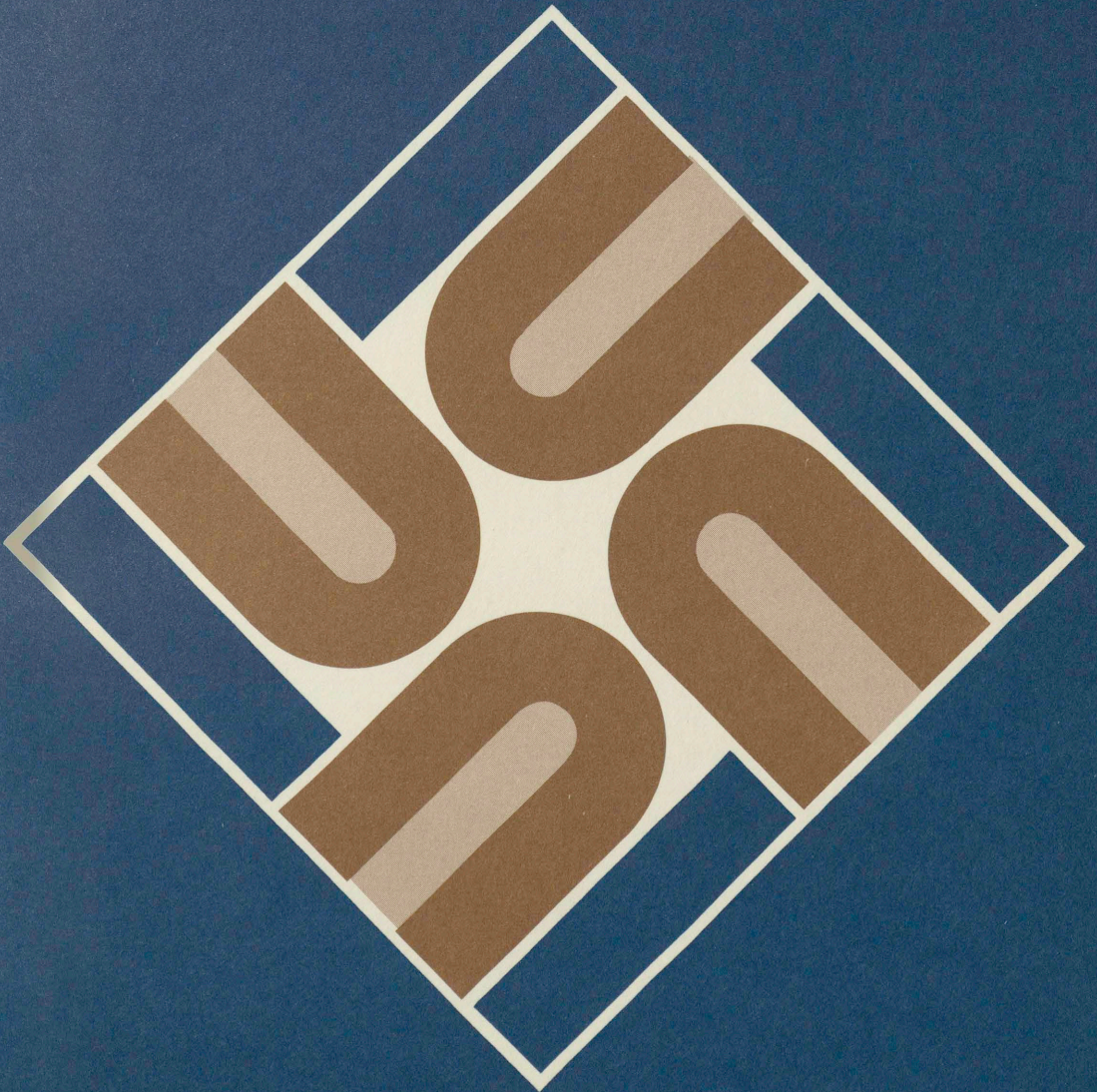


Alumni Bulletin

SCHOOL OF DENTISTRY

Spring Issue 1974



Indiana University



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# Indiana University School of Dentistry ALUMNI BULLETIN

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## Contents

ORAL PATHOLOGY DEPARTMENT: TEACHING, SERVICE, AND RESEARCH	4
AN EXPERIMENTAL PLAQUE PROGRAM	6
EXTRACTIONS AS AN ALTERNATIVE TO RESTORATIVE DENTISTRY	8
MOTIVATING PERIODONTAL PATIENTS: A PERSONAL ACCOUNT	10
USE OF FLUORIDE IN MILK AND IN SALT IN SWITZERLAND	18
PSEUDOSIALORRHEA: A CASE REPORT	16
SHIRLEY SHAZER ASSISTS MANY WITH DENTAL RESEARCH PROJECTS	19
EFFECT OF THE ENERGY CRISIS ON INDIANA UNIVERSITY	22
NOTES FROM THE DEAN'S DESK	23
DR. STARKEY'S COLUMN—THE SERING DENTAL CLINIC	25
DENTAL AUXILIARY EDUCATION	28
THE BOOKSHELF	30
ALUMNI NOTES	36
MESSAGE FROM THE PRESIDENT	48

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# The Oral Pathology Department: Teaching, Service, and Research

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*Charles E. Tomich, Associate Professor of Oral Pathology*

To the graduates of the Oral Pathology program at the Indiana University School of Dentistry, nothing stands out more than the daily "noon-session," a learning experience which is virtually synonymous with the program. At this time all of the tissue specimens prepared for microscopic examination are discussed and diagnosed. In addition, the entire department, both faculty members and graduate students, takes part in a question-and-answer session and discussion of various pathologic processes. These processes are considered from the historic, current, and even futuristic standpoints.

For example, in a discussion of the adenoid cystic carcinoma or cylindroma of salivary gland origin, a number of interesting facts may arise, such as the fact that the lesion was originally described by Theodor Billroth, a Viennese surgeon who performed the first gastrectomy for cancer of the stomach and the first laryngectomy for laryngeal carcinoma. As a sidelight, it might be mentioned that Billroth was an accomplished musician in his own right and was a close personal friend of Brahms. Aside from the historical aspects, current papers concerned with the tumor may be discussed. These may deal with large clinical series of cases or interesting individual cases. Obviously, treatment and prognosis merit a great deal of discussion as well as possibilities for future investigation of the lesion. Because of the varied interests in the department, virtually no area goes unexplored and it is this environment that makes the training program what it is today.

The Department of Oral Pathology plays an important role in the education of undergraduate and graduate students. It has gained national and international recognition largely through the work and the leadership of Dr. William G. Shafer, Distinguished Professor of Oral Pathology

and Chairman of the Department. Dr. Shafer, a graduate of Ohio State University College of Dentistry, assumed the chairmanship in 1950. Dr. S. Miles Standish joined the departmental staff two years later and together, Drs. Shafer and Standish started the Department on its way to the status it enjoys today.

Basically, the Department has responsibilities in teaching, service, and research. These activities are conducted by the four full-time faculty members and the graduate student class of six members. The secretarial and technical staff number five, with one part-time technician assistant.

## Teaching

Oral Pathology is taught at the undergraduate, post-graduate, and graduate levels. The courses cover, to varying degrees, such topics as developmental disorders, neoplastic and infectious diseases, and oral manifestations of systemic diseases. Classes are conducted for sophomore and senior dental students and for first and second year dental hygiene students. The Department is quite proud of the fact that the 1972 senior class presented a plaque to the faculty members of the Oral Pathology Department for "an outstanding contribution" to their dental education. In addition, short courses, seminars and lectures are given locally as well as on a state and nationwide basis by the faculty members.

It is perhaps at the graduate level that the Department of Oral Pathology has become best known. As of July 1, 1973, 41 graduate students have trained or are being trained as oral pathologists. Significantly, 22 of the 148 registered Diplomates of the American Board of Oral Pathology are Indiana-trained; an additional four men are presently Board-eligible.



As a part of the training of the graduate student in oral pathology, each trainee is responsible, on a rotating weekly basis, for the gross and microscopic descriptions of these specimens. When each day's cases have been described, they are discussed and a final diagnosis is rendered at the daily "noon-session." The more common oral lesions such as periapical granulomas and cysts, mucocoeles, fibromas, and dentigerous cysts constitute a fairly large percentage of the cases although a number of more serious or unusual conditions are also encountered. The most common malignancy occurring in the oral cavity is epidermoid (squamous cell) carcinoma. Significantly, over eighty cases of this condition were diagnosed during the last fiscal year. During recent sessions, some relatively uncommon conditions such as osteosarcoma, fibrosarcoma, calcifying odontogenic cyst (Gorlin cyst) and neurofibromatosis have been diagnosed.

Another important service provided by the Department is consultation to other pathologists on diagnostically difficult

microscopic cases. Not long ago, the Department had a request for an opinion on a palatal lesion in a young boy which had grown rapidly and had recurred despite two attempts at surgical removal. The lesion proved to be a reactive lesion of periosteal origin, an entity recognized in other bones of the skeleton but uncommon in the jaws. Approximately 75 such consultations were provided by the staff during fiscal year 1972-73. Likewise, the staff has provided clinical consultation for practitioners on a referral basis.

On the international level, the Department has served as a Collaborating Centre for the World Health Organization (WHO) International Reference Centre for the Histologic Classification of Tumors. Three Oral Pathology Departments, those at Indiana, Minnesota, and Emory (Atlanta), were chosen as the collaborating centres from the United States to serve on the committees for the classification of odontogenic cysts and tumors and oral precancerous lesions. However, only Indiana served on both committees.

*(Continued on page 49)*



A recent noon session of the Department of Oral Pathology, with Distinguished Professor William G. Shafer, Chairman of the Department, at the right. Dr. Charles E. Tomich, author of the accompanying article, is at Dr. Shafer's right.



# An Experimental Plaque Control Program

*Roberta M. Hilderbrand, Instructor in Dental Hygiene*

More than a year ago, an experimental plaque control program was started at the Indiana University School of Dentistry. The program was designed to give dental students experience with a plaque control program that could be incorporated into private practice.

The students were asked to bring their own patients for the program. There was no examination, grade or credit; it was entirely a voluntary learning experience. Student interest was indicated by the fact that more than fifty percent of the eligible students participated. Of the 106 seniors, forty-four brought patients to the control program, and three brought two each. Seventy-two of the 102 junior students brought patients to the control room, including 13 students who brought three patients each. During the summer clinic, twenty-five of the new junior students completed a patient in the plaque control program. Visitors to the program included a dental hygienist who plans to teach plaque control for her dentist husband.

## Facilities, Equipment, and Supplies:

A room near the periodontic clinic was equipped with a Super 8 Fairchild film projector and cassettes on periodontal disease, flossing and brushing. A standard dental operatory was also made available for all phases of instruction other than the showing of films.

A phase contrast microscope was purchased, as well as a Floxite mirror and a flossing model. Routine supplies for the patient included a disclosing solution, toothbrush, unwaxed dental floss, and plastic mouth mirror. Special adjuncts such as the Perio-aid, floss holders, and bridge threaders were provided.

A student with a prospective patient was asked to make three plaque control appointments for the patient. Since the

program was to be a learning experience for the student and patient alike, both had to be present at all appointments.

## Phases of Program:

### *First Appointment*

In the plaque control program room, the patient was first shown a ten-minute film explaining periodontal disease. Next, in the operatory, inflammation and disease caused by plaque were pointed out to the patient in his own mouth. The importance of using a disclosing solution was explained. The patient was given a solution and asked to rinse and examine his teeth with aid of a Floxite mirror.

Using a sample of the patient's stained plaque, a slide was made and placed under the phase microscope so that the patient could see the bacteria from his own teeth. The patient's teeth were then restained and the score recorded on the O'Leary et al<sup>1</sup>. plaque control record form. In this method, each tooth present in the patient's mouth is divided into four surfaces: mesial, distal, facial and lingual. A surface is scored if it contains plaque at the gingival margin. To obtain the plaque score, the total surfaces containing plaque are divided by the total surfaces available.

Most people require more time to learn to floss than brush, and flossing lessons were therefore started at this first appointment. Since most people brush their teeth, but only a few use floss, early emphasis on flossing seemed to be justified.

A flossing model was used to demonstrate the correct flossing technique to the patient. Then the patient flossed his own teeth. Since most people have difficulty using the floss at first, the therapist demonstrated for the patient.



## *Second Appointment*

At the beginning of the second appointment, the patient was shown a ten-minute film on the technique of brushing and flossing. Then in the operatory the patient rinsed with disclosing solution and examined his teeth. Since plaque is readily detected in the easy-to-see areas, the patient was helped to find it on the surfaces more difficult to see.

A plaque record was taken and the score compared with the previous one. Next, using the model, the patient was shown how to place the brush for the sulcular method of brushing. After restraining the teeth, he was shown the interproximal plaque that remained. The patient was then asked to demonstrate flossing. Any problems with either brushing or flossing were corrected by the therapist.

## *Third Appointment*

The third appointment was used to reinforce what the patient had learned and to continue work on areas that still needed refining. Since most patients need more than three lessons in plaque control, the student continued to reinforce and motivate the patient during subsequent treatment.

Insofar as possible, I helped the students with any difficulties they were having in patient education, especially in teaching patients how to floss. After one patient was shown how to curve the floss around her bicuspid and molar teeth, her plaque score was reduced from thirty percent to eight percent. Needless to say, both student and patient were very pleased.

## *Evaluation of the Program*

An evaluation questionnaire was given to the dental students who had brought patients through the plaque control program. Thirty-two seniors and fifty-one juniors responded.

One question asked, "Was your experience in the plaque control program worthwhile to you?" All but three students responded affirmatively. Many of the explanations referred to the value of par-

ticipating in an organized program. Typical comments were:

"It gave me a chance to be exposed to a formulated program, see audio-visual aids, and pick up new ideas."

"The program was helpful in determining whether a plaque control program would be useful in private practice."

(This student plans to offer it in his practice.)

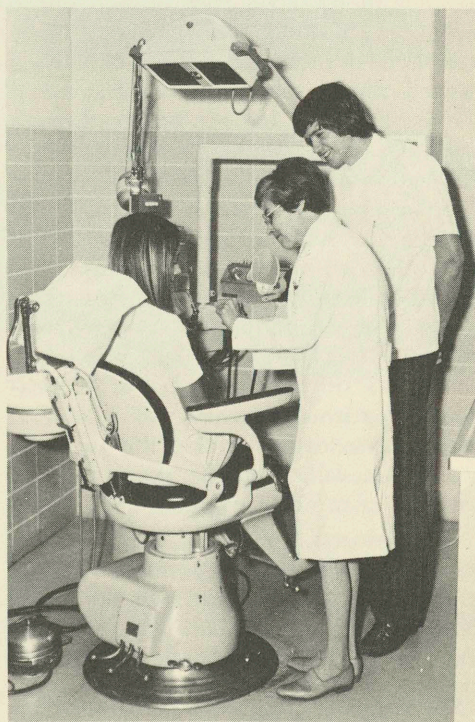
"It gave me ideas as to the different approaches to patients—reminded me not to get into a routine and give the same thing to every patient."

The three negative responses indicated that these students felt they already knew about plaque control and thus did not learn much. However, one student said he thought that his patient derived considerable benefit.

Another question was, "Do you feel that your patient benefited from the plaque control program?"

All but six of the students felt that the program had helped the patient, and most

*(Continued on page 49)*



Mrs. Roberta Hilderbrand demonstrates the teaching of flossing technique to J. B. Jaco, junior dental student.



