate it to the practicing dentist.

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PRACTICE MANAGEMENT SEMINARS

A fifty percent increase in the number of dental practice management seminars has been scheduled for 1982 to meet this year's increased demand, according to Dr. George R. Olfson, chairman of the ADA Council on Dental Practice.

A total of 21 two-day sessions are set for 1982. Sponsored by the ADA Council on Dental Practice, the sessions are being conducted by Conomikes Associates, Inc. of Marina del Rey, Calif., a nationally recognized practice management firm.

Based on the findings of a nationwide study of dental practices, the workshops cover better management and staff utilization, practice building techniques, improved billing and collection methods, time management and work goal setting, patient scheduling techniques, simplified insurance paper work, patient records filing systems, and management planning techniques.

The seminars will be limited to 30 dentists per session and cost \$295 for ADA-members and \$495 for non-members.

Held concurrently with the seminars are programs for dental office staff. Emphasizing skills to assist the dentist, these workshops cover billing, collections, and insurance methods as well as reception, phone management and patient scheduling techniques.

Dentists registered for the two-day workshops are entitled to enroll one office staff member free of charge; the fee for additional staff is \$55 each.

The Seminar scheduled for Virginia will be held in Williamsburg, Virginia, June 14-15, 1982, Colonial Williamsburg Motor House.

To register or obtain further information, contact the Council on Dental Practice, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611 or call toll-free 800/621-8099.



ORAL PATHOLOGY SELF EVALUATION

These lesions, which were generalized in the oral cavity, were noted in a 48 year old female and have been present for 3 weeks. The patient stated that her mouth was sore. There were no other skin lesions and the oral lesions exhibited a positive Nikolsky's sign. Yes, the patient has Erosive Lichen Planus. I'm confident you have made this diagnosis; however, what other concerns might you have for this patient?

Answer:

impairment.
Patients with Erosive Lichen Planus should be monitored for carbohydrate
have a marked predilection for Diabetes Mellitus and Vascular Hypertension.
pointed out that patients with Lichen Planus, particularly Erosive Lichen Planus,
of thickening or untoward change biopsied. Moreover, Grinspan, in 1963,
Hence these patients should be placed on careful follow-up and any areas
Carcinoma inasmuch as a malignification rate close to 1% has been noted.
may be a direct relationship between Lichen Planus and oral Squamous Cell
though direct relation is still equivocal, most investigators believe there
Recent studies have implicated Lichen Planus as a premalignant lesion. Al-
BIBLIOGRAPHY—Shafer, W. G., Hine, M. K. and Levy, B. M.: Textbook of Oral
Pathology Ed. 3, Philadelphia, W. B. Saunders Co., 1974. Supported by Grant CA 19294-04
awarded by the National Cancer Institute, Department of Health, Education and Welfare.
R. P. Elzay, Program Director, MCV School of Dentistry.

HAS INCORPORATION FEVER BEEN SPIKED BY THE RETIREMENT PLAN PROVISIONS OF THE ECONOMIC RECOVERY TAX ACT OF 1981?

by *Wallace M. Starke

Retirement income planning is an area which all professionals must face at some point. While professionals will receive Social Security benefits, it generally is up to each professional to set aside part of his earnings or other income to ensure an adequate standard of living during retirement years.

This set-aside for retirement is accomplished in part by after-tax personal savings and investments. In addition, professionals may elect to establish a qualified retirement plan or plans for federal income tax purposes.

The qualified retirement plan is a pre-tax savings vehicle. The employer (whether a sole proprietor, partnership or corporation) receives an income tax deduction for contributions to the plan for participants. Participants may receive income tax deductions or exclusions for some of their own voluntary contributions to the plan and may also make non-deductible contributions. All earnings on all contributions accumulate tax-free within the plan. Finally, participants are only taxed when these untaxed funds are distributed to them from the plan.

Professionals for some time have been aware of the disparity of qualified retirement plan benefits available

to self-employed individuals vis-a-vis those available to corporate employees. With the advent of state laws permitting professionals to incorporate and the relaxation or removal of ethical restrictions preventing incorporation, many professionals have incorporated their practices in order to obtain larger benefits. The recent enactment of the Economic Recovery Tax Act of 1981 (the "Act") has helped to mitigate the disparity between benefits for the self-employed and those for corporate employees, but has by no means eliminated it.

The decision to incorporate for retirement planning reasons is basically a numbers game because the benefit disparity is easily expressed and best understood in terms of dollars. Consequently, this article will outline qualified retirement plan maximum benefits currently available to the self-employed as they compare to those available to incorporated professionals under the Act.

For purposes of this article, the phrase "qualified retirement plans" is intended to cover four types. These are: (1) defined contribution plans¹, commonly known as money purchase pension, target benefit pension, stock bonus and profit sharing plans; (2) defined benefit plans², commonly known as pension plans; (3) individual retirement plans such as individual retirement accounts or annuities ("IRA's"); and (4) simplified employee pensions

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("SEP's"), which are IRA's to which an employer may contribute the lesser of \$15,000 or 15% of compensation. Qualified defined contribution and defined benefit plans for self-employed³ will be referred to as "H.R. 10 plans" and for corporate employees will be referred to as "corporate plans"⁴.

What Can a Self-Employed Professional Set Aside for Himself?

Starting in 1982, the Act effectively increased the maximum amount the self-employed may set aside out of pre-tax earnings from \$7,500 to \$17,000. This increase is accomplished in two ways.

First, all individuals with earned income (whether self-employed or an employee) may now contribute to a qualified plan and receive an income tax deduction each year of \$2,000 of their earnings⁵ for the year. The \$2,000 contribution may be made to an IRA and may also be made to an H.R. 10 or corporate plan of the individual's employer if that plan permits it.