# Extractions As An Alternative To Restorative Dentistry

*M. John Borkowski*

In our conscientious efforts to provide correct treatment, we often overlook methods of accomplishing a satisfactory result with a simplified approach. Such may be the case in management of a badly mutilated 6 or 12 year molar.

Recognizing the lower first molar as the keystone of the dental arch, we do all in our power to preserve it. When it is cariously exposed and coronally broken down, root canal therapy, post and core and a full coverage restoration would be necessary to rebuild it properly. The second molar usually is in better condition because it erupts much later than the first molar. Frequently, the patient comes in for treatment of the first molar because of obvious decay and/or pain.

A decision must now be made whether to attempt to retain such a tooth or to remove it. Pedodontists<sup>1,2</sup> generally agree that if one or more first molars are diseased beyond repair they may be removed if the second molar has not broken through the gingivae. If the second molars have erupted, however, everything should be done to retain the first molar. Orthodontists<sup>3</sup> go one step further and say that if the roots of the second molars have started to form at the time the first molar is lost, the second molars ultimately tip mesially, after eruption, providing the patient has a trituration pattern of mastication. In patients who chew with a bilateral vertical masticatory stroke, the teeth do not tip mesially but the space remains partially open after eruption.

The greatest growth of the mandible occurs while the second permanent molar is developing. One treatment for a developing Class III malocclusion is the extraction of the mandibular six year molars,

if this tendency for malocclusion can be recognized at an early enough age. According to Hernley,<sup>3</sup> at this time the greatest growth of the mandible will be arrested, and a normal mesio-distal relationship of the mandibular teeth to the maxillary teeth can be established. A great deal of caution should be exercised in deciding to remove mandibular six year molars.

We can be much more flexible in dealing with maxillary first molars and all the second molars. If radiographic examination reveals a satisfactorily developing unerupted second molar and third molar bud, extraction usually will allow the unerupted tooth to come into the oral cavity and occupy the six year molar position. In addition, the third molar will migrate forward as well and subsequently fill the second molar position.

Figure 1 illustrates a situation involving four second molars. The boy was 15 years old and had excessive decay of many teeth. All second molars were developmentally hypocalcified, and the decay process left little tooth structure to work with. Radiographs revealed normally developing third molars. Treatment consisted of extracting all second molars and allowing the third molars to erupt with no orthodontic intervention.

Here we have treated a patient using a fairly easy and inexpensive procedure, extractions. Had we used a restorative approach, several of these second molars would have required root canal therapy, all would have required crowns, and there would also have been four impacted wisdom teeth to remove! This patient was very grateful for the logical thinking given his treatment, and for the satisfactory result we had obtained. Yes, he is still experiencing teen-age decay, as can be seen in the radiographs.

*(Continued on page 50)*

Dr. Borkowski is a 1955 graduate of the School of Dentistry and a former faculty member in the Department of Fixed and Removable Partial Prosthodontics. He practices in Indianapolis.



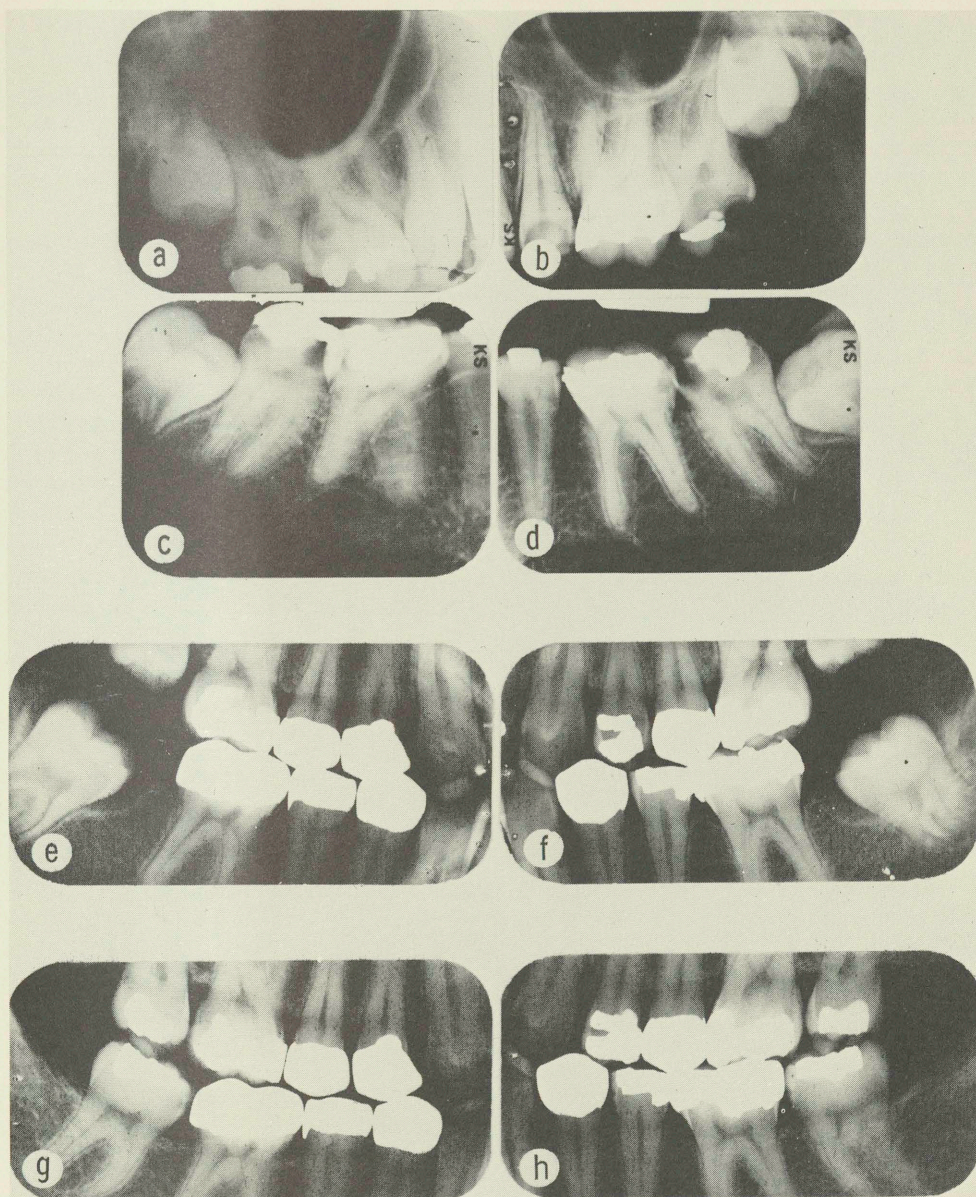


Figure 1 (a-b-c-d)—Periapical radiographs show the presence of normally shaped, open rooted third molars possessing much eruptive force.

(e-f)—Approximately one year later, anterior migration, as well as eruption of the third molars, is occurring.

(g-h)—Two years later, the third molars have assumed a normal relationship in each arch and to each other.



# Motivating Periodontal Patients: A Personal Account

*M. Bashar Bakdash, Graduate Student in Periodontics*

The success or failure of periodontal treatment is largely dependent upon the patient's performance of effective and continuous daily plaque control.

A concentrated effort to motivate periodontal patients to practice such plaque control is being carried out by the Department of Periodontics at the Indiana University School of Dentistry. Furthermore, according to departmental policy, no student will go beyond the scaling and root planing phase of periodontal treatment until a patient demonstrates that he is routinely and effectively removing the microbial plaque from his teeth. In this paper I would like to describe some of my experiences as a graduate student in motivating periodontal patients to carry out their routine plaque control program. After a brief discussion of principles and methods, I will attempt to show how these principles and methods have been applied in cases I have been treating during the last two years.

## Keys to Motivation

Teaching the patient to carry out plaque control procedures may sound easy, but it is not. Dispensing of plaque control aids and agents is sometimes used as the sole means for motivation, but much more is needed. Gaining some understanding of the patient is essential. Good results can usually be obtained by relating the disease process to the individual, and this also helps establish two-way communication. Prior to the initial periodontal examination the patient is given a simple and brief explanation of how the tissues appear in health and disease. He is then given a hand mirror and asked to follow the examination. Areas of gingival inflammation and periodontal pocketing are pointed out and related to the presence of microbial plaque, calculus and other irritants. The patient's recognition

of disease in his own mouth and of the relationship between the disease and microbial plaque accomplishes three goals: (1) It makes the disease process a real, not an abstract, entity to him; (2) it points out to him the major reason for the disease process; and (3) it makes him aware of the need to clean his teeth.

Once the need has been established, the second step is to discover what motivates an individual patient. Some of this information can be obtained from the medical and dental histories, and by talking with the patient and observing his appearance and reactions. Motivating a patient to carry out plaque control procedures is accomplished by setting desirable goals and objectives. The same goals cannot be used to motivate all age groups or all patients in an age group. Younger patients, and some older ones, can often be motivated by the prospect of an improved appearance. Some patients are very health-conscious, and linking oral health to general well-being may be effective with this group. Motivation is sometimes based on the fear of aging as represented by an edentulous condition. Explaining to these patients that the loss of teeth changes the chewing efficiency and facial appearance negatively can motivate them. Still another type of patient is the success-achiever. Such an individual is highly motivated to be successful in anything he attempts. Carrying out plaque control is a goal to this individual, which he will make every effort to accomplish successfully.

## Instructing the Patient

After discovering what motivates the patient, plaque control instruction is given. The choice of words is important in communication and, in general, language should be as simple as possible. Even with a well educated patient, highly tech-



nical terms should be avoided since the patient may be unwilling to reveal his lack of understanding by asking for an explanation.

The patient learns by doing, not by merely watching. When the patient's present method of cleaning his teeth is markedly ineffective, a method is prescribed that will allow him to effectively remove the plaque from his teeth. The method is first demonstrated in the patient's mouth, and he is given a certain sequence for brushing and flossing so that no tooth surfaces are missed. The patient is then asked to demonstrate the technique and corrections are made as needed.

The instruction should be given in several increments; attempting to introduce all necessary plaque control procedures at one time can lead to failure. Also, the patient must be made to understand that he should depend upon his therapist only for things which he cannot do for himself. I make it clear that daily plaque control is his personal responsibility and that I can not assume responsibility for the patient's part of the treatment.

An average patient usually requires five periods of instruction to achieve a satisfactory level of plaque control. The use of the Plaque Control Record (Figure 1) allows the patient to visualize his own progress in learning plaque control. Use of this record shows the improvement that is being made and areas where the patient is having difficulty in cleaning. I tell my patients that they must achieve the ten percent level or less before any surgical procedure can be carried out. They are also reminded that the same satisfactory level of plaque control must be maintained throughout life to ensure the continued success of therapy. Finally, motivation is a continuing process where frequent contact and positive reinforcement are important for the patient to maintain the new plaque control habits.

### Case Summaries

The following case summaries represent a wide spectrum of patients with different motivational drives and views

concerning their oral health and its priority in their daily lives. All information presented here will be factual except that the names have been changed.

Mrs. Brown is 37 years old, 5'6" tall, and weighs 128 pounds. She is extremely neat in appearance and is especially conscious of doing whatever is necessary to promoting her good health. On her first appointment, her main concern was to obtain an anterior bridge. She stated: "I need a bridge to replace my missing front tooth. You know, it's hard to smile without moving my top lip down." Upon examination, I found that she had generalized, moderate to severe periodontitis. She required periodontal therapy prior to any prosthetic treatment.

This patient's own concerns were most useful in motivating her to accept and carry out her responsibility for the treatment plan. Since Mrs. Brown perceived that her appearance would be greatly improved by having a bridge, she was very open to the periodontal therapy as a prerequisite. She was also concerned about keeping her health. I explained that improving her plaque control performance would enhance her overall health. It was also pointed out that the success of the treatment would depend greatly on her daily plaque control. Being a very receptive and responsible person, Mrs. Brown has maintained good to excellent plaque control performance throughout her treatment. She has also kept all of her appointments. In the near future Mrs. Brown expects to receive her bridge, which to her is the biggest reward for all of her efforts.

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Mrs. Slain is 22 years old, 5'4" tall, and weighs 180 lbs. Her attire and appearance are often untidy, and she seems unconcerned about her poor dental health. She told me that her primary goal was to "fix her chipped front tooth." After examining Mrs. Slain, I found that she had generalized, moderate to severe, chronic gingivitis, with incipient periodontitis. Most surfaces of her teeth, including the labial mandibular anterior teeth, were covered with heavy calculus deposits.



My approach was to increase her knowledge about her periodontal problem and its consequences if she did not receive adequate treatment. She was told that her chipped tooth would be restored as soon as she achieved reasonable plaque control, with her periodontal problem resolved. After the problem and the treatment procedure had been explained, Mrs. Slain reluctantly agreed to undergo periodontal therapy. However, her plaque control performance fluctuated considerably, and her usual attitude was complete lack of interest. Her manner seemed to say: "So what?" or "Who cares?" Before long Mrs. Slain decided to discontinue the treatment. She stated that she did not feel she had received any benefit from it. Clearly, I had not been successful in assisting Mrs. Slain to establish her need for treatment in her own mind. She did go along with the treatment plan to a point. However, her previously negative attitude toward dentistry, which was strongly supported by her husband, predominated.