Secondly, the self-employed dollar deduction limitation for contributions to an H.R. 10 plan or SEP is raised from \$7,500 to \$15,000 per year. However, the secondary limitation of 15% of earnings is retained for such contributions so that the actual limitation is the lesser of \$15,000 or 15% of earnings.⁶

This \$17,000 maximum contribution figure may, however, be illusory depending on the professional's actual earnings because of the secondary 15% of earnings limitation. If the professional makes \$100,000, the maximum

contribution amount is \$17,000. However, if he only makes \$50,000, the maximum contribution amount is \$9,500 (that is, \$2,000 plus 15% of his earnings, or \$7,500). In the latter case, the increase under the Act is only \$2,000.

One of the corollaries of H.R. 10 and corporate plans and SEP's is that you do not get something for nothing, which in this case means that a cost is exacted for the tax deductible contribution for the professional. The cost is that the employer must, with certain exceptions, contribute or provide benefits of the same percentage of compensation on behalf of each plan participant. Before 1982, compensation in H.R. 10 plans and SEP's which was counted for this purpose was limited to the first \$100,000, while no such limitation applied to corporate plans.

For example, if a professional made \$150,000 and his employee made \$10,000, in order to contribute the maximum \$7,500 to the H.R. 10 plan or SEP for the professional (which is 7.5% of the first \$100,000 of earnings), \$750 (that is, 7.5% of the \$10,000 compensation) had to be contributed for the employee. In this example, the professional would actually be contributing only 5.0% of his total compensation for himself while contributing 7.5% of his employee's total compensation.

Starting in 1982, the Act increases the \$100,000 compensation limitation for H.R. 10 plans and SEP's to \$200,000 if the contribution rate expressed as a percentage of compensation is at least 7.5%. In

the above example, in 1982 \$15,000 could be contributed for the professional if \$1,000 is contributed for the employee (that is, 10% of each individual's compensation not over \$200,000). On the other hand, if only \$700, or 7% of the compensation, is contributed for the employee, only \$7,000 (that is, 7% of the first \$100,000 of earnings) may be contributed for the professional under the Act.

What Can an Incorporated Professional Set Aside for Himself?

Corporate employees also have the ability beginning in 1982 to make the \$2,000 individual tax-deductible contribution to a qualified plan.

Furthermore, the maximum contribution limitation in corporate defined contribution plans is \$45,475 or, if lesser, 25% of compensation, as opposed to \$15,000 or 15% for H.R. 10 plans and SEP's.

Finally, a corporate defined benefit plan may receive contributions to fund an annual retirement benefit equal to \$136,425 or, if lesser, 100% of compensation. The actual contribution to fund a defined benefit plan depends on the actuarial assumptions chosen, the age of the corporate employee at commencement of plan participation, and his compensation.

For example, if a corporate employee in a defined benefit plan receives \$100,000 per year in compensation, the annual contribution to fund a 100% of compensation benefit under

one set of actuarial assumptions may be \$76,850 if the employee commences participation at age 55, \$46,150 if at age 50, \$30,570 if at age 45, \$21,360 if at age 40, \$15,430 if at age 35, \$11,390 if at age 30, and \$8,540 if at age 25. The annual contribution differs, based on age at commencement of participation, because the cost of the promised benefit is funded over a longer period of time in the case of a younger person or over a shorter period of time in the case of an older person.

If a corporation sponsors both a defined contribution plan and a defined benefit plan for the same employee, the maximum contribution is limited by the so-called rule of 1.4. The rule of 1.4 is most easily paraphrased as a secondary limitation restricting the aggregate contribution for both the defined benefit plan and the defined contribution plan. The aggregate contribution is limited to not more than the sum of 100% of one of the limitations and 40% of the other limitation.

Comparison of Benefits

The following chart shows the maximum amounts which, in addition to the \$2,000 individual contribution, might be contributed annually for the professional to the following plans under one set of actuarial assumptions based on the following earnings⁷ before the contribution:

<i>Earnings</i>	<i>Age at Com- mencement of Plan Partici- pation</i>	<i>H.R. 10 Plan or SEP</i>	<i>Corporate Defined Contribution Plan</i>	<i>Corporate De- fined Benefit Plan</i>	<i>Combination of Corporate Plans</i>
\$ 50,000	25	\$ 7,500	\$10,000	\$ 3,930	\$11,060
	35	7,500	10,000	6,680	11,880
	45	7,500	10,000	11,710	14,430
	55	7,500	10,000	21,730	23,240
75,000	25	11,250	15,000	5,900	16,600
	35	11,250	15,000	10,030	17,820
	45	11,250	15,000	17,560	21,650
	55	11,250	15,000	32,590	34,860
100,000	25	15,000	20,000	7,870	22,130
	35	15,000	20,000	13,370	23,760
	45	15,000	20,000	23,410	28,860
	55	15,000	20,000	43,450	46,480
125,000	25	15,000	25,000	9,840	27,660
	35	15,000	25,000	16,710	29,710
	45	15,000	25,000	29,270	36,080
	55	15,000	25,000	54,320	58,100
150,000	25	15,000	30,000	10,740	33,190
	35	15,000	30,000	20,050	35,650
	45	15,000	30,000	35,120	43,290
	55	15,000	30,000	65,180	69,720

Conclusion

The real consideration here is how much the professional earns and can afford to set aside out of his earnings for retirement savings. This in turn depends on the professional's other income and his spending needs. While each professional can look at the above chart and determine his own income available for pre-tax retirement savings, it can generally be said that a professional making \$50,000, with tuition and other expenses for children, will not currently elect for increased contribution amounts available in corporate plans. On the other hand, a professional who can save \$25,000 out of a \$100,000 income would be a prime candidate for a corporate plan.

The numbers game involves not only the above-explained considerations but also employee costs, actuarial assumptions and calculations in some cases, and other considerations not mentioned herein.⁹ Consequently, the professional is best advised to consult with his tax advisor with respect to his need to consider incorporation as a means to more attractive qualified retirement income planning.

In summary, while the new \$17,000 maximum deduction will be more than sufficient for many professionals, the corporate route will appeal to those professionals who want to set aside more than \$17,000 annually or who otherwise are restricted by the 15% of compensation limitation for H.R. 10 plans and SEP's.

Footnotes

1. A defined contribution plan is a plan maintained by an employer where individual accounts are maintained for contributions for participants.

2. A defined benefit plan is a plan maintained by an employer where separate accounts for contributions on behalf of each participant are not maintained and which generally promises to pay an annuity income for life after retirement.

3. The Internal Revenue Code (the "Code") distinguishes in its benefit limitations for the self-employed between "owner-employees" who are sole proprietors and partners with more than a 10% interest in profits or capital and other self-employed who are 10% or less partners. Because almost all unincorporated dentists would be owner-employees for this purpose, all discussed limitations and benefits for self-employed are those applicable to owner-employees.

4. As used herein, the phrase "corporate plan" does not include plans of corporations which are electing small business corporations under Subchapter S of the income tax provisions of the Code since Subchapter S plans are subject to most of the same benefit limitation rules to which H.R. 10 plans are subject.

5. The actual limitation is the lesser of \$2,000 or 100% of earnings, which for dentists will be assumed to be greater than \$2,000 a year. Furthermore, the \$2,000 deduction can be increased to \$2,250 if at least \$250 but not more than \$2,000 is contributed by the professional to a "spousal IRA" for his spouse who has no earned income.

6. It is possible that contributions for self-employed under H.R. 10 defined benefit plans may somewhat exceed the \$15,000 or 15% of earnings limitation; however, such excess amount is small when compared to contributions permitted under corporate plans.

7. One major disadvantage of a corporate plan versus an H.R. 10 plan which is taken

into account in the chart is that in an H.R. 10 plan total earnings on which benefit limitations are based include the plan contribution on behalf of the professional. In the corporate plan total earnings of the corporate employee on which benefit limitations are based do not include the plan contribution. Thus, a self-employed professional with \$100,000 of earnings before the plan contribution on his behalf may contribute \$15,000 (15% of \$100,000) to his H.R. 10 plan. On the other hand, a corporate professional with \$100,000 of corporate taxable income before the compensation payment to the professional and the corporate plan contribution must base the plan contribution on compensation actually paid to him out of that \$100,000 (that is, \$100,000 less the plan contribution). For example, if the professional wants the maximum corporate defined contribution plan contribution made on his behalf, the corporation would pay him \$80,000 and would contribute \$20,000 to the corporate plan (that is, 25% of his \$80,000 compensation paid to him), thereby using all of the \$100,000 of earnings.

8. Other considerations in the corporate plan versus H.R. 10 plan debate might include the fact that the \$45,475 and \$136,425 corporate plan dollar limitations increase automatically with inflation while the \$15,000 H.R. 10 plan and SEP dollar limitation does not; the availability of favorable Social Security integration rules, of a vesting schedule and of a fair degree of latitude in choosing actuarial assumptions and methods in a corporate plan by which costs for other employees may be reduced; the need or ability of the professional to take advantage of income tax deferral available on earnings on voluntary non-deductible participant contributions; the ability to reduce profit sharing plan costs by one-third for other employees through a salary reduction cash or deferred arrangement; and the ability of the professional to borrow money from the plan by using his plan interest as security for the loan.



CERTIFICATE of RECOGNITION

*By virtue of the authority vested by the Constitution
in the Governor of the Commonwealth of Virginia,
there is hereby officially recognized:*

CHILDREN'S DENTAL HEALTH MONTH

1982

Good health habits learned early help to assure that Virginia citizens of tomorrow will be physically sound and mentally alert, and for many young people, this discipline begins with good dental care.

To that end, the Virginia Dental Association joins with health authorities in programs to support February, 1982, as CHILDREN'S DENTAL HEALTH MONTH, and I call its worthy purpose to the attention of all Virginians.

A handwritten signature in cursive script, reading "Charles S. Robb".

Governor

NATIONAL CHILDREN'S DENTAL HEALTH MONTH

TIDEWATER DENTAL ASSOCIATION

A Director for each city in Tidewater contacted the Elementary Schools in the area and placed a Dentist in the interested schools. We were greatly assisted in this effort by many Navy Dentists and several Public Health Dentists.

Posters were placed in all elementary schools, dental offices and many pharmacies.

Public Service announcements were placed in all TV Stations and many Radio Stations.

Area Dentists appeared on the following Talk Shows

WVEC "Good Morning Tidewater"

WNIS "Ask Your Dentist"

WTAR "Charlie Huddle Evening Talk Show"

WTKR "Morning Connection"

This Committee assisted the Dental Hygienists at ODU with their Military Circle Puppet Show.



Dr. Robert Kirkman distributes toothbrushes



In observance of National Children's Dental Health Month a puppet show was performed at Military Circle Mall, Norfolk, VA. It was sponsored by Old Dominion University, Student Dental Hygiene Association, Virginia Tidewater Dental Hygienist Association, Virginia Tidewater Dental Association and Virginia Tidewater Dental Assistants Association. The puppet show was very successful, approximately 500 toothbrushes and pamphlets were distributed to the children.



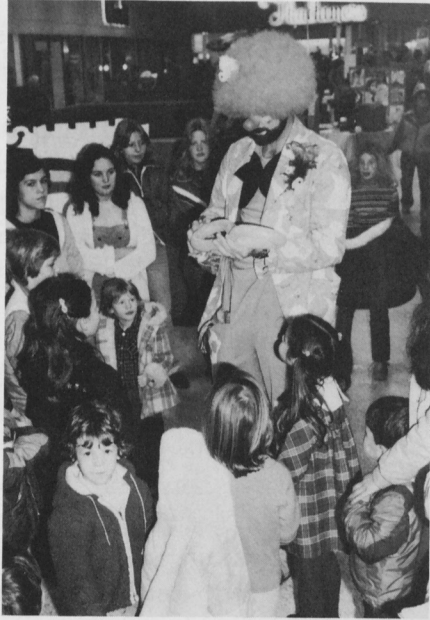
SOUTHSIDE DENTAL SOCIETY

This year Southside Virginia's Annual Tothtown Roundup was held at Walnut Mall in Petersburg on February 6. Activities included a poster contest in area elementary schools, blood pressure screening, and eye scan, along with an artist who did caricatures of children with toothbrushes. All in all the Roundup was a tremendous success. Many of the area dentists turned out to support the dental team of hygienists, assistants and auxiliaries.