Mr. Long is a 55-year-old man who had not been to a dentist for 15 years when he was first seen in the Oral Diagnosis/Oral Medicine clinic for what he thought would be a routine check-up. He was then referred to me for periodontal therapy. Mr. Long's main problem was generalized, moderate to severe periodontitis. During the initial interview and the following appointments, Mr. Long did not talk much, although he did stress several times his strong desire to retain his teeth under any circumstances. He seemed worried that he would lose his chewing efficiency if he lost some of his teeth. He also appeared to relate the loss of his teeth with aging, which suggested that he was having difficulty accepting the aging process in himself. These motivating factors were used to influence him to accept and carry out the treatment plan. Part of his treatment plan consisted of extracting a few hopeless posterior teeth. Mr. Long was told how this measure would, in the long run, help to preserve the remaining teeth. After

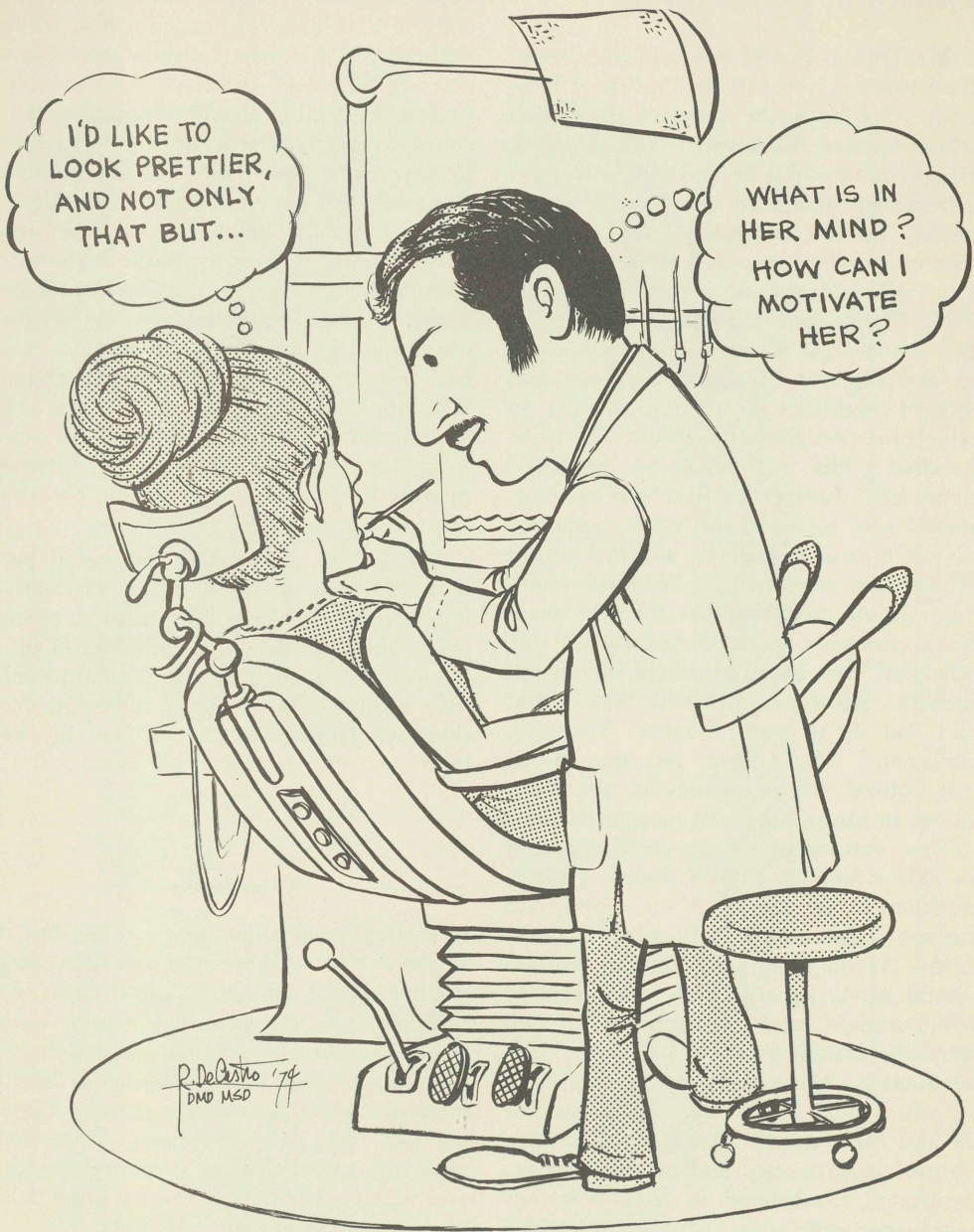
this explanation, he seemed more open and amenable to the extractions than he had been earlier. Mr. Long's plaque control performance improved drastically, and a few surgical procedures were then carried out. I see Mr. Long frequently, since his plaque control performance fluctuates. These visits seem to serve as a motivating force with him to continue good oral hygiene practice. Periodic reminders that poor plaque control performance can lead to loss of the remaining natural teeth usually have the desired effect.

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Mrs. Mathews, a 45-year-old hairdresser, had received periodontal treatment about 10 years before coming to our clinic. Because of the lack of continuous follow-up, her previous periodontal therapy had failed. In interviewing this patient, I discovered that she knew very little about periodontal disease and did not realize that her oral hygiene contributes significantly to the success of the treatment. Therefore, I attempted to increase her understanding of periodontal disease and treatment by using simple terms and drawings when necessary. Mrs. Mathews expressed much appreciation for the instructions. She implied that no one had taken the time to give her such simplified, in-depth explanations, and that she had never before understood the rationale for treatment. Mrs. Mathews then worked diligently to maintain her plaque control performance, which consistently ranged from good to excellent. She also conscientiously kept each of her appointments.

Since she had no acute discomfort, Mrs. Mathews did not at first perceive that she had a periodontal problem. Nevertheless, communicating with her on her level helped to convince her that she does indeed have a problem which requires constant effort. This cooperative, positive response on Mrs. Mathews' part further motivated her to set up a dental appointment for her teenage daughter. Thus, Mrs. Mathews indicated a significant increase in her awareness of dental health. If I accomplish nothing further with Mrs. Mathews' periodontal condi-





Two views of motivation.



tion, I would consider her improved dental awareness an accomplishment.

Mr. Gibson is a 54-year-old member of the housekeeping staff at University Hospital. Originally, he came to the dental school to have his missing teeth replaced. Upon examination he was found to have generalized, moderate to severe periodontitis. Besides the routine initial therapy, he required the extraction of several hopeless teeth and extensive periodontal surgery. The patient was extremely cooperative in accepting his personal responsibility in carrying out his treatment plan and seemed confident about the manner in which his periodontal problem was to be handled. His oral hygiene improved drastically during the first few appointments and his gingival tissue appeared almost normal. However, surgical pocket elimination remained to be carried out. Mr. Gibson told me that the change in his appearance was observed by his son, who had been away to school for several months. His son commented, "Dad, what did you do to your mouth? You look different." Mr. Gibson felt that if his son noticed the improvement, the alterations in his mouth must be significant.

Two motivating factors were apparent in this situation: Mr. Gibson's positive response to the advice he was given, and his son's observation of his oral improvement. At this point I felt that Mr. Gibson would surely be a patient committed to his treatment, and would follow through until the completion of his therapy. Unfortunately, Mr. Gibson began cancelling appointments. On the rare occasions that he did show up at the clinic, his plaque control performance had consistently deteriorated. I decided to have a serious discussion with him about his regressed

oral hygiene. With some difficulty, Mr. Gibson explained that his father was critically ill and he had to care for him while maintaining his own fulltime job. Considering these high-priority circumstances, we decided that he would temporarily discontinue the treatment until he felt ready to return to the clinic. Three months went by with no word from the patient. When I finally called him he told me he had decided to discontinue his treatment permanently. He explained that he knew he could not possibly carry out his responsibility during the treatment. He had recently suffered other family crises, including the deaths of three relatives, and open-heart surgery was soon to be performed on his 8-year-old son. For these reasons he felt that periodontal therapy was the very least of his worries.

Mr. Gibson was a well-motivated patient initially, but because of overwhelming personal problems the treatment of his periodontal problem was no longer of primary concern to him. In the future he may again become a likely candidate for therapy. Hopefully, this will not be too late!

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### Conclusion

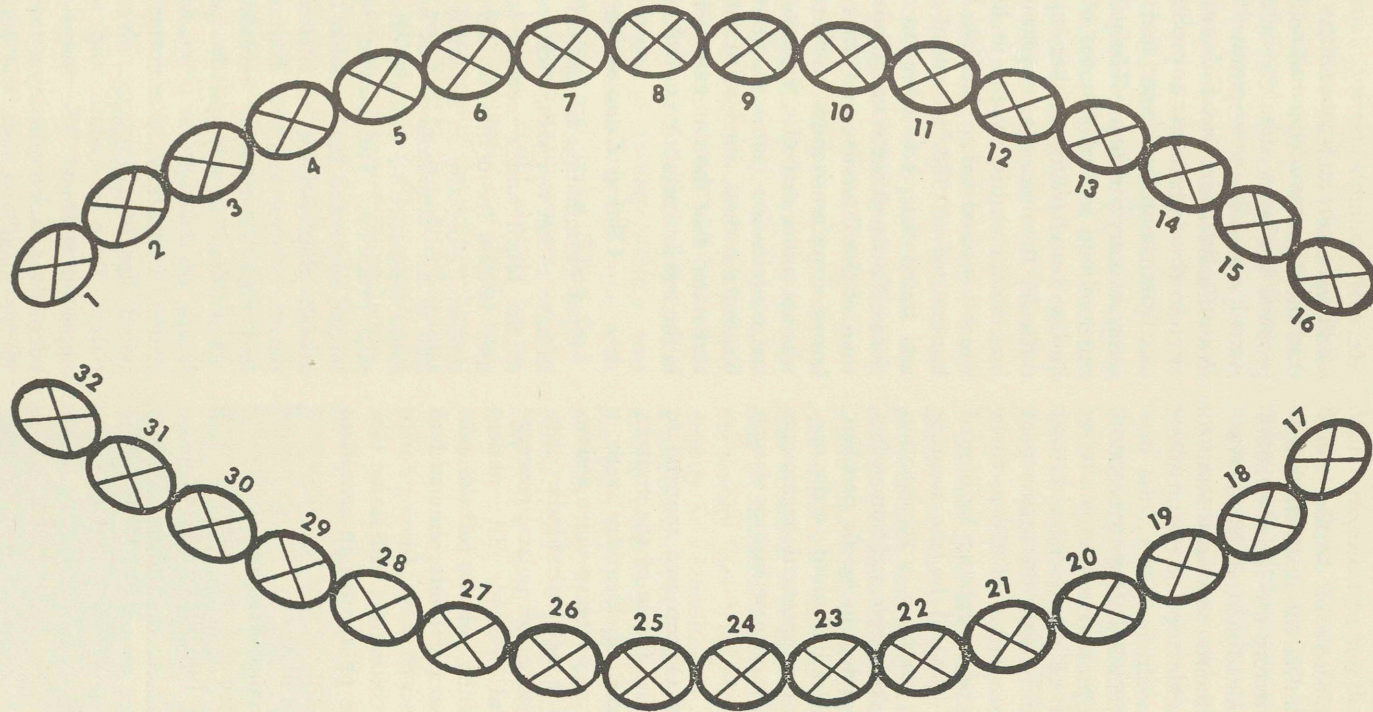
Motivation is a complex process, but it is also one of the key factors in delivering quality dental and periodontal care. As illustrated in the examples herein, each patient requires a different approach for motivation. The approach used is based on knowing the patient as a person. Finding out the patient's needs, emotional make-up, understanding of dental health, and many other factors takes a good deal of time, but it is time well spent.



# PLAQUE CONTROL RECORD

PREVIOUS INDEX \_\_\_\_\_

\_\_\_\_\_ PRESENT INDEX



NAME \_\_\_\_\_

\_\_\_\_\_ DATE

Fig. 1. Plaque Control Record used for recording the patient's plaque control progress. Each tooth is represented by a circle divided into four areas (mesial, facial, distal and lingual). After the disclosing solution is used, surfaces having plaque at the gingival margin are recorded; surfaces with no plaque are left blank. The plaque index is determined by dividing the number of stained surfaces by the number of surfaces available for staining.

*Reprinted by permission from the Journal of Periodontology (O'Leary, T.J., Drake, R.B., and Naylor, J.E.: the plaque control record. J. Periodontol. 43:38, 1972).*



# Pseudosialorrhea: A Case Report

*David Dennis, Graduate Student in Oral Diagnosis/Oral Medicine*

The main objective of denture treatment is to reestablish the masticatory apparatus and to restore the facial esthetics and characteristics to the individual. Post-insertion adjustments and assistance to the patient in achieving and maintaining this objective should include all the mechanical and manipulative procedures available to the prosthodontist, as well as a consideration of the human factors peculiar to that patient. A major goal is to achieve recognition of the problem by the patient and acceptance by him of the limitations imposed by the wearing of the dentures. At times, a combination of mechanical, physiologic and human factors can compound a diagnostic problem, so that it is not readily solved by the normal postoperative symptomatic treatments following delivery. A case history of such a problem follows.

A 65-year-old woman was referred to the Oral Medicine Clinic of the Indiana University School of Dentistry with a chief complaint of excessive saliva following insertion of a new mandibular complete denture and a full palatal coverage maxillary partial denture. The patient claimed that since delivery of the new dentures one year previously, she had had excessive amounts of saliva, forcing her to swallow almost constantly. She stated that there had been no change in symptoms since delivery.

## Medical History

The patient reported having had measles, mumps, chicken pox, and whooping cough in childhood. She said she had had scarlet fever at age 14, but had not had rheumatic fever. A review of major symptoms revealed a history of left chest pain several years earlier; she said a physician had told her she had "a sensitive valve" and had advised her not to breathe cold air and to wear a mask when outdoors in cold weather. We were unable to document the diagnosis of any

cardiovascular problem, and she reported that the same physician had told her the problem was not serious. She said she had not experienced any respiratory or digestive difficulties and had had no hormonal or endocrine imbalances or problems. She was postmenopausal and had had no genito-urinary problems. The patient said she had had several episodes of syncope during dental treatment, but reported no difficulty for more than a year. She had had mild arthritis, usually in her wrists, which required no medication. She was hospitalized in 1938 for normal childbirth and stated that there were no complications. No drugs were being taken at the time of the interview and there were no known drug sensitivities or allergies. She was not under care of a physician and her last examination had been approximately 6 months earlier. She had recently retired and stated that she had gained 10 pounds in the last 3 months due to lack of activity.

## Clinical Examination

Upon examination, the patient appeared to have rather dry skin, slick and smooth to the touch and somewhat scaly. She uses lotions frequently to alleviate this problem, especially on her arms and legs. She is fair complexioned but has no unusual sensitivity to sunlight or any other skin problems. The patient wears corrective lenses and has some loss in hearing acuity. Superficially, all anatomical appearances were normal. Extraoral head and neck examination revealed no abnormalities, no lymphadenopathy, no lumps, no sensitivity to percussion or palpation. Intraorally, no abnormalities were noted; lips, buccal mucosa, alveolar ridge, palate, floor of mouth and tongue all appeared normal. The lower arch was edentulous with 6 remaining anterior teeth in the maxillary arch, the periodontium of which was excellent, and home care appeared well above average. The upper partial denture fit well and was secure. Borders had been well adjusted and soft



tissue contact was good. The lower denture was somewhat less stable due to loss of about 50% of the edentulous ridge. However, little or no hyperplastic tissue was evident. Special attention was afforded to evaluation of border considerations such as overextensions and other possible sources of the complaint from a mechanical standpoint. All were found within normal limits and postoperative records following delivery revealed extensive care to prevent potential problems.

Clinical examination did not suggest increased salivary flow; and on the basis of this observation, 15-minute resting saliva volume was collected with the dentures in place and then repeated without the prosthesis. The volumes were 0.5 ml and 1.0 ml, respectively. These findings were discussed with the patient and she reluctantly admitted that her swallowing problem might be due to insufficient saliva. With the patient's understanding, salivary stimulation was initiated as a therapeutic trial. Rx: concentrated lemon juice, 1 tsp., t.i.d. for two weeks. After this period, she reported less problem with her swallowing. Saliva was collected again and a 300% increase in resting volume was noted. The amount was the same with and without the appliances. These findings were revealed to the patient and she conceded that she could possibly be relieved of her symptoms completely with continued treatment of this nature. Stimulation was provided by "sour fruit" candies instead of lemon juice for two weeks, and the patient was relieved of the difficulty.

She had remained asymptomatic during the past year until she discontinued the stimulation, and recently reported a return of symptoms. Follow-up evaluation is scheduled and the patient has been reappointed.

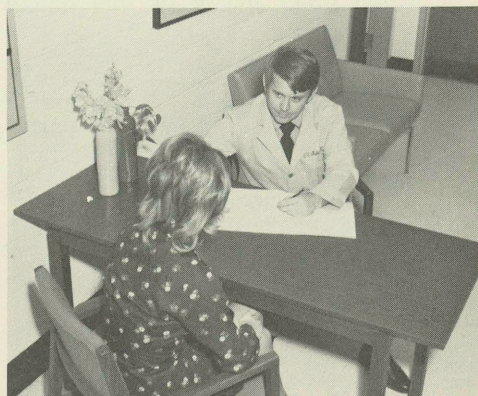
### Discussion

Saliva is provided by three pairs of major salivary glands and by numerous small accessory salivary glands. The submaxillary glands produce a mixture of mucous and serous fluid which enters via Wharton's duct located in the anterior floor of the mouth. They are responsible

for approximately 33% of the total resting fluid supplied by the major glands. The sublingual glands also secrete a mixture of fluid but are predominantly mucous-producing, depending upon the stimulus. The fluid of these glands enters also at the anterior floor of the mouth and approximates 1.5% of the major gland total. The parotid glands, which are located in the preauricular tissue and are quite large, produce only 18% of the normal major total and supply a thin watery fluid through Stensen's ducts openings onto the buccal mucosa. The accessory glands, mucoid in nature, each with its own duct, secrete approximately 50% of the total normal saliva.<sup>1</sup>

Salivary flow is controlled by the autonomic nervous system by both parasympathetic and sympathetic fibers. Stimulation of the parasympathetic fibers induces serous flow, and the sympathetic fibers are concerned with mucous flow. The secretion of saliva is a reflexive response and may be initiated directly by stimulation of the sensory fibers in the oral cavity, or indirectly as a conditioned response, or as a psychological effected response. Normal unstimulated total saliva in human beings has been reported to range from 3.0 ml. to 40.5 ml. in a 15-minute collecting period.<sup>2</sup> Salivary flow decreases with age and it has been reported that after 60

*(Continued on page 50)*



Dr. David Dennis obtains a medical and dental history in the Department of Oral Diagnosis/Oral Medicine.



# The Use of Fluoride in Milk and in Salt, In Switzerland, Based on a Personal Interview

Gilbert LeVine Mellion, D.D.S.,\* and Ruth Berman Mellion, B.A., M.S.†

*(The following report is based on a personal interview Dr. & Mrs. Mellion had in Zurich, August 20, 1973 with Dr. Regolati of the Department of Caries Research, Dental Institute, University of Zurich.)*

The only town in Switzerland that has put fluoride in its milk (and is still doing it) is Winterthur, with a population of 92,722, located northeast of Zurich.

Under the direction of the Health Department, the local pharmacists prepare one liter of water, containing 2.2 grams of sodium fluoride. From this solution, the pharmacists prepare sealed containers of one milliliter of this solution which is then picked up by the mothers, at no cost, and added to one liter of milk.

The evaluation of the DMFT of the six-year molars in Winterthur from 1956 through 1959 resulted in an average of 43.46% for those children taking fluoride milk. The control group DMFT average was 68.42%.

The main objection of this method of fluoridation is the unreliability that mothers would consistently add the fluoride to the milk and that the children would drink the fluoridated milk every day. For this reason other means of fluoridation were explored.

The first and only city to fluoride its water was Basel, with a population of 212,000. Water fluoridation was started there in 1962.

Switzerland has a population of six million people with 3,000 communities. The Swiss people felt that it would only be financially feasible to fluoridate the

water supply of those communities with more than 30,000 population. Thus, only 1.7 million people, or 25% of the total population, would receive the benefits of fluoridated water, resulting in only a 15% average caries reduction if they use the six million total population as a base.

The use of fluoride in salt began in Switzerland in 1954. Of the 22 cantons in Switzerland, only three, Geneva, Basel and Ticino have not fluoridated their kitchen salt. The amount of salt being fluoridated in the 19 cantons, using this method, varies from 60% to 100% of the salt being used. Since 1963, the canton of Zurich has had 100% of its table salt fluoridated. Based on a study done in 1961-62, before 100% of the salt used was fluoridated in Zurich, there was an approximate reduction in dental decay of 30%. Since there is no natural fluoride in the water in Switzerland, they are not concerned with an overdose of fluoride by adding it to the salt.

The machine to add fluoride to salt cost approximately one million Swiss francs, which is about one-third of a million dollars, and it would only require two machines to add fluoride to the salt being used by the six million Swiss (it would not be added to the salt used in Basel where the water is fluoridated).

The machine to add fluoride to water would be cheaper for one town but to install the water fluoridating equipment for each town's water supply, with a population of over 30,000 would make the total cost much more expensive.

The main objection to salt fluoridation that the Swiss health authorities recognize is the low salt intake of infants up to age one year. It is interesting to note that

*(Continued on page 51)*

\*Dr. Mellion is a past Chairman of the Connecticut Nutrition Council and has represented the CSDA on the Council for 23 years.

†Mrs. Mellion is a nutritionist, an elementary school teacher and a member of the Conn. Nutrition Council.



# Shirley Shazer Assists Many With Dental Research Projects

*Paul E. Starkey*

"The excellent histologic sections were prepared by Shirley Shazer."

"The excellent histologic sections were the results of hours of dedication by Miss Shirley Shazer."

"A special 'merci' to Miss Shirley Shazer for preparing the excellent microscopic slides."

"Special thanks are due to Miss Shirley Shazer for the many hours spent compiling the large number of histologic sections necessary for this thesis."

These are just a few examples of the acknowledgements of the contribution made by Shirley Shazer to literally scores of Graduate students. The Library at Indiana University School of Dentistry contains shelves full of theses completed by Graduate students as partial fulfillment of the requirements for the Degree of Master of Science in Dentistry.

Earlier issues of this Bulletin have often contained accolades for the many graduates of Indiana University School of Dentistry whose sons have elected to become dentists. This is evidence of the father's professional image being such that their sons honored them by following them in the profession.

Dr. Delton Charles Shazer received his D.D.S. Degree from Indiana University in 1925 and with the exception of a tour in the Navy during World War II, has practiced in Greensburg, Indiana since. His daughter, Shirley, recalls the fun and enjoyment of visiting his dental office as a child. Shirley has greatly honored her father by making a most significant contribution to her father's profession.

Dr. Shazer says that Shirley was always tended DePauw University and received an A.B. Degree in Botany and Bacteriology with a minor in Zoology.

Shirley then applied at Indiana University Medical Center for a job in which she

could use her science background. Dr. David Mitchell, Chairman of the Department of Oral Diagnosis/Oral Medicine, had recently arrived in Indianapolis to join the faculty of the School of Dentistry in 1955 and was eager to develop a histopathology research laboratory which is supported largely by research and training grants. Dr. Samuel Hopper, who had interviewed Shirley, was aware that Dr. Mitchell was looking for a person who had the background and interest in becoming a histology technician. Dr. Mitchell recognized that Shirley had an excellent background and displayed appropriate interest. Thus, she was employed by Indiana University as a research technician for Dr. Mitchell—her official title is "Research Assistant."

From Dr. Mitchell and Dr. Van Huysen, who provided her laboratory space in the earlier years, she learned much of the art which she now practices for the benefit of our students and faculty. Many histologic technicians have become experts in the preparation of soft tissue histologic sections. She has developed an outstanding reputation for preparing



In the above picture Shirley is acting as an attractive, but ineffective bookend for a whole row of such theses in the School of Dentistry Library.



microscopic sections of both hard and soft tissues, with exceptional competence in managing decalcified teeth and bone. Dr. Mitchell says she has few peers in the preparations for pulp and periodontal studies.

In 1967 she was invited to Bergen, Norway to train a technician to utilize her techniques for work at the University of Bergen, Gade Institute in the Department of Pathology. Dr. Gisle Bang from the Gade Institute had been studying in the United States and had visited for several months pathologists in the United States doing hard tissue work. He had visited Dr. William Shafer in the Oral Pathology Department and had learned of Shirley's expertise and asked her and Dr. Mitchell if she would be able to come to Norway to train his technician and to help in equipping his laboratory. She helped set up the equipment and provided instruction to his technician in the use of the equipment during her two months in Norway. In 1973 Dr. Bang completed his thesis submitted in partial fulfillment of a Ph.D. degree titled, "Induction of Bone Formation by Demineralized Dentin." Shirley is particularly proud of his acknowledgement of her contribution to that research.

She says, "It was a very, very nice experience to help them in Bergen. I have gone back in the meantime to visit him and his family and it is gratifying to know that the same girl I trained is still his technician." Many others have visited Dr. Mitchell's laboratory in order to benefit from Shirley's training in bone and teeth techniques.

Although Shirley says she is not a teacher, for a number of years now she has taught a graduate level course G-986, Histopathological Laboratory Techniques, which emphasizes the preparation of soft tissue for microscopic study and special techniques with decalcified specimens and staining procedures. In this course graduate students receive instructions in the

preparation of histologic specimens. Although the objective is not to enable them to produce quality histologic sections, a graduate student does obtain an insight into the interpretation of this art—and, hopefully, can be better able to direct histologic research, if his studies lead to teaching and research.

Shirley prepares histologic sections for a number of theses each year. In addition to the faculty and the students of her department, she often helps with research work of those in other departments. She says,

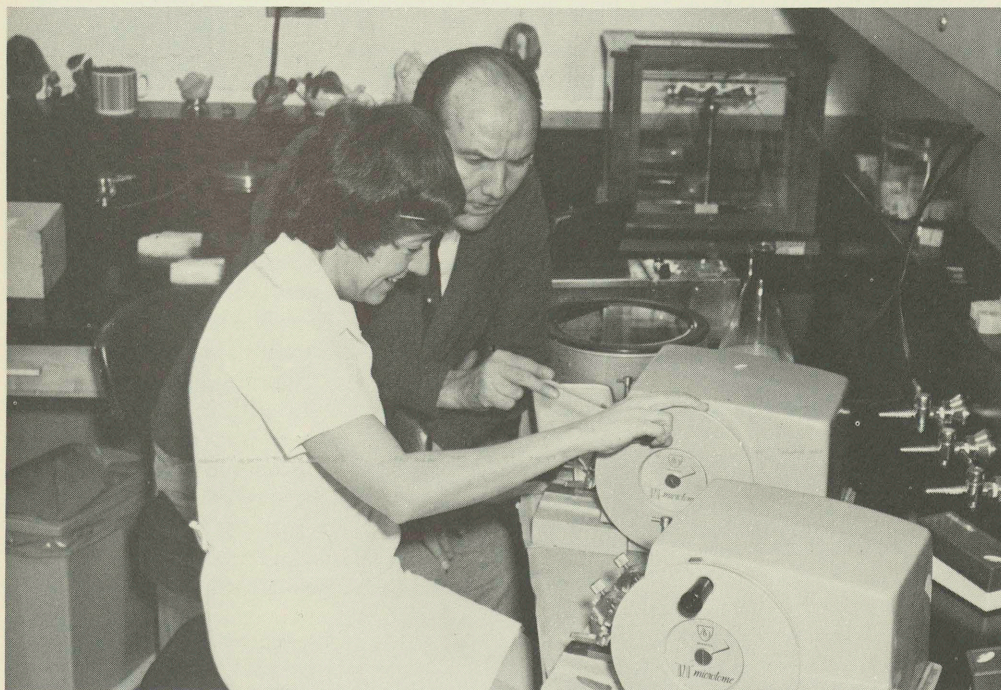
It's a very rewarding experience for me. I love it. I feel very happy that I have been able to work with as many people as I have and with people from all over the world and in so many different dental fields. Most have been people within our own Department of Oral Diagnosis/Oral Medicine and many of the students and doctors I have worked with are now assistant deans and Heads of Departments at other Universities. Working with the people plus the technical work of producing a slide that I'm proud of and which is of significance to their study is one of my rewards. I am happy that I can help an individual prove or disprove whatever his area of research is, using slides I've prepared. My major reward is the knowledge of my contribution to education in the field of dental research and my pride in the histologic sections.

Shirley works with a microtome which has an extremely sharp blade. This instrument is capable of making sections of tissue only seven microns thick. When asked how often she has had a serious cut on her fingers, she claims only once when she cut her thumb and had to have stitches to close the wound. She laughs about it. She is one of a number of the staff of Indiana University School of Dentistry who make significant and important contributions to our profession. In most instances, as with Shirley, there are hundreds of students and faculty who feel a deep sense of appreciation toward their contribution. I know that many of those reading these pages will once again sense their appreciation for Shirley Shazer.





In the above photo Shirley points out to her father, Dr. Delton C. Shazer (Class of 1925), one of the many grateful acknowledgments by thesis writers for her contributions to their research studies.



Shirley Shazer, Research Assistant in the Department of Oral Diagnosis/Oral Medicine, and Dr. David F. Mitchell, Chairman of the Department, discuss a special feature of a specimen Shirley is cutting on the microtome.



# Effect of the Energy Crisis on Indiana University

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*Maynard K. Hine*

Although there have been many indications in the past several months that an energy crisis was imminent in this country, most of our citizens were unprepared for the problems that arose last winter. It is now apparent that the energy dilemma is very real and is going to have a direct and increasing effect on the lives of everyone, at least for the next few years.

Many people have asked how this could happen here in the United States, where we have always had an ample supply of everything we need. The answer is quite simple: we have been increasing the use of energy faster than we have been developing new energy sources. Everyone in this country has tended to use the highest quality and most readily available form of energy with little thought about the future. For a number of reasons the discovery and use of new sources of energy are not increasing fast enough to meet the increasing demands. Some of the sources of oil, for example, have been depleted, and although other sources are available, it has not been economical to develop them.

Energy problems have been complicated by the fear of the "environmentalists" and "ecologists" that our natural resources are not adequately protected. In Indiana, burning of high sulphur coal (in plentiful supply in Southern Indiana) may contribute to the air pollution problems of the state; restrictions may interfere with development of adequate electrical energy supplies for our state.

The energy crisis is having a two-fold effect on Indiana University. Each of its eight campuses has instituted drastic measures aimed at reducing the usage of energy. A long check list has been prepared of methods of cutting back on energy usage. The crisis has also resulted in an increased cost of the energy being used, and the costs have increased more rapidly than the reductions. Saying it another way, the use of energy by IU has

been reduced by perhaps 15% but the cost of the energy being used has increased 30 to 40%. Since the cost of energy must be met first, this has a damaging effect, of course, on all educational programs, particularly those which are expanding or should be expanded.

The long-range picture for energy in Indiana is not as bleak. The supply of electricity seems more than adequate, and should continue to be so, particularly if Indiana coal can be used. Allotments of gasoline have been reduced to distributors, but are more nearly adequate than in many parts of the U.S.; the long lines of cars waiting to get gasoline in Washington, Chicago, and elsewhere, are seldom seen in Indiana.

An article in a British magazine, "The Economist" (January 1974), points out that there is a case for arguing that the world is likely to be flooded with supplies of energy before the end of this decade. The author notes that if there is a 10% price rise in any product it is probable that within five years the production will be expanded by 40%. Since the price of energy has gone up much more than 10%, there will doubtless be many new sources of oil, and new sources of energy, developed in the near future.

At this time everyone must become conscious of the absolute necessity of conserving energy: lighting, heating or air conditioning reduced, car pools encouraged, etc. Furthermore, careful records must be kept to show amounts of energy consumed, and methods used to conserve it, so that if a handicapping shortage does develop, appeals for more energy can be supported.

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Dr. Hine, who retired as Chancellor of IUPUI September 1, 1973, has been appointed as Special Consultant to the President and Executive Associate of Indiana University Foundation. One of his assignments by President Ryan has been to serve as Energy Conservation Coordinator for I.U.



# Notes from the Dean's Desk . . .

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*Ralph E. McDonald*

This issue of the Alumni Bulletin is scheduled to reach you in June, the month that marks the fourth anniversary of formal study and revision of the dental curriculum. The organizational meeting of the Curriculum Committee was held in June 1970. Almost weekly meetings have been held since that time with several subcommittees meeting independently and working on specific assignments. Early in the work of the Committee, it was learned from conversation with recent graduates and representatives of organized dentistry and from a study of other progressive schools' curricula that Indiana University should modify its program. It was determined that a need existed to provide an opportunity for first-year students to demonstrate their previous knowledge and ability in the basic science courses. Also, there was an evident need to provide greater flexibility throughout the four-year program and to introduce clinical experience much earlier in the program. Also, the Council on Dental Education following the 1969 visitation indicated there was a need to correct the apparent overemphasis on preclinical (technic) courses. The Committee's four years of work will culminate in the complete implementation of the Indiana University School of Dentistry Multi-track Curriculum in August 1974. The Dean and other representatives of the administration visited the 14 Indiana component societies during the past two-month period to acquaint the dentists of Indiana with the new program.