We had a great turnout from the public with many questions being answered and displays covering everything from self-assessment to nutrition.



Toothtown Puppet Show



Clown with children in Toothtown Roundup



Poster contest winners with Tooth Fairy

RICHMOND DENTAL SOCIETY

National Children's Dental Health Month was recognized this year by Governor Charles S. Robb on the state level and, on the local level, by Mayor Henry L. Marsh, III, of the city of Richmond.

The Richmond Dental Society again received support from the Auxiliary to the Richmond Dental Society, Dental Assistant's Society and the Central Virginia Dental Hygienist's Association. Public schools in the city of Richmond and counties of Henrico, Hanover, Goochland and Chesterfield were visited by speakers in 4th grade classrooms and toothbrushes furnished by the Richmond Dental Society were distributed to the students.

Members of the Auxiliary to the Richmond Dental Society, headed by Chairperson, Mrs. Melanie Kerneklian, distributed posters throughout these schools for the Jean Palcanis "Smile America" poster contest. The contest, this year, was named in honor of the late Jean Palcanis who, as a member of the Auxiliary, had given so much of herself in past years towards making previous Dental Health Weeks so successful. Many of these posters were hung at Regency Square Shopping Mall during the first week in February. The winners' names were announced by Dr. Kent Palcanis at the awards ceremony at Regency Square on Saturday, Feb. 6th and the prizes were awarded.

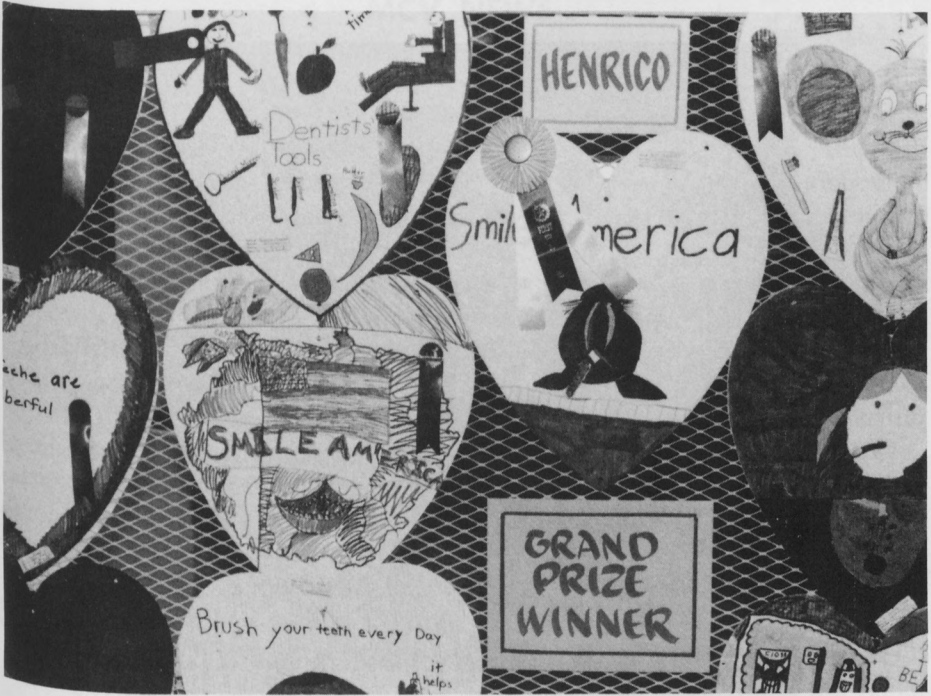
During that day, both dental hygienists and dental assistants collaborated and held a Dental Health Fair in Regency Square's Community Room where games were played, movies shown, apples distributed at the Nutrition Table and dental health literature passed out. Outside, in the mall area, Richmond Dental Society members were at tables representing Pediatric Dentistry, General Dentistry, Orthodontics and Geriatric Dentistry. In addition, the Blood Pressure Table was always busy with mall shoppers waiting in line to have their pressures taken by R. D. S. members.

During these activities, Auxiliary members also presented their puppet show, "I Wish I'd Known" throughout the day and in schools, libraries and at the Dental Health Fair at the Boys Club of Richmond which was presented at a later date by the Dental Assistant's Society, headed by Sue House, of Richmond.

Television appearances on WXEX-TV, Channel 8's "Good Morning, Virginia" program and WWBT, Channel 12's "Mid-Day Show" by Dr. Herb Kaplan, informed viewers about dental disease and its prevention.

National Children's Dental Health Month enjoyed another successful year in the Richmond area due to the efforts of many people in Component IV's affiliated organizations and we are looking ahead towards next year with anticipation.

Herbert W. Kaplan was the 1982 Chairman for The Richmond Dental Society National Children's Dental Health Month.



First prize winner in Jean Palcanis Poster Contest



Dental Health characters by members of Richmond Dental Auxiliary



Mayor Henry L. Marsh, III, signs Proclamation of Dental Health Month for Dr. Herbert Kaplan, left, and Dr. Leslie Webb, right.

PROCLAMATION

WHEREAS, the future is, to a large measure, dependent on the good health of our children and youth, the citizens of tomorrow, and

WHEREAS, good health, physical and mental, can be achieved through good health habits, learned early,

NOW, THEREFORE, I, Henry L. Marsh, III, Mayor of the City of Richmond, do hereby proclaim the month of February 1982, as

"CHILDREN'S DENTAL HEALTH MONTH"

in Richmond and urge that all citizens and all community organizations join in the observance.

Henry L. Marsh, III, Mayor

February 10, 1982

MCV NEWS

G. L. Button, D.D.S., Associate Editor

PEDODONTICS—The new clinical facility opened in February and it is beautiful. Art Mourino has been named a **DIPLOMATE** of the American Board of Pedodontics. Tom Doyle and Joe LeCompte are presenting table clinics at The Hinman Meeting in Atlanta. There are now stipends available for the pedodontic residents. John Leech is leaving.

ORAL SURGERY—A search committee is in the process of screening applicants for Chairman. Frank Farrington heads the committee.