The modified curriculum will continue to stress the basic science subjects and will assure the clinical competence of our graduates; however, the curriculum will be structured to prepare the graduate to better deal with the changing pattern of dental practice and to meet the present and future demands for dental care. The Core program will consist of a modification of our present program and will emphasize coordinated teaching. The basic

science courses will be offered during the first two years in a traditional manner but with a stronger orientation toward dentistry and in particular with a close correlation to the clinical subjects. The basic science faculty will be encouraged to determine the competency of the entering students and to recognize their past achievement in the subject area by exempting them from a course or a portion of a course if a pre-test indicates that they are well prepared in the subject.

The preclinical sciences (technic courses) will be offered during the first two years of the curriculum. Coordinated teaching will help to eliminate unnecessary duplication and inconsistencies in teaching. The technic courses will provide a good background in the clinical dental procedures required by the public. In addition, course offerings will be consistent with the changing pattern of dental needs in the United States. In revising the traditional preclinical courses, it is recognized that some of the more sophisticated clinical procedures must be delayed to be taught at the graduate level or in continuing education programs. Implantology is an example of a sophisticated and experimental procedure that should be taught at an advanced level.

Several years ago the Faculty Council approved the offering of clinical experience beginning in the first year of the program. This plan has been enthusiastically received by the students and will be continued. Additional clinical experience will be offered during the second year so the student will have a complete orientation to clinical practice by the time he enters the summer session following the second year of his program. During the third-year program, including the summer session after the third year, the student will have an opportunity to demonstrate competence in all areas of clinical dentistry and will be prepared to enter the fourth-year program that includes many intra-



mural and extramural elective opportunities. During the fourth year of the program, that has been identified as the Family Practice Program, the student will accept much more responsibility for the planning of his course of study. The fourth year will be free of required lectures for those students who pursue the Family Practice Program.

Practice Experience will be one of the fourth-year elective opportunities and will offer the student experience in preparation for meeting the challenges of private dental practice. A letter is currently being prepared to send to all dentists in Indiana offering them an opportunity to invite the student into their offices for a period of time ranging from one day to a maximum of ten weeks. The student will participate as a member of the dental team in the private office. This visitation will allow the student an opportunity to talk with an experienced, successful practitioner and observe his methods of practice. It will also allow the practitioner to become acquainted with the knowledge and skills of our students and thus be able to make meaningful comments and suggestions for further curriculum change.

The Family Practice Program will offer a wide range of additional elective opportunities for the students including added experience in preventive dentistry, diagnosis and treatment planning, community dental practice, and supervision of the dental auxiliary team.

Past experience with the "XL Program" (extra learning experience) will serve as the basis for additional elective opportunities within the Family Practice Program. Private dental offices, community dental clinics, hospital dental clinics, and Veterans Administration facilities throughout the state will become auxiliary training facilities for the School of Dentistry.

Another departure from the traditional dental school curriculum will occur at the end of the summer session following the third year. A small number of students, who have demonstrated competency in the basic sciences, preclinical sciences, and clinical dentistry, may elect to embark on a two or three-year program designed to prepare them to practice in one of the

specialties or to enter a career of teaching and research. The advanced education programs available to some students include endodontics, oral pathology, oral surgery, orthodontics, pedodontics, periodontics, prosthodontics, and other programs currently offered by the dental school. There will also be an opportunity for the student to enroll in one of the basic science programs including microbiology, physiology and anatomy.

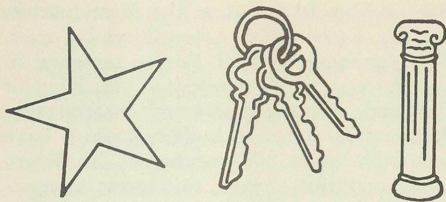
Students entering a specialty practice program can be accommodated within the existing structure of the graduate program that has been offered at the School of Dentistry during the past two decades. The specialty programs and other advanced education programs will continue to include dentists who have graduated previously from our school and those who come to Indiana University from other schools.

Dr. Michael Baumgartner, a graduate student in Pedodontics, recently completed a study supported by the Indiana University Office of Institutional Research. Dr. Baumgartner visited a sample of dental offices of graduates of the classes of 1963 and 1969 for the purpose of learning if their educational experience at Indiana University had adequately prepared them for private practice. Most respondents felt that they would have liked additional instruction emphasis on practice administration in the curriculum. This fact is not really surprising because in dental schools throughout the United States instruction in practice administration has received inadequate attention. Obviously, too little attention has been given to preparing the graduate to make the transition from student status to that of private practitioner. In the new curriculum considerable emphasis will be given to practice administration and to the preparation of the student to enter general practice in Indiana.

The Dental School Administration and the Curriculum Committee are committed to continuing study and experimentation that will allow Indiana University to maintain its traditional leadership in dental education.

*(Continued on page 51)*





*Paul E. Starkey*

## THE SERING DENTAL CLINIC

Each summer and fall the Pedodontic faculty interviews a large number of candidates for our Graduate and Advanced Education Programs in Pedodontics. Last November a young dentist by the name of Gayle Nelson was in my office for an interview since he was applying for our Graduate Pedodontic Training Program. In reviewing his file I noticed that he had been stationed at the Sering Dispensary in Thailand and that he had just returned from there and was completing service with the United States Army Special Forces, the Green Berets.

Remembering that a young dentist by the name of Dale Sering had graduated from IUSD in 1965 and that he had died in the Philippines in 1968, I was prompted to ask Dr. Nelson where the Clinic got its name. Thus, I learned that the Dispensary was indeed named after our graduate, Captain Dale Sering. Dr. Nelson and I talked about Dale for a while and his activities while in Thailand. A few days later it occurred to me that the readers of this column would be interested in hearing about all of this. I consequently wrote to Gayle Nelson and asked if he would pass along some additional information and if he might have any photographs of the Dispensary which I might have for this Bulletin.

Here are some excerpts from Dr. Nelson's reply.

Dale was assigned to the 46th Special Forces Company which was located 5 km south of the small Thai village of Lop Buri (pronounced Lop Buree). At that time the 46th SF Company was housed on Camp Pawai which was also occupied by the Royal Thai Army Special Forces, 1st Special Forces Group. Capt. Sering was the first dentist assigned to the Company. He arrived in July 1967. He was responsible for setting

up the dental clinic at Camp Pawai, Thailand in 1967 and for hiring Dr. Srirayab Vinichyul, a Thai civilian dentist, to help with the civic action requirement of the Company. She was employed there until my arrival in June 1972.

I was assigned to Lop Buri 15 June 1972. The name of the unit at that time had just been changed from 46th SF Company, to US Army Special Forces Thailand. Being the only dentist in Lop Buri, one is forced to examine the heritage of his predecessors; thus I became interested in the five others who had occupied that billet. Whenever I could, I would contact the previous dentists. Other sources of information included the local national personnel who have worked in the dispensary since its foundation. They spoke of Dale as one "with a warm heart." That is the largest compliment the Thais give. Many men who homestead (Army jargon) in the 46th Company also remember Dale and his most tragic death. Whenever I would see his name on a dental record I would seize the opportunity to pump that patient for all he



Dr. Dale Sering



could remember about Dale. Scanty as military personal memoirs are, I have been able to piece together the picture of an enthusiastic young dentist for whom others had nothing but praise.

His successor, Dr. Michael Strom, was primarily responsible for moving the dental clinic from Camp Pawai to Camp Narai (named after one of the great Kings of Siam). Camp Narai is located inside the

city of Lop Buri and is the Headquarters for the Royal Thai Army Special Forces. The American Special Forces presence in Lop Buri is at the request of the King of Thailand. We are guests and consequently, there are no specified buildings which have been built by the US government. Dr. Strom was thoughtful enough to suggest designation of the new dispensary as Sering Dispensary.

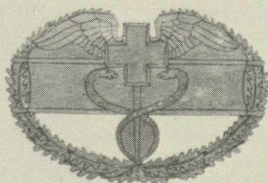


NAMED IN HONOR OF DOCTOR SERING WHO GAVE HIS LIFE WHILE SERVING IN THAILAND

เพื่อเป็นเกียรติแก่ ดร. เซอริง ผู้ซึ่งได้สูญเสียชีวิต ขณะปฏิบัติหน้าที่ในประเทศไทย

UNITED STATES ARMY SPECIAL FORCES THAILAND

หน่วยรบพิเศษสหรัฐ ประจำประเทศไทย



The Sering Dispensary in Thailand was named in honor of Dr. Dale Sering, Class of 1965.



As a physical plant, Sering Dispensary is no James Whitcomb Riley Hospital. It occupies what is the ground floor of a dormitory which houses 300 Thai soldiers. From the outside it is underestimated as compared to its inside capabilities. I took pride in displaying Sering Dispensary to visiting guests as the best equipped dental treatment facility in Southeast Asia. That was no exaggeration.

I have written to the unit crypto officer who was with the 46th SF Co. in 1968 and knew Dale. I'm sure that he can find the official messages which informed the unit of Dale's death. I have also written to the Department of the Army to inquire about the status of naming a stateside treatment facility in memory of Dale. I'm sure eventually this will be done. Very few dentists, maybe one or two, died in Viet Nam, thus I feel certain that Dale's name won't be far from the top of the list. If you won't mind, I will forward all this information to you when I receive it.

The assignment in Lop Buri is one that stimulated one's personal initiative. It is tragic that Dale didn't get the chance to share those remembrances with his loved ones. Please give his family my best.

Reading Dr. Nelson's letter brought to me extremely strong feelings of pride in Dale Sering. He is another one of those graduates of Indiana University School of Dentistry who have represented our School and our profession at its very best and I felt you would appreciate my sharing Dr. Nelson's letter with you.

Incidentally, Dr. Gale Nelson is a graduate of the University of Nebraska and will be completing his tour with the Army this year. He has been accepted for our Graduate Pedodontic Program and we are looking forward to his two years of study with us.

### THE GREAT CLASS OF 1923

In May, 1973, the class of 1923 planned its 50th reunion during the Indiana State Dental Association meeting in Indianapolis. They had invited Dean McDonald, and as he was unable to attend, he asked

*(Continued on page 52)*



Members of the Class of 1923 are shown in their undergraduate Anatomy laboratory.



# Dental Auxiliary Education

*James E. Vaught, Assistant Dean for Dental Auxiliary Education*

On February 20, President Nixon read before the House of Representatives a proposal for a balanced health care system. The message included comments on health manpower and manpower distribution. It called for an expansion in the training and use of health care auxiliaries.

This year, for the first time, all dental hygiene and dental assisting students graduating from Indiana University School of Dentistry (Indianapolis) had the opportunity to learn expanded functions in the laboratory and by clinical application.

A unit of instruction was inserted in the second year curriculum of the dental hygiene program which allowed all graduating hygiene students to learn additional skills and to apply these skills in the operative clinic while assisting senior dental students. The graduates of the dental assisting program were given the opportunity to elect a six-week course of instruction immediately following their graduation in May. This course was the same unit of instruction that was provided for the hygienists.

One very important side effect of this curriculum addition is that every dental student now has the opportunity to treat patients while utilizing an expanded function auxiliary. Dr. Donald Tharp has developed and coordinated these units of instruction in expanded functions. He was assisted by Dr. Michael Johns and Dr. James Macri, who taught the elective unit for the assistant students.

Plans for the future include the offering of this course under the Continuing Education Program and the addition of expanded functions instruction at the Dental Auxiliary Education Programs in Fort Wayne, South Bend, and Evansville. We are fortunate in Indiana to have a dental law which allows for utilization of expanded function auxiliaries. The initiation of instruction in expanded functions this year by the School of Dentistry makes available a more versatile auxiliary in Indiana.

## INDIANA STATE UNIVERSITY— EVANSVILLE

*Gordon E. Kelley, Director*

As the Evansville Campus enters the final phase of our third year and we look back, we can say we have come a long way since we began with two empty rooms and our equipment stored in a warehouse. We have graduated two assisting classes and one hygiene class and are very pleased with the success of these girls. Our present senior classes are busy cramming for their board and certification examinations and trying to locate just one more x-ray or difficult periodontal patient.

The dental assisting students are spending two full days a week in the private dental offices and with their other classes, they don't have much spare time. Some of the students assisted the members of the First District Dental Society with the oral cancer exams held at the various shopping centers, and Dental Assisting has been represented by our students at all the career day programs in the local high schools. A pleasant break from their busy schedule was a trip to Indianapolis to tour Eli Lilly along with Dental Assisting students from Indianapolis and South Bend. They were also able to make a quick tour of a few departments of the dental school. Somehow, one thinks they were more impressed with the bodies roaming around the school than with the facility itself. The highlight of their day was meeting TV stars, Dean Vaught, and Dr. Kasle.

The students are planning and working on various money-making projects to help finance their trip to Indianapolis for the Annual May Meeting. All are preparing papers, posters and clinics. We hope to have some good entries for the meeting.

Our faculty has been invited to present a program concerning Dental Auxiliary Education at I.S.U.E. to the First District Dental Society in April. We are happy to have such an opportunity and are work-



ing together in a team effort to do a job deserving of the invitation.

"Keep those brushes rolling" has been our dental hygiene students' motto these last six months. Personal involvement, in all phases and aspects of dental health for all ages in our community has been our goal. The students have participated in health fairs, education in the elementary schools and day nurseries, brush-ins, TV interviews, educational conferences, inservices conducted and field trips visits from Brownies and Girl Scout troops in our clinic. They also have gone to other communities such as Terre Haute and the Indiana State Campus, and have helped the Health and Safety Department do a brush-in with the freshman health classes; they have also conducted brush-ins at Yankeetown and Newburgh. As a result of a great deal of hard work, we have a large library of visual aids and pamphlets, along with a 6 foot toothbrush; a lot of new friends and contacts (teachers, nurses, dentists, etc.); and the satisfaction of feeling good about what has been accomplished with the promise of a brighter future for dental health in our community.

## INDIANA UNIVERSITY— SOUTH BEND

*Alfred Fromm, Director*

Indiana University at South Bend broke with tradition and held its first Dental Assisting Capping Ceremony on December 16, 1973, with Dr. James E. Vaught as the principal speaker. Twenty-two girls were capped. The ceremony was so impressive that Chancellor Wolfson, who was present, asked that we continue it in the years to come.

Just prior to Children's Dental Health Week, the Dental Assisting students raised enough money for supplies, so that they might have a brush-in at the Studebaker School, here in South Bend. Four hundred students at Studebaker School were involved, and both the administration and students were most appreciative of the efforts of the Dental Assisting students.

Under the direction of Ms. Jennifer Trueblood, Assistant Supervisor of Dental Assisting, the Dental Assisting students

took a sightseeing trip to the Eli Lilly Company in Indianapolis on February 8, 1974. They were given an excellent luncheon and a tour of the facilities.

With the advent of the Indiana State Dental Association Meeting in Indianapolis, many of our Dental Assisting students will be showing posters and papers at the table clinics.