GENERAL DENTISTRY—Jim Butler, Chairman, left recently for a four-month teaching assignment at the dental school in Saudi Arabia.

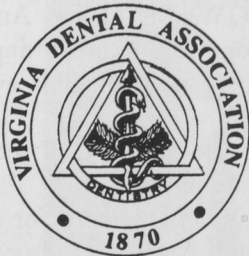
PERIODONTICS—Recently had a site visit for the evaluation of the research center. Bob Mandell has left for a position in Atlanta at Emory University. Howard Dorfman will be leaving to enter private practice in Virginia Beach. Carl Cavallaro has joined the faculty from the U. S. Army. His last duty station was Fort Eustis.

PROSTHODONTICS—Ron Cade will be entering private practice and applications are being reviewed for his replacement.

ENDODONTICS—Marshall England, Chairman has been named a **DIPLOMATE** of the American Board of Endodontics and is Chairman of the Endodontic Section of American Association of Dental Schools. John Holcomb has been Secretary and is now Chairman-Elect. Nate West is a member of the House of Delegates from Virginia to the National Dental Association.

ORAL PATHOLOGY—On Saturday, April 17, 1982, a program "Nutrition and Cancer" will be presented from 9:00 a.m.-1:00 p.m. at the Richmond Academy of Medicine. There will be three presentations and all dentists are invited to attend for free.

RESTORATIVE—Florian Knap, Chairman, made three presentations at the 16th International Dental Congress in Mexico City. The graduate fixed prosthetics program will be visited by the Council on Dental Education of ADA for accreditation. The first graduate of the program will complete training this summer.



REPORT OF EXECUTIVE COUNCIL MEETING

January 29 and 31, 1982

Hyatt House, Richmond, Virginia

ACTIONS IN BRIEF...

January 29, 1982

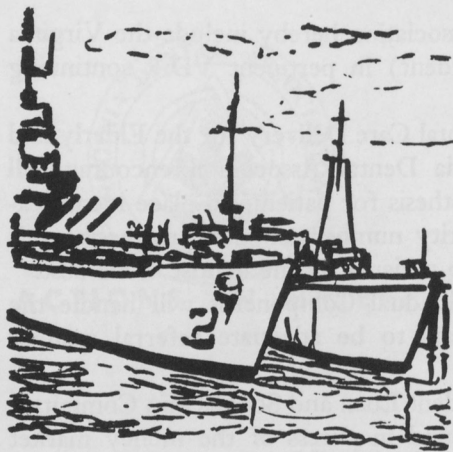
1. *Approved* that the Virginia Dental Association endorse the candidate recommended by the Virginia Dental Hygienists' Association for appointment by the Governor to the Board of Dentistry.
2. *Received as information* Report of MCV School of Dentistry.
3. *Received as information* Report of Dental Division, State Health Department.
4. *Received as information* Preliminary Program for 1982 State Meeting.
5. *Reviewed as information* 1981 Financial Statement.
6. *Referred* to the Budget and Financial Investments Committee for study reduced dues for recent graduates, those in postgraduate programs and in the military.

January 31, 1982

1. *Approved* recommendation of the Budget and Financial Investments Committee that the Virginia Dental Association research and purchase a word processor system. This to be done immediately—the purchase research to be done by the President, Secretary-Treasurer, and Executive Director.
2. *Approved* recommendation of the Dental Care Programs Committee that further action on the capitation study be postponed indefinitely.
3. *Approved* that the number of Statewide Continuing Education Programs be continued at 16, that the program continue to be administered jointly by the VDA Central Office and the Continuing Education Department at MCV, and that, upon the VDA obtaining Sponsor Approval by the American Dental Association and with the installation of EDP equipment in the Central Office, recording of C. E. participation be maintained.

4. *Approved* that the Administration of Virginia Commonwealth University be urged to continue its efforts to seek a change in the formula for funding dental education to insure the continuation of excellence at the dental school.
5. *Approved* that the Virginia Dental Association hereby include the Virginia Dental Hygienists' Association (President) in pertinent VDA continuing education informational mailings.
6. *Approved* recommendation of the Dental Care Delivery for the Elderly and Indigent Committee that the Virginia Dental Association encourage all dentists that construct removable prosthesis for patients to place identification such as name and/or social security number on such prosthesis, with patient approval. This to be offered to patients by the dentist at his cost.
7. *Accepted as information* that the individual Components will handle the dental referral service as there appears to be adequate referral systems already in successful operation.
8. *Approved* recommendation of the Student Loan and Scholarship Committee that all funds in the Student Loan Fund in excess of the money market certificate principle amount (\$10,000), be disbursed to the MCV School of Dentistry each year in May.
9. *Approved* recommendation of the Medicaid Advisory Committee that the Virginia Dental Association write to the Governor of Virginia informing him of our support of the following: (1) Keeping the Medicaid Program under the direction of the Department of Health; (2) The Commissioner of Health of Virginia should be a physician; and (3) Commend Doctor James Kenley and his staff for the fine job done as Commissioner of Health.

COMPONENT NEWS



COMPONENT I

TIDEWATER DENTAL ASSOCIATION

Lawrence H. Cash
Associate Editor

The Virginia Tidewater Dental Association Foundation has donated \$1,000.00 to the MCV Dental Endowment Fund. It is the intent of the Foundation's Executive Committee to donate \$10,000.00 over the next ten years but is not able to commit for more than one year at a time.

The mercury vapor sniffer, nicknamed "Mavis", is now available to Component I members for use in detecting excessive mercury vapor in their offices. A schedule is being worked out for its use in various sections of the component.

Component I at a recent meeting voted to endorse Dr. Emanuel W. Michaels as candidate for election as President-Elect of the Virginia Dental Association at the next state meeting in September. We solicit the support of the other components in this election.

The TDA has donated a dental chair

to the Tidewater Children's Museum in Portsmouth. This museum is a "hands-on" participatory museum where kids learn by doing. It is hoped that by having a dental chair to play with that children will overcome some of the mystery of a dental office.