On May 8, 1974, the Dental Assisting students will be taking their Certification Examination, and graduation will be held on May 10, 1974.

We here at South Bend wish to thank our participating dentists in the Clinical Application portion of our curriculum, since they have been most cooperative.

Our Dental Assisting Supervisor, Ms. Maureen Schneider attended the Midwest Dental Assistant Educator Institute at Marquette University School of Dentistry in Milwaukee, Wisconsin and also attended the Chicago Mid-Winter Meeting. In addition, she assisted in teaching the Continuing Education Program at Indiana University at South Bend for Certification Credits for the local dental assistants.

Maureen will be giving a Table Clinic in May at the Indiana State Dental Association Meeting.

Ms. Jennifer Trueblood, our Assistant Dental Assisting Supervisor, attended the National A.D.A. Convention and presented a clinic on October 27th and also served as an alternate delegate to the A.D.A.A. She also attended the Chicago Mid-Winter Meeting. Ms. Trueblood recently made some video tapes for the Indiana School of Dentistry Preventive Education. She taught a Continuing Education Program at Indiana University at South Bend for certification credits for the local dental assistants. In addition, Jennifer will be giving a Table Clinic in May at the Indiana State Dental Association Meeting.

Our first year Dental Hygiene students numbered 22, and 21 returned for the second year.

The Sigma Phi Alpha Honor Sorority award was given to Colette Makielski and Cynthia Merrick. Cindy Varga was the recipient of the A. Rebekah Fisk  
*(Continued on page 53)*



# The Bookshelf

*Mrs. Helen W. Campbell, Librarian*

Rare old books fascinate me for two reasons. First, the odds are so great against having a particular volume survive for more than a century and finally reaching our Library. Then, when you browse through one such book and contemplate dentistry today, you realize how truly "what is past is prologue."\*

One of the volumes in our Rare Book Collection is J. Paterson Clark's *A NEW SYSTEM OF TREATING THE HUMAN TEETH*. Published in London in 1830, it probably was either preserved by some unknown individual or lay unnoticed on some dusty bookcase shelf. The cover is a dark green, waterspotted buckram. A two-inch label bearing the lettering, Clark / on the / Teeth / Second Edition / 7s," indicates that it is not in the original binding, and I can assure you that prices have definitely escalated since the book was published in 1830 for seven shillings.

The title page bears the spidery signature of the original owner with the date of purchase identified as January 5, 1830. And we are certain that the book was read because there are pencilled notes in the margins in the same handwriting as on the title page. The formal language of the introduction explains the author's reason for writing the book:

Led to conclude that the teeth are intended to last for life, subject only to the gradual decay incident to the other parts of the body, that they are regulated by simple laws, and originate in definite causes within the reach of a counter-acting process, it has been the object of the Author of the following pages, by long and studious attention to the appearances of the teeth in the various stages of decay, to ascertain the source of their diseases; and on correct principles to provide the proper remedies. He trusts he may indulge the idea that his observations will avail much in removing the discouraging notion, that dental disorders are hopeless and hereditary; and also that the principles he

advances will go far to preserve instruments so essential to the comfort and well-being of mankind.

I found the following comments particularly interesting in view of the present emphasis on preventive dentistry:

Indeed were it possible to reach at and keep clean every part of a tooth, it is presumed that no caries would ever take place. (p. 7)

Caries in all its other varied forms proceeds almost entirely from want to cleanliness, the prevention and rectifying of which is nearly altogether within the control and management of man. (p. 31)

Clammy and gummy substances, as sugar, although innocent in themselves, frequently injure the teeth by their adhesiveness, and the readiness with which they seize on and retain acids and other injurious substances. (p. 34-35)

A disease of the gums may be local, that is, in the close vicinity of a particular tooth, or fragment of one; or it may be general, or common to all the teeth of one or both jaws. If the disease of the gum be local, and the tooth sound, it will be found encrusted with tartar, which has forced the gum away from the tooth; and acting as a foreign substance on a fleshy sore, has produced inflammation, and a consequently diseased appearance at the part: or if the disease be general in the mouth, the same cause will be found to have produced it. (p. 45)

Cleanliness alone, if attended to from the first, would preserve the crown of a child's tooth, the decay of which neither hastens nor retards the coming of the second set; while in many instances, a little lead forced into it in the usual way, would preserve it from pain and tenderness to the last. (p. 59)

However, with today's emphasis on reliability of products, the following prescription for tooth powder never would be approved by the ADA's Council on Dental Therapeutics:

Good tooth-powder may be composed of very fine bark, in powder, of the best quality, charcoal, alum, cachos, armenian bole, cinnamon, cochlearia, &c. either separately or compounded. (p. 66)

From 1830, we jump to 1974 and list below the abstracts of Master's theses filed in our Library during the last year:

\* Shakespeare, Wm.: *The Tempest*. Act II, Sc. 1, line 261.



*A. S. Cornelia Thorne*  
*5th January 1830*

A  
NEW SYSTEM  
OF TREATING THE  
HUMAN TEETH:

EXPLAINING THE CAUSES WHICH LEAD TO THEIR DECAY, AND THE  
MOST APPROVED METHODS OF PRESERVING THEM:

WITH  
COPIOUS & EXPLANATORY NOTES.

TO WHICH IS ADDED, SOME ACCOUNT OF  
A DISCOVERY MADE BY THE AUTHOR  
FOR THE  
CURE OF TOOTH-ACHE AND TIC-DOULOUREUX, &c. &c.

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SECOND EDITION.

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By J. PATERSON CLARK, M.A.  
DENTIST.

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AVEC DE MAUVAISES DENTS JAMAIS FEMME N'ETOIT BELLE.  
AVEC DE JOLIS DENTS JAMAIS FEMME N'ETOIT LAIDE.

*J. J. Rousseau.*

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LONDON :—PUBLISHED BY  
LONGMAN, REES, ORME, BROWN, AND GREEN.

---

1830.



## STUDY OF PLAQUE FORMATION UPON DENTAL MATERIALS UNDER MOUTH SIMULATION CONDITIONS

Jose Fidel Marquez Aviles

This study describes several attempts to grow dental plaque upon different dental materials under mouth simulation conditions. To the effect of this thesis, plaque is defined as a collection of bacterial colonies which adhere to the surface of the teeth and gingival tissue. By extension, plaque over dental materials should be understood as the collection of bacterial colonies which adhere and grow over restorative materials.

The most striking observation made in these studies was the failure of the *Streptococcus mutans* 7615 to get implanted on the materials utilized. Different attempts were made to overcome this problem, but plaque could only be collected in measurable amounts when the specimens were depressed within their plastic base, so that a space was created over the materials in which medium and bacteria could stagnate.

Possible reasons for the failure of the plaque-forming bacteria to get implanted are presented, and discussed relative to the findings of other workers.

The formation of plaque under conditions of stagnation is compared with restorations placed within the gingival crevice and subject to stagnation from crevicular fluids. In this connection, the results of this study may be taken as one more reason for not placing the margin of restorations below the gingival crest.

## ART IN THE STUDY OF ANATOMY: A HISTORICAL REVIEW

Rolando A. De Castro

A study has been made of the origin and evolution of art in the study of anatomy. From different historical accounts bits of information have been pieced together for a review which extends from antiquity to the Renaissance and modern times.

Every civilization appears to develop in specific stages which affect the style and content of the work done by artists and anatomists. There were signs of artistic talent and some knowledge of anatomy during the Paleolithic age, but the first practical application of art to the science of anatomy came during the Renaissance.

Artists with medical leanings, such as Da Vinci, Vesalius and the others are said to have dug for bones in cemeteries and to have stolen bodies from gallows to further their knowledge in anatomy. These men, because of their talent and daring, have pioneered the advance of medicine and dentistry.

Today's anatomical artists have gone far beyond the anatomic and pathologic drawings of

earlier times. Known as medical and dental illustrators, they are constantly seeking new ways of using their talents for the advancement of anatomy as a science, with special reference to developments in educational, clinical, and research aspects of medicine and dentistry.

## A CLINICAL AND LABORATORY INVESTIGATION INTO TWO RESIN RESTORATIVE MATERIALS USED IN NON-OPERATIVE TREATMENT OF CERVICAL WEAR

Ronald Kenneth Harris

Two filled resin materials, one experimental and one commercial (Enamelite), were evaluated for use in the treatment of lesions caused by erosion or cervical abrasion. They were inserted without a cavity preparation, employing an acid-etch technique for retention.

In the clinical portion, 75 pairs of the two materials were placed in lesions of 25 patients. Criteria used for evaluation were those of the U.S. Public Health Service. Thirty per cent of the restorations were missing at the three-month evaluation, and 45% at the end of six months. Both resins scored similarly but the experimental restorative had an advantage in color match over Enamelite.

In the laboratory, hardness, abrasion, leakage and adhesion were tested. Hardness and abrasion resistance of the Enamelite were one-third to one-half those of the experimental material. More important was the disclosure that both materials exhibited leakage at the dentinal margin as assessed by Ca<sup>45</sup>. The bond strength to etched enamel ranged up to 473 p.s.i., but there was virtually no attachment to dentin.

These data suggest that such a system may be of questionable value in treatment of cervical lesions. Its use may be limited to lesions completely surrounded by enamel. In addition, there was evidence that phosphoric acid, tagged with P<sup>32</sup>, penetrated beyond the level of the pulp and thus may be contraindicated for application to dentin. This system of restoration does not appear acceptable at this time if principles of sound operative dentistry are to be followed.

## THE EFFECTS OF COBALT-60 RADIATION ON THE DENTAL PULP OF MONKEYS

Michael Francis Hutton

The maxillary arches of two monkeys were irradiated with Cobalt-60 radiation in therapeutic doses up to 7,000 rads. The pulps of teeth extracted periodically were studied microscopically.

Pulp tissue from twenty-three fully formed teeth was examined. Four teeth were controls



and nineteen were irradiated at various levels from 3,000 rads to 7,000 rads. Teeth were extracted at 3,000; 5,000 and 7,000 rads as well as 7,000 rads plus one month and 7,000 rads plus two months. After extraction the teeth were fixed, decalcified, embedded, sectioned and stained with hematoxylin and eosin.

No histologic differences were visible between the controls and pulp tissue from teeth irradiated at any dose level. All pulp tissue examined appeared to be normal and healthy. Cobalt-60 radiation in a dose range up to 7,000 rads does not seem to have an adverse effect on the dental pulp of mature teeth.

### THE EFFECTS OF DIFFERENTIALLY PLACED ORTHODONTIC BANDS ON THE GINGIVA OF DOGS

James G. Judge

There has been long-standing controversy among dentists concerning "proper" band placement. No definitive evidence has substantiated an "optimal" band location on teeth. This 90-day investigation was designed to document clinical, histologic, and radiographic effects of three occlusogingival band levels on hard and soft tissues of the periodontium.

Conventional orthodontic bands, brackets and wires were placed on half the anterior teeth of three one-year-old male Beagle dogs. The other 24 anterior teeth gingival level, and 12 were 2 mm subgingival. Frequent toothbrushing and periodic clinical re-evaluations were employed. Procion red dye was injected intraperitoneally in one animal on Day 75 to identify any alveolar bone changes. Some bands were placed or removed during the 90-day period so that the significance of time could be related to inflammation and healing responses. For the same reason Dog #1 was sacrificed on Day 60, 30 days before the other two.

The results demonstrated good clinical and histologic correlation. Radiographic findings were negative because the only bony alterations were physiologic. Soft tissue changes were rapid. Supragingival bands had no effect on oral tissues, and gingival level bands induced slight inflammation that resolved completely with 45 days of healing. However, 2 mm subgingival bands caused moderate inflammation, increased pocket depths even after a suitable healing period and, in some cases, root surface damage and apical proliferation of the epithelial attachment.

The findings demonstrated predictable patterns of tissue response to different band levels and the potential risk of improper band placement. This is significant to the orthodontist, especially in choosing an occlusogingival band

level. It would appear that bands which penetrate the epithelial attachment cause permanent pocket depth increases.

The manipulation of subgingival band margins requires appropriate skill and modification to avoid permanent sequelae.

### AN IN VIVO AND IN VITRO STUDY OF THE MARGINAL LEAKAGE OF RESTORATIVE MATERIALS USING $\text{Ca}^{45}$

Clarence Richard McCurdy, Jr.

This study was concerned with the development and testing of a technique to assess the sealing ability of restorations in vivo. The microleakage of restorations inserted in the teeth of Macaque Speciosa monkeys was monitored via  $\text{Ca}^{45}$ . Two methods of applying  $\text{Ca}^{45}$  solution in vivo were tested: (1) feeding of  $\text{Ca}^{45}$  tagged food and (2) periodic swabbing of the teeth with a  $\text{Ca}^{45}$  solution. Upon extraction, the teeth were sectioned and autoradiographs prepared in order to reveal marginal penetration of the isotope. The marginal leakage patterns of comparable restorations subjected to the two treatments were similar. However, the systemic uptake of isotope that occurred in the teeth of animals fed the tagged food made interpretation of the leakage difficult. For this reason, the bulk of the work was conducted by swabbing the teeth with a solution containing 0.02 millicurie per milliliter of  $\text{Ca}^{45}$ . The isotope was applied by swabbing the restored teeth for three 40-minute periods at 24 hour intervals. Immediately following the final exposure to  $\text{Ca}^{45}$ , the teeth were extracted, sectioned, and autoradiographs prepared.

The leakage patterns obtained for in vivo amalgam, silicate cement, conventional and composite resin, and temporary stopping restorations after various periods in the mouth were compared with those for comparable restorations placed by the same operator in extracted teeth. The extracted teeth were divided into two groups. One group was merely immersed in the isotope while the second group was swabbed for three 40-minute periods on successive days. The autoradiographs of the in vivo restorations and those obtained from the two in vitro tests were compared.

The leakage patterns of the in vivo restorations of the various materials at each time interval following placement were similar to those obtained by the in vitro techniques. This similarity between the in vivo and in vitro leakage patterns indicates that laboratory  $\text{Ca}^{45}$  studies using extracted teeth are a reliable means of predicting the in vivo sealing ability of restorative materials.



## AN EVALUATION OF KETAMINE HYDROCHLORIDE IN PEDODONTIC OUTPATIENTS

Daniel N. O'Brien

The need for a safe but effective agent to sedate dental patients who are severe behavior management problems prompted this investigation of ketamine HCl. Ketamine HCl is a general anesthetic agent with the unique property of selectively depressing the higher centers of the brain without adversely affecting respiration or cardiac output.

Sixty behavior problem pedodontic patients were selected at random and placed in one of three groups to receive the following treatments: Treatment I—ketamine HCl and scopolamine; Treatment II—ketamine, scopolamine, and droperidol, and Treatment III—ketamine, scopolamine, and nitrous oxide-oxygen analgesia.

Each treatment group received ketamine HCl 2 mg/lb and 0.1–0.3 mg scopolamine. The second two treatment groups were supplemented with droperidol .025 mg/lb or nitrous oxide-oxygen (20-50%) to maintain anesthesia.

The patients were given a series of pre- and post-treatment mental and physical tests and were considered completely recovered when they could equal their pre treatment test scores. Routine dental restorative procedures limited to one and one-half hours were carried out with the use of the rubber dam.

Onset of anesthesia III showed a significantly longer working time but recovery times were not significantly different between groups. Ketamine HCl was determined to be a safe, effective agent for use in pedodontic outpatients provided prescribed techniques are followed. Complications were infrequent and minor and parental response was considered satisfactory.

## THE ORTHODONTIC BANDING PROCEDURE AS A POSSIBLE CAUSE OF TRANSIENT BACTEREMIA

J. Ellis Rue

This study was conducted in an effort to determine if orthodontic banding procedure could be the cause of a transient bacteremia such as is produced by numerous other dental operative procedures. An easily identified tracer bacteria, *Serratia marcescens*, was placed in the mouths of three *Macaca speciosa* monkeys prior to the cementation of well fitting bands on all maxillary and mandibular teeth. Except for three cultures judged to be positive as the result of contamination, all cultures of the experimental procedure and all of the control cultures were negative when observed for bacterial growth.

While this investigation failed to prove the causal relationship of orthodontic banding to

transient bacteremia, it is recognized that this situation might exist. Therefore, for those patients with known pre-existing rheumatic or congenital heart damage, it is recommended that appropriate prophylactic antibiotic coverage be instituted prior to the orthodontic banding procedure.

## THE SIGNIFICANCE OF SKELETAL AND DENTAL MEASUREMENTS OBTAINED FROM A PANOREX RADIOGRAPH

Joseph L. Sigala

The purpose of this study was to determine whether angular and linear measurements from tracings of a Panorex radiograph provide a valid comparison to bony relationships identified on the lateral cephalometric headplate of the same individual.

A pilot study was performed on a dried skull to identify selected skeletal landmarks on Panorex radiographs. Using these landmarks, fifteen measurements of bony relationships of the head were completed on each radiograph. Values obtained on a lateral headplate were compared with measurements on the same patient's Panorex radiograph for a group of forty-eight children.

The data were recorded on standard IBM punch cards and submitted for statistical analysis to the Research Computation Center of Indiana University - Purdue University at Indianapolis.

The data support the conclusion that angular and linear measurements from a tracing of a Panorex radiograph cannot be compared directly or in a proportional manner to similar measurements from a tracing of a lateral headplate of the same individual. Although there was significant correlation of comparative measurements for the sample group as a whole, there was wide variation from individual to individual.

## A BACTERIOLOGIC, HISTOLOGIC, AND RADIOGRAPHIC COMPARISON OF ENDODONTIC THERAPY FOR NON-VITAL TEETH WITH PERIAPICAL LESIONS IN DOGS

John Thomas Streiff

This study was an attempt to correlate culture results with histologic and radiographic results using commonly practiced endodontic techniques. Periapical lesions were induced in 34 mandibular posterior teeth. These teeth received endodontic therapy in one, or two, or three or more appointments. Cultures were taken at the filling appointment and serial radiographs were taken at pre-operative, immediate post-operative, and pre-sacrifice time intervals. The dogs were sacrificed at im-



mediate post-operative, two, four, and six month time intervals. Step serial histologic sections were studied in various ways using light and fluorescent light microscopy.

On the basis of this study, it appears that dogs should not be used for apical healing studies unless the study is specifically designed to cope with the myriad of apical ramifications of the root canal system. It was not possible to correlate the culture results with the histologic and radiographic results.

The six month post-operative lesions were the most severe. The two, four, and six month post-operative lesions appeared less well organized and more acute than the immediate post-operative lesions. None of the lesions healed and no satisfactory comparison could be made between the one, or two, and three appointment methods of endodontic therapy.

A technique was derived to simplify the administration of an anesthetic to dogs for prolonged periods. A simple technique is described for cutting a large partially decalcified specimen into smaller blocks prior to embedding.

#### **A STUDY OF SKELETAL MATURATION IN THE HAND-WRIST RADIOGRAPH TWINS**

**Kenton A. Susott**

Bone ages were assessed using the hand-wrist radiograph of 31 monozygotic twin pairs and 15 dizygotic twin pairs. Assessments were made on the right and left hand on two separate occasions. The method of assessment used was a modification of the Greulich and Pyle method.

The measurement error for the assessments was 3.8 months and 4.1 months for the left and right hand respectively. No asymmetry was demonstrated between right and left sides. The four assessments were averaged to obtain a single bone age assessment for each individual.

The ratio of the epiphyseal-metaphyseal width for the radius and ulna was proposed as a quantitative measurement which closely corresponds with the subjective bone age assessment.

Correlation coefficients ranging from .84 to .90 were reported for the epiphyseal-metaphyseal ratios with bone age assessments. When the ratios were analyzed with respect to sex, correlation coefficients ranging from .89 to .94 were reported. The correlation of the ratios with bone age assessments was consistently greater in males than females.

As tested by the F statistic, a significant amount of variation in bone age and ulna epiphyseal-metaphyseal ratio could be attributed to the heritability fraction. Using the Holzinger formula, 82% of the bone age assessment and 88% of the ulna ratio could be attributed to the heritability fraction.

#### **THE CLINICAL AND HISTOLOGICAL RESPONSE OF PERIODONTAL POCKETS TO ROOT PLANING AND ORAL HYGIENE**

**David L. Tagge**

This study evaluated, clinically and microscopically, the soft tissue response to suprabony periodontal pockets treated by root planing and oral hygiene or by oral hygiene alone. Subjects were twenty-two adults beginning treatment for active periodontal disease. For each patient three clinically similar labial or lingual pockets were scored for gingival inflammation, pocket depth, and the extent of plaque and calculus. One pocket in each patient served as a control, and a gingival biopsy was secured to determine the pretreatment level of inflammation. The second pocket was treated by root planing and by the patient's oral hygiene procedures. The third was treated only by the patient's oral hygiene measures. Oral hygiene instruction was given until efficiency was routinely demonstrated. Fifty-six to sixty-three days later, treated areas were re-evaluated clinically, and biopsies were secured. Serial sections were prepared, and the level of inflammation scored independently by two examiners on a scale of one to ten.

The mean histologic inflammation score of pretreatment control pockets was 5.20. In areas treated by root planing and oral hygiene, the post-therapy biopsies disclosed that the mean inflammation score was 2.34. The mean inflammation score of biopsies from areas treated by oral hygiene alone was 3.85. Mean pocket depth before treatment was 3.0 millimeters. It decreased to 1.66 millimeters following root planing and oral hygiene and to 2.32 millimeters following oral hygiene alone.

#### **CEPHALOMETRIC ANALYSIS COMPARING INCREMENTAL SKELETAL GROWTH IN THE ADOLESCENT FACE WITH PROJECTED GROWTH**

**Don M. Wilkins**

This study investigated the correlation between predicted growth in cranial base, maxilla, and mandible and the actual growth in these structures over a two-year period.

The treatment sample consisted of 13 males and 16 females who prior to orthodontic treatment had a Class I skeletal relationship and an Angle Class I arch length discrepancy. The developmental age varied from 11.0 to 17.0 years of age in males and from 9.5 to 15.0 years of age in females. The control group of 14 males and 16 females had Class I skeletal patterns and Angle Class I occlusions. All subjects were Caucasians.

*(Continued on page 53)*



# Alumni Notes

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*Cleona Harvey*

Here I am again with news of our graduates that has reached me at 335 S. College Avenue, Bloomington, Indiana 47401. Next time I write, if they don't fire me, just may be from Hawaii! Oh, I hope so and am planning and dreaming of how nice that will be if we can just manage it.

Whoever said retirement was dull and monotonous missed the mark on this retiree. I thought I'd get letters written to all the dear people who sent Christmas cards last year, but I didn't. So many things happening and time seems to fly—good thing I keep a diary or I would never be able to know when we did what.

Evelyn's health became worse and she spent almost all the month of November in St. Vincent's hospital in Indianapolis. I stayed in a motel so I could be near her as she was a pretty sick girl there for a while. On December 5, she began taking acupuncture treatments from Dr. K. C. Kim of the I.U. School of Medicine. So far she had had about 40 treatments and they have helped. She is feeling better but intends to continue with the treatments although not as often as she did during December through February. She still has lots of pain and three physicians have said they thought the climate in Hawaii would really help her. We will go for a few weeks and if it helps we will return to Indiana and make preparation to live in Hawaii. I am writing this (rather winding up the writing), column on April 7, 1974. The temperature has been below freezing today with light rain making the streets very slick! Why does anyone live where the weather is so erratic and c-o-l-d?

Now, again, I had to compete. Evelyn was taking acupuncture and we were living in a lovely motel whose food prices were out of this world—but good. So, to save money, Evelyn's sister and I went to a cheaper restaurant and when I started to

scoot over and off the bench I just rolled on to the floor. You see the bench stopped but I didn't! Nothing was hurt but my ego—so I thought. I got up and walked to the motel, rejoicing that I hadn't broken a bone. The next morning I had some soreness and it got worse and worse and after 18 days of suffering I saw Dr. Berman and he saw my x rays and I had fractured my pelvic bone on the left side and my pubic bone. The pelvic bone had buttressed so he didn't have to put me in a cast but he ordered me to bed and what little walking I had to do I should use a walker or cane. I fell on January 27 and saw him February 13. He said I should feel pretty good in 6 weeks. I had to stay down four weeks after I saw him. As long as I was in bed it didn't hurt but when I tried to walk I almost doubled up with pain. So last week I went back to Dr. Berman for more x rays and they indicated that all was doing okay but since I'm 65 and not 35 it would take longer. I have had several major operations and never did I suffer as I have with this broken bone. Today's weather didn't help a bit. Anyway I enjoyed the four weeks in bed—good color television—plenty of interesting reading material—all kinds of things to eat—result? I gained 10 pounds which I am starving to death to lose. Anyway—never a dull moment. I feel fine other than broken bones and getting excited about going to Honolulu as soon as we can get our affairs in order, I hope.

Please add your prayers to ours that this long awaited visit back to Honolulu will come about. Just 20 years ago I spent 4 months there when Evelyn was in the Marine Corps and stationed there. Everyone says we will be so disappointed but we didn't plan to be. Enough about us and now notes and news from everywhere beginning with the Class of



## 1889

Deceased: Dr. Bernard A. Ackerman,  
Loogootee, Indiana, 10-13-73

## 1894

Deceased: Dr. Robert P. Murphy, Mil-  
waukee, Wisconsin, 7-8-73

## 1899

Deceased: Dr. Earl A. Woods, San Diego,  
California, 6-73

## 1907

Deceased: Dr. Stephen E. Kroczeck, Mun-  
ster, Indiana, 10-24-73

## 1908

Deceased: Dr. George C. Ruff, Paris,  
Illinois, 6-12-73

## 1917

A card from Dr. and Mrs. Carl Frech, 1204 Pebble Blvd., Sun City Center, Florida 33570 says, "*Happy Holidays! Do not know your current address so will send this to your former 'hangout'. Have not seen any Hoosiers recently so am out of touch with all of the activities at I.U. Hope all is well with you.*

*"There is a strong possibility that we will attend the '74 May meeting as one of my granddaughters is being married in Harrisburg, Pennsylvania in June and we may stop over on the way up."*

Dear people, the day always is brighter when I hear from you. I don't hear from too many of the graduates in the early 1900's—just death notices—and believe me when I am arranging this material to type the first few years are sad, then I come to yours and again enjoy the thought that you are down there in all that beautiful sunshine. But for me it has always been go to Hawaii—so don't think Florida will see me, but for you it has been good and I am glad.

## 1918

Deceased: Dr. George M. Cropp, Shoals,  
Indiana, 8-8-73

Deceased: Dr. Robert L. Guedel, Indi-  
anapolis, Indiana, 9-8-73

Deceased: Dr. Thomas C. Smiley, Wash-  
ington, Indiana, 8-24-73

## 1919

Deceased: Dr. Guy Grant, Indianapolis,  
Indiana, 11-11-73

Deceased: Dr. Gayle B. Wolfe, Naples,  
Florida, 9-27-73

Deceased: Dr. Oscar R. Pfaff, Lebanon,

## 1923

Deceased: Dr. Edward E. Gillespie, To-  
ledo, Ohio, 7-21-73

Deceased: Dr. Sumner X. Pallardy, Lee's  
Summit, Missouri, 8-8-73

Deceased: Dr. Ashley A. Pielmier, Vin-  
cennes, Indiana, 7-27-73

## 1925

Deceased: Dr. Joseph H. Stone, Hunt-  
ington, West Virginia, 2-15-74

## 1927

Deceased: Dr. Nathan O. Hantman, In-  
dianapolis, Indiana 6-14-73

## 1928

Deceased: Dr. Lewis L. Clark, Winter  
Haven, Florida, 6-6-73

## 1931

Dr. Marvin S. Cochrane, 310 North 40th Avenue, Yakima, Washington 98902 is certainly a faithful "grapevine" for his Class. In December, 1973, he wrote: "*We hope you had a delightful Holiday Season! And we wish you a very happy New Year. There are a number of former classmates who send Christmas cards each year with a capsule comment or two about what they were doing in 1973.*



*"A message from Dr. Charles Everett, Class 1930, who is semi-retired, works only three days a week. He enjoys being home the rest of the time so that with his lovely wife Kathryn he can do things and go places they enjoy together. One daughter and family live near by so that gives them pleasure.*

*"Again this past summer they took an I.U. Alumni trip to Copenhagen. Enjoyed it greatly, Norway, Sweden and Denmark, but some of the glimmer of their exciting experience was dulled by the devaluation of the dollar. They hinted that this coming year would be spent in this country.*

*"Dr. Francis Reid of Windsor, Vermont, sent several classmates letters after he had recovered from surgery and a long stay in the hospital '72 and '73—part of both years—involved with his struggle with cancer. His doctors feel that the threat has been brought under control so he feels much better. He was a busy man in Windsor for over forty years.*

*"Dr. and Mrs. Fred Fugazzi who now have a fishing camp in northern Michigan are spending this winter in California. They have a son there in business for himself. Fred hinted that he may pitch in himself when they arrive. He mentioned some concern about the gas shortage interference with their plans. He, too, was hospitalized shortly after their fishing season ended. Nothing too serious and he was well on the road to recovery when he wrote.*

*"Received a beautiful Christmas message from Dr. and Mrs. Richard Ferguson of Richmond, Indiana. They enjoyed another pleasurable trip abroad. Wants me to keep in touch with them. His message was short so have few details about his other activities of 1973.*

*"That reluctance of most men to write letters and be more effusive in describing their activities seems to suggest overtones of insouciance. And that might well be because last year one former classmate suggested that by this time we were now involved in such separate interests, we no longer had much in common.*

*"However, Dr. and Mrs. Fred Heimlich's message on their pretty Christmas card was eagerly welcomed. He is now retired and gave me information of further changes to Indianapolis. The Bankers Trust Building, where he and Dr. Harold Buses practiced all their working years, and the Hume Mansur Building are to be torn down and a tall bank building is to replace them. That may also include the building on the corner of Meridian and Ohio streets.*

*"Dr. Buses is living alone near Greenfield and his note indicated he would like to hear from me whenever possible.*

*"Dr. and Mrs. Roy Clinthorne had an enjoyable visit to Russia and suggested that Betty and I make the trip. He mentioned mostly that they were under surveillance from the time they landed and throughout the entire trip. That I know is just common procedure there with all tourists; I'm close enough at present, with Big Brother government.*

*"I had several cards and letters from Dr. and Mrs. George Goodman, now retired in Indianapolis. He enjoys cooking and gardening in season. Also on his farm south of Indianapolis he raises stock. He had a huge garden last year and told me about it in detail in one of his letters last year.*

*"Dr. and Mrs. Hayworth of Linton had an enjoyable trip to Mexico last February but have had no details about it. Didn't mention it on his Christmas card. He still practices.*

*"Also had a card from Dr. Ed Temple—no message—*

*"I correspond with Dr. Harold Asher of the Class of 1932. He now is retired and lives in Havasu City, P. O. Box 1544, Arizona, after 40 years in New Jersey.*

*Dr. Cochrane, I would certainly like to meet you and tell you in person how very much I appreciate how you kept in touch with your classmates. I know of no other class that has kept so well informed of the doings of their classmates. I do hope your interesting letter will inspire some of the other classes to keep in touch, and, incidentally to do as you do, tell me about it!*



1933

Deceased: Dr. Roscoe R. Smith, Bloomington, Indiana, 9-12-73

1935

Deceased: Dr. Edward P. Bettcher, Indianapolis, Indiana, 7-4-73

1945

It was good to hear from Dr. Charles Vincent, 333 East Ontario Street, Apt. 4303, Chicago, Illinois 60611. If you have

been reading Alumni Notes you know he is back in the States and on the faculty of Northwestern University. His note said, "*Christmas greetings from Chicago. Things continue to go well and I enjoy my busy and hectic schedule. Hope all is well with you.*" Well, it was when I received your card, but my opening paragraph has told you that I ate too much during convalescence, so now I have joined a lot of other fat folk in what seems a hopeless effort to lose weight.