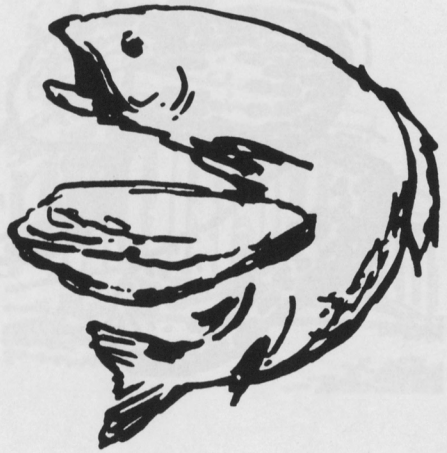
The Spring Meeting will be held on Friday, May 14th, 1982 at the Lake Wright Motor Hotel in Norfolk. Dr. William Morris, Assistant Dean of the Law School of West Virginia University, will speak on "Malpractice and the Legal Aspects of Dentistry."

The Dental Health Month Committee has been extremely active. Seventy-six dentists visited 106 schools speaking to children in classes K through 3. Twenty schools were visited by Navy dentists. There were many TV and radio programs. The School of Dental Hygiene had a puppet show at Military Mall and passed out over 500 toothbrushes.

COMPONENT II

PENINSULA DENTAL SOCIETY

Don W. Cherry
Associate Editor



Component II will have its annual Tri-Military dental meeting at the Langley AFB Officer's Club on August 26, 1982. Reservations required.

Dental Health month was a great success this year with dental public information spots on channel 13 with Ken and Nancy Stavisky and also on channels 10 and 3. Also, there was much participation in the schools with local members. The Williamsburg-James City County Public Schools celebrated their 6th year of the Tooth-

Keeper Program with Don Cherry educating the teachers in an annual workshop and the teachers running the program in the classrooms over a seven week period.

On May 3 there will be an all-day continuing education meeting in conjunction with the V.D.A. at Hampton Holiday Inn. The program will feature Dr. Bob Campbell of M.C.V. speaking on Dentistry and Pharmacology. Reservations required through Dr. Wiebusch and the fee is \$10.00 for V.D.A. members.



COMPONENT III

SOUTHSIDE DENTAL SOCIETY

Eduardo Ortiz, Jr.
Associate Editor

On May 7th & 8th Jim and Naomi Rhode will be in Williamsburg at the Bonhomme Richard Motel. Our component is sponsoring their visit and we really should respond en masse. Many of you will recall the Rhode's last visit a few years ago and how well their presentation was received by all. Their program is for auxiliaries and doctors and wives. It is excellent; and a good way to gather knowledge while enjoying a weekend in Williamsburg.

Also in May the Annual Bosses night sponsored by the Southside Dental Hygienists will take place. It is the night when each hygienist treats their Boss to cocktails and a good meal. It is a great get together. They will also

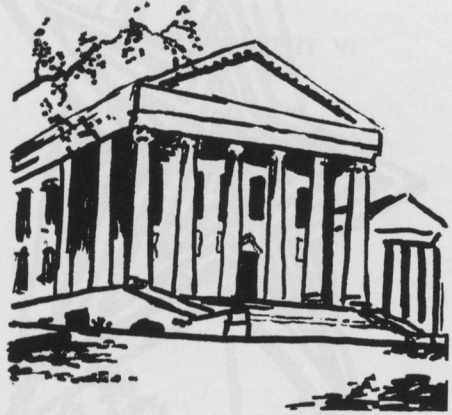
install their officers that evening and will give us a chance to meet with them. If your hygienist hasn't asked you yet, it might be a good idea to start hinting of how nice it would be to attend. Find out all the details from her.

Do you know that in June 28, 1797 the first dental patent in this country was given to Thomas Bruff who practiced dentistry in Pennsylvania, Maryland, and Virginia? The patented instrument was called a perpendicular extracting instrument. . . . And do you know that this space is especially for news of Component 3? Your news. Any item of interest to you is probably worth sharing with us. Lets hear from you.

COMPONENT IV

RICHMOND DENTAL SOCIETY

Michael O. McMunn
Associate Editor



Three of our colleagues have recently been elected Fellows in the American College of Dentists. Congratulations to Dr. Rudolph H. Bruni, Jr.; Dr. Edward H. Radcliffe; and Dr. Martin J. Peskin. The American College of Dentists is a sixty-two year old organization that recognizes through fellowship dentists who have contributed to the advancement of the profession and humanity.

The Richmond Dental Society is well into its Endowment Fund Drive for MCV School of Dentistry, and it is going even better than expected. We hope the other Components join us

in the efforts to go over the \$2 million goal.

We are looking forward to having Mr. Richard B. Pearson, Media Specialist, VCU, give his presentation on "Photography in the Dental Office" on Thursday, April 15, 1982. Mr. Pearson has given other notable presentations to include a recent one at Wintergreen, which was enjoyed by all those who attended. Dick is a long time friend of dentistry and has worked in the field of dental photography for many years.

We wish all of the other Components a warm and happy springtime.



COMPONENT V

PIEDMONT DENTAL SOCIETY

W. C. Williams
Associate Editor

The Component's Peace Corps has been active lately. The procedure is to throw some forceps and anesthetic in a suitcase and head for a remote corner in a third world country.

Dr. Louis Painter of Salem has been to Hatti, Dr. Marvin Midkiff of Martinsville has been to Honduras (six hundred extractions), Dr. Charles Conklin of Roanoke has been to Africa, and Dr. Fuller Robinson of

Roanoke has been to Africa, India, Central America, the Middle East—you name it—Fuller plies his skill in some impoverished land every year. All these dentists say they get more out of it than the patients.

So, if you want to help someone who needs help, and have an enriching experience at the same time, talk to one of the above dentists, he will give you the inspiration and the procedure—good luck.



COMPONENT VI

SOUTHWEST VIRGINIA DENTAL SOCIETY

W. R. Armentrout
Associate Editor

The December 1981 meeting of the Southwest Virginia Dental Society was held in Abingdon, VA, at the Martha Washington Inn. A program was given on the relationship between the General Practitioner and the Specialist. Our business meeting was held at 3:00 p.m.

Our Necrology Committee reported the passing of Dr. Eugene Crockett of Radford. A \$25.00 donation has been made to the American Cancer Society in his name.

We took in four new members: Dr. Hollyfield, Marion; Dr. Huffman, Radford; Dr. Gates, Marion; and Dr. Pope, Kingsport, Tennessee.

Dr. Littrell distributed National Children's Dental Health Month information.

Our next meeting was held at the Homestead in Hot Springs, VA, on March 26, 27, in conjunction with the Piedmont Dental Society. This was a VDA Continuing Education Program. The subject was "The Creative Challenge in Fixed Prosthodontics".

Our next meeting will be held in Marion, VA, on May 21, 1982. The program will be on Dental Materials—a series of mini clinics will be presented. Area legislators will be invited to our May program.

A tentative program for the rest of the year is:

August 13—Blacksburg, VA, Dr. Ed Joy, Pain Control in the Dental Office.

November 19—Abingdon, VA, Dr. Charles Blair, Tax Tips and Personal Finances.



COMPONENT VIII

NORTHERN VIRGINIA DENTAL SOCIETY

David C. Anderson
Associate Editor

The Northern Virginia Dental Society has long recognized the need for beginning and advanced CPR life support for its members and staffs. Programs have always been enthusiastically received and well supported. This has proved possible through the Heart Association's loan of teaching aids directly to NVDS. When these aids were turned over to a local community college, the NVDS was, in effect, locked out in the cold. It's gratifying to know that our society

will purchase its own aids. This proves once again our profession's caring attitude in a way the public will never see.

On a more visible level, Children's Dental Health Month was a complete success. Through the tireless efforts of a number of people, materials have been distributed and presentations given in schools and other public places. These programs appear to be very well received to a most grateful audience.

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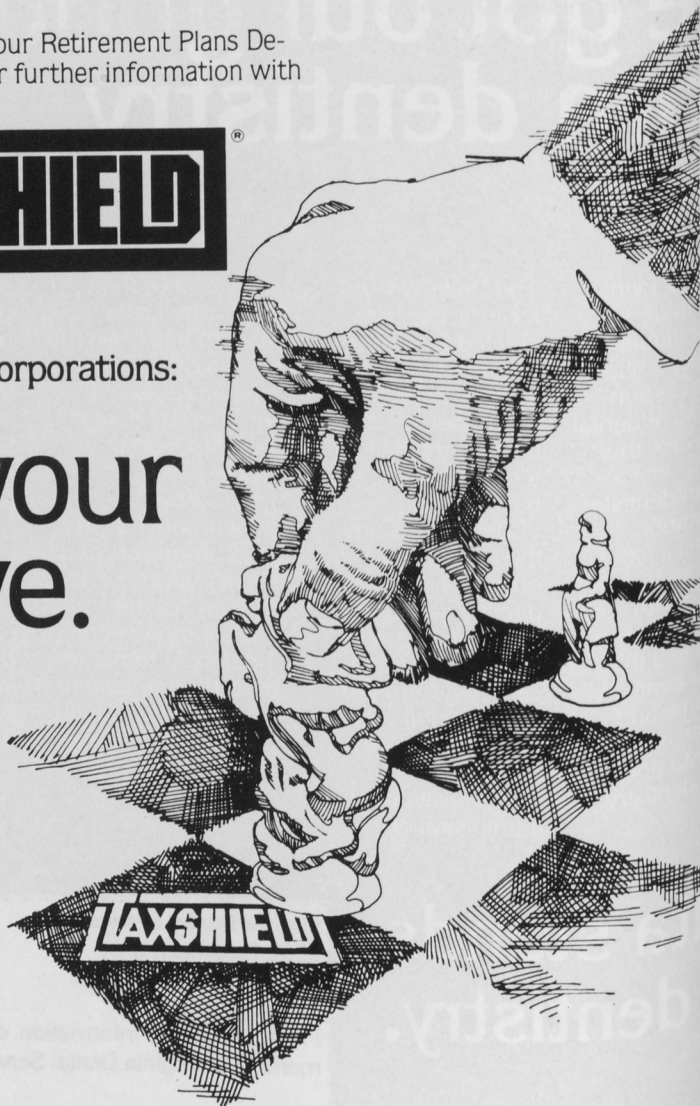
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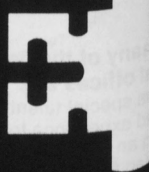
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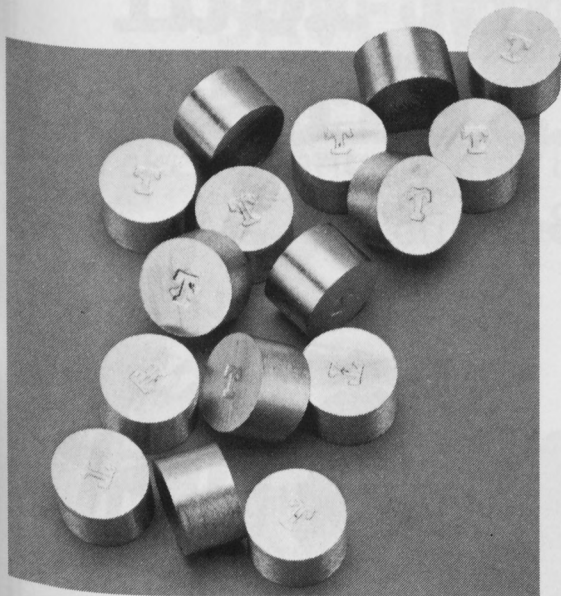
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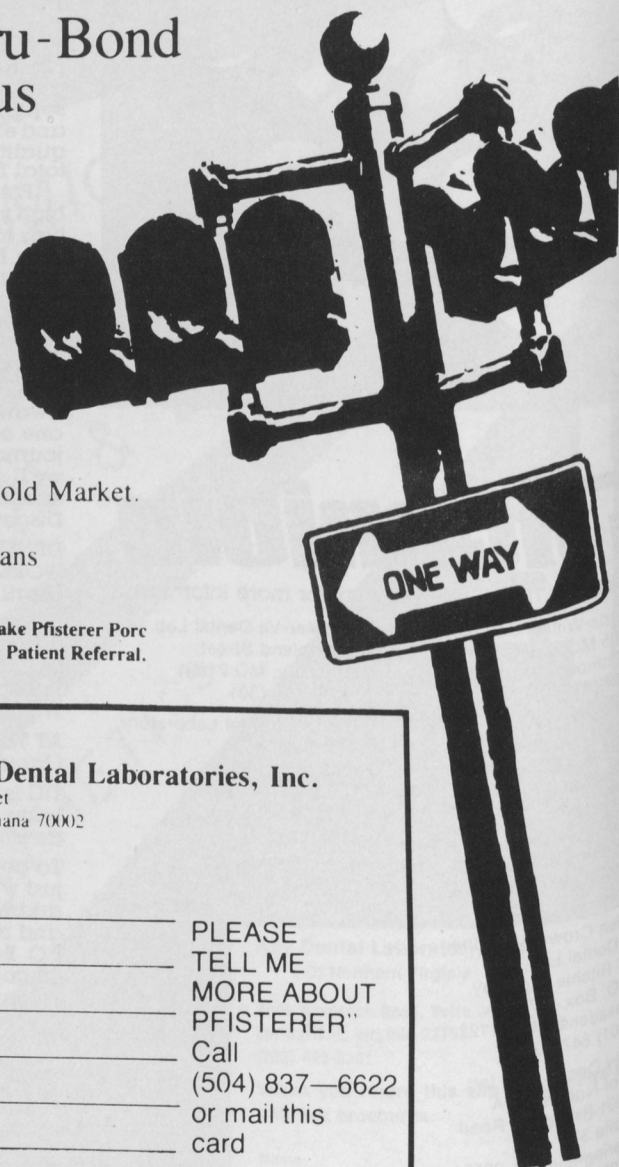
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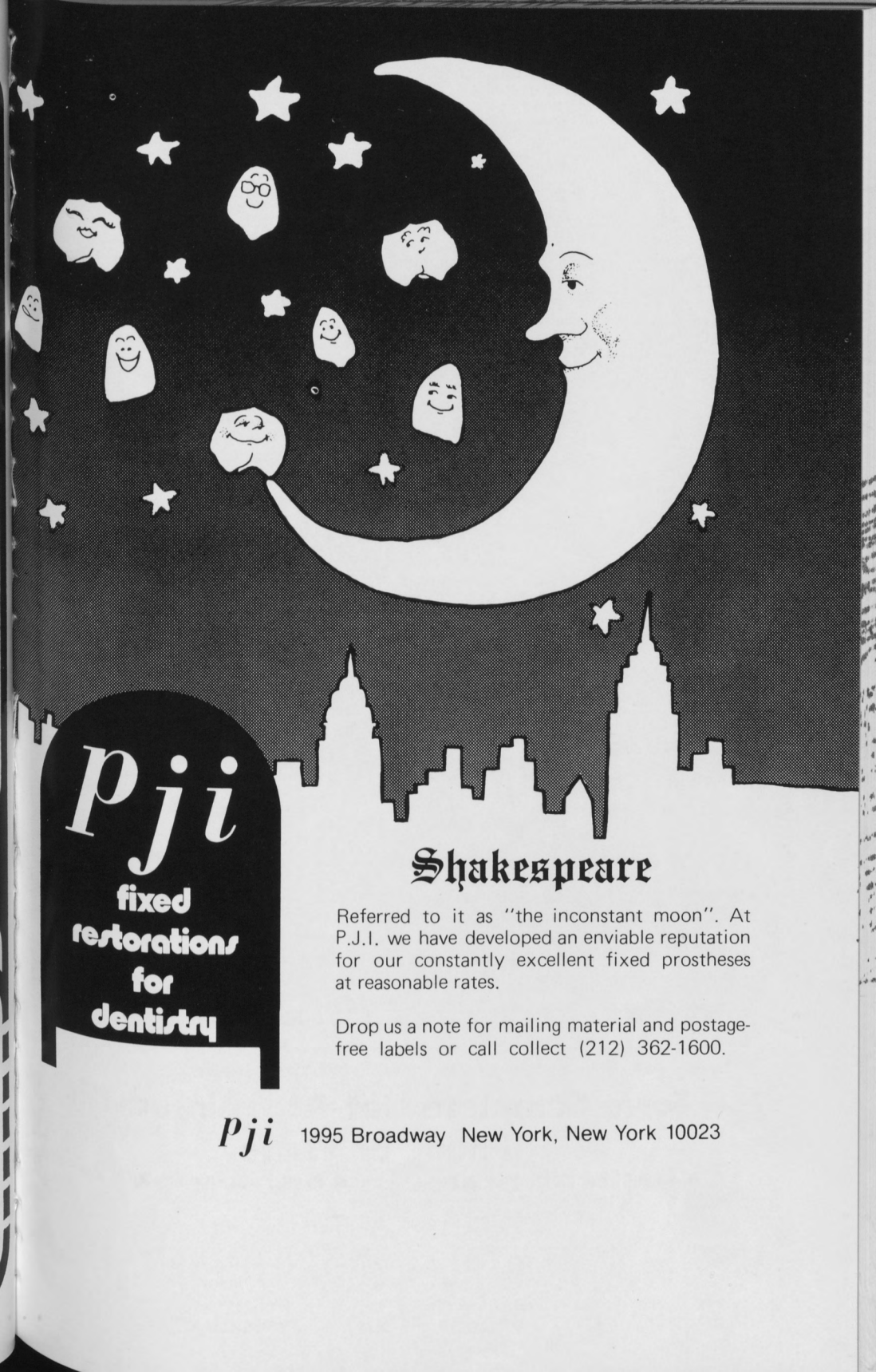
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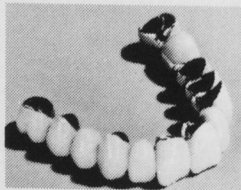
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
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