Deceased: Dr. P. B. Yinglang, Castro Valley, California, 9-10-73



The class of 1943 held its reunion during the 1973 Annual Alumni Conference in Bloomington. There were 43 graduates of the class of 1943, and 22 members of the class enjoyed a get-together and dinner following the football game on Saturday afternoon. Slides made from their class commencement photographs had been prepared and these, along with other photographs obtained from members of the class, were automatically projected on a screen during their cocktail hour and were greatly enjoyed by all the members. Attending as their guests were Dean and Mrs. Ralph E. McDonald, Mr. and Mrs. Gale Coons, Dr. and Mrs. Henry Swenson, Dr. and Mrs. Harry Day, Dr. and Mrs. Jack Carr, and Mr. Richard Scott. The class looks forward to its 35th reunion in five years and an even better attendance then.

**STANDING:** (Left to Right)—Lindborg, Raibley, McFall, Starkey, Ritter, Keller, Pope, Kixmiller, Zimmerman, Kirchoff, Shupert, Sevier, Combs, Ferrell, Mellion.

**FRONT ROW:** (Left to Right)—Micheli (kneeling), Ebbinghouse, McGuire, Matlock, Spear, Aitkin, White.



1952

Dr. and Mrs. J. F. Johnston sent me copies of some letters they had received to include in my column. I am so grateful to them. I know they have a tremendous amount of mail from graduates, so it is gracious of them to share the letters from Drs. Glasser and Iturrino, of the Class of 1952 and from Dr. Conway of the Class of 1960.

Capt. Harold N. Glasser, SP44 NAS, Norfolk, Virginia 23511, said, *"Past 2 wks I was in Arlington, Va., at BuPers serving as pres. of a dental officers' selection board. It was an interesting experience I assure you but we had very liberal guidelines which made the task easier."*

*"We were very happy to receive your card and newsworthy letter. I am relieved to know you planned wisely in moving to a locale where most of what you need and want is within walking distance. Wish my parents had been able to do as well. They are in the same old locale. Dad is 87 and mother 80. Both hanging in there. I want to get them out but there is a tenacity of unshakeable variety. Alma and I are so busy with the various children that we have our own lives to follow."*

*"Drexel loves dental school and is doing very well. He is entering the SAF scholarship subsidy program. This will make him independent at last. He is 23 and I welcome this lightening of the load."*

*"While my family are personally all well and attempting to do a creditable job, it does seem vividly clear that our world is undergoing an agonizing period of adjustment for a large sector of our people. Too long we have been geared to the auto and petroleum. The future will be most interesting. Wonder if they will resurrect the Interurban R. R. which served eastern Indiana so well many years back!"*

*"With the uncertainty of fuel I hesitate to plan a trip to Indiana for the near future. When matters stabilize I would sure like to get to see you folks. Also I need a new car but do not know what to buy. Certainly not a big one!"*

Oh, Dr. Glasser you break my heart. A year ago I decided we deserved a new car

and we bought a big one! I think we probably get 10 miles to the gallon! But just yesterday, a bright young man who was visiting with me concerning his entering the dental school assured me that in 5 years we will be deluged with oil and everyone will be wanting big cars and I can probably sell mine for twice what I paid for it! Somehow I sorta doubt it but it is a nice thought—hope I am here in 5 years to write you all about it. Each year is so exciting that I wonder why some seem to think life is dull. I assure you there is not a dull moment in Bloomington, Indiana, the home of the best University in the world and where basketball is still a hysteria!

From Dr. Raul A. Iturrino, P. O. Box "R" Canovanas, Puerto Rico 00629, comes a letter which I should have saved for my comment above! *"Thanks for all that news about I.U. basketball games. From this faraway view it seems the team is getting better and better. It looked to me like there is going to be an 'encore', 1974 Big Ten Champs. As far as I know they are either alone in 2nd place or in first place by this time. I read in the San Juan Star that they overran Wisconsin, Purdue lost, and Michigan had a hard time beating Iowa, whom I.U. beat easily. My son, Raul, reads all the news with a great 'gusto' that defense is really up and the shooting is improved. I notice too there is no really big star, looks like it is teamwork that does it, although it is a young team. Perhaps one of them may develop into Walton's class."*

*"I received from Aponte the clippings about Cunningham and Hutton. Biggest news I have received in a long time. I read it all with great interest. In Feb. 22 and 23 I am attending a course by Dr. Leonard Linkow on Implants at U.P.R. School of Dentistry. (Dr. Iturrino's letter is dated February 14, '74) So I was very, very much interested in what Charlie and Don are doing. I was going to talk to Aponte to see if they could be scheduled at U.P.R. I almost thought about 'going to Rome' but Rome is coming to me. Because I just got the news that they are going to be in P.R."*



on March 24-28 lecturing on Carbon Implants. So, I will be there!

*"In Spanish we say: Camaron que se cluerme, so lo lleva la corriente" (?sp.?). It means 'Shrimp that falls asleep is beaten by the current'. He who falls asleep stays behind. I am not wide awake, but I don't want to stay too far behind. . . . Congratulations to my classmates, Cunningham and Hutton."*

Perhaps this is the proper place to mention that the Indianapolis Star did quite an article on the research being done at I.U. School of Dentistry on a new, promising implant method. It is an implant using a material called vitreous carbon. The human mouth accepts the material without rejection symptoms. Once in place in the jawbone, the carbon implant served as a post for a lifelike false tooth which works—and feels—just about the real thing. When they work they're beautiful, says Dr. Hutton, director of internship and residency in oral surgery at IUSD. He has been joined in the research by Dr. Donald Cunningham, co-chairman of the dental school's crown and bridge department. Dr. Cunningham says there are definite requirements—this is not just a panacea. It is just one more system which may offer us some help.

The article appeared November 13, 1973 and news does travel fast. Dr. Iturrino, it seems such a short time since you were with us and now there is another Raul Iturrino. Best wishes always. It is so good to know you keep up so well with IUSD.

#### 1954

Dr. and Mrs. Robert C. Johns, 6809 Pointiac Drive, North Little Rock, Arkansas 72116 sent me a lovely Christmas card but forgot to tell me the latest scoop. At least they didn't forget me, and I am glad.

#### 1957

Best wishes came from Dr. and Mrs. Pedro Colon, Box 222, Caguas, Puerto Rico 00625. We are always glad to hear

from you, Surprise! I received a letter from Dr. Paul W. Gilmore, 1243 Savannah Highway, St. Andrews Branch, Charleston, S. C. 24407 and I know he reads my column as he writes, "You say you never get mail, in the last issue of the Alumni Bulletin so I wrote myself a note to write you all! (This was written November 14, 1973 just a day or two too late for the fall issue but it is still welcome.) The Gilmore family remains the 4 of us. Gail now 16 years old and Martin will be 13 in January. Melva is, well about that many! Martin is our golfer, and can beat his Dad. He was No. 1 in the state for 12 years old this year. Traveled, with mother, from one end of South Carolina to the other shooting between 81-90 on courses he'd never seen. Needless to say, we're proud.

*"Gail is the sailor, yet has not entered her sun fish in any of the coastal regattas. You ought to see her and her Daddy sail in the harbor next to Fort Sumter. Melba tries to keep up with all of us with her golf, bridge, house buying and community activities.*

*"It's hard to believe that these good southern people have taken the Gilmores to their hearts but they have and we love them for it. The holiday season is rapidly approaching us and I say Merry Christmas and Happy New Year to all. For those of you who make the scene in Jamaica have fun. I watched the hotel grow on my trips to Montego Bay. Stay away from the bar in the middle of the pools, and have a Banana Daiquiri for me."*

Dr. Gilmore, bless you for such a good letter and you may enjoy knowing I called a local liquor store to be certain that a Banana Daiquiri was a drink and that I was reading your writing correct. The man at the liquor store got a big kick out of it. Of course, I didn't identify myself! Ha! As I said, life is never dull at our place, not when we get letters we have to check with liquor stores!

Elizabeth Scales' letters are always welcome as she writes for the Dr. Waldo Scales family, 160 Marine Street, St. Augustine, Florida. *"Well another year*



has passed and it is again time for the Scales' report . . . .

"We all enjoyed a happy year until July 29th, then it happened. All of us were working out on the farm when Waldo fell off a dump truck breaking his right knee cap and crushing his left elbow. This was the end of his dentistry for the rest of the year. He had a compound communitated fracture of the large bone between the shoulder and the elbow on the elbow end. Waldo said, 'I came unglued,' but I was soon able to get a hold of myself and face what lay before us.

"After 4½ hours in surgery a cast was placed on his right leg from ankle to thigh, a cast on his left arm from hand to shoulder, and after two weeks in the hospital he was sent home in his hospital bed, with the thanks of the hospital administration, to recuperate. With the help of God and our many friends he is recuperating very satisfactorily and hopes to be able to return to work in January. This is all we have for this year. Write and let us know how you all are. Merry Christmas and May God Bless you all."

Elizabeth, I think we are trying to compete on broken bones and sickness. But as the saying goes "we will overcome"—at least I hope so. It certainly sounds as if you are kept busy. I do hope by now that Dr. Waldo is up and at it. Thanks so much for sending the picture of your three lovely children and their dog. I am so sorry I can't let our readers see them but they will have to take my word for it that they look better every year.

## 1958

Dr. Alegria Zita, 1357 Felina Paso, Manila, Philippines, sent greetings and regards to each and every one at the dental school. Thanks for your card, Dr. Zita, it is always good to be remembered by you.

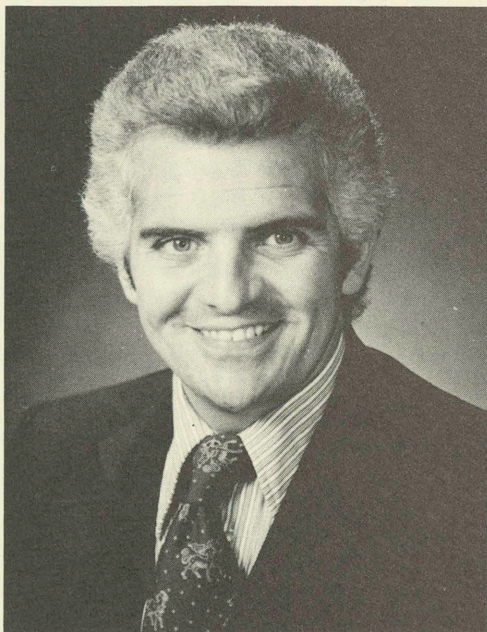
## 1959

A most welcome letter and greetings came from Dr. Jo Ana Nichols Hearn, 321 Kingston Road, Kokomo, Indiana 46901. "Jim Beck's letter in Alumni Bul-

letin prompted me to write which I too have intended to do for a long time. I do so enjoy the Alumni Bulletin but our class is not very newsy!

"I am practicing full time in Kokomo, Indiana since April 1962. My husband is an engineer with Delco Electronics. We have five children beginning with a 12 year old daughter Karen followed by a set of twins who celebrated their 9th birthday 2-7-74. Their names are Sharon and Steven. Then four years ago this March rather unplanned we were blessed with two sweet little boys Tom and Todd. The youngest are attending Montessori Nursery School and are enjoyed by all. There are very few dull moments in our house!

"I do not see anyone from our class very often except Bill Brown at dental meetings. He and Sharon have three



Dr. James Gattuso (M.S.D. in Endodontics, 1962), Associate Professor and Director of Postgraduate Endodontics at the State University of New York at Buffalo, recently served as Visiting Professor at Nihon University School of Dentistry in Japan. Dr. Sohichi Isokawa, Chairman of Anatomy at Nihon and also formerly of IUSD, helped arrange Dr. Gattuso's visit.



daughters. I also receive Christmas cards from George and Kaye Wessar and their three children. Joe and Barbara Hilton write each Christmas that they and their three are enjoying the Florida sun. I did not receive my annual note from Don and Linda Nelson and their three children.

*"I hope that our class will be prompted to write. It is certainly nice to know what everyone is doing! I don't like to mention it but this is 15 years for us. The 10th year reunion was fun—I wonder if Bob Hirshman will plan another. Best wishes to all."* Jo Ana, I do hope your letter will inspire your classmates. I certainly did enjoy hearing from you and hope you write again some day.

#### 1960

Dr. Delia Rieser, 1022 Villa Ave., Indianapolis, Indiana 46203, expressed the hope that I was enjoying my busy retirement. Thank you, Delia, because I am really enjoying it. I have never been sorry—perhaps because I have been so busy.

It was a happy surprise to receive a card and letter from Dr. and Mrs. Joseph Benham, 40 Lincoln Court, Franklin, Indiana 46131. *"Lost contact there for several years. August 1968 I had endocarditis which slowed me up for several years. I gave up the pedo practice in the Meadows in 1969 and stayed on full time at Atterbury until June 30, 1973. I am thankful to be on the staff at Riley one day a week. Also we (the family) hope to have a going practice in Franklin in 1974."*

*"Recently I was informed that Duncan Gosling, Class '63, who practices in Columbus, Indiana, had a heart attack soon after our reunion in May. I think he has returned to practice."*

*"May there be a bit of happiness come your way each and every day. Make it a point to come by this way. Our home is lived in and shows it—we like it that way because we are a friendly family."*

Thank you for the invitation to visit

you. I wish I could—and who knows, maybe some day we will come that way. In the meantime best wishes for good health and a good practice.

#### 1965

We have a new address to report. Dr. Arob Watanavicharn Ridge is now living in King's Court, 27/109 Sukumvit Rd. 71, Sol—Pornchules, Bangkok, Thailand. Robby, I do hope you will write us and tell us about activities. You were very dear to a lot of us.

#### 1968

Another new address to report. Dr. Humberto Jose Guzman, Transversal 48 No. 103-24, Bogota 9, Colombia, South America.

#### 1969

Dr. Bogan sent me a letter he had received giving us a new address for Dr. Thomas M. Hassell, c/o Dr. M. Frey, 9642 Egnat-Kappel, Switzerland. He told Dr. Bogan, *"I'm back in Switzerland after a hectic but good year on the Island of Guam in private dental practice, and a witrwind trip through the Far East, India and Israel."* Dr. Hassell, it is good to hear about you. Do write us a letter some day—we do like news of you all.

#### 1970

A real newsy letter from Dr. Patrick E. Barnett, Kingston Medical Dental Clinic, P. O. Box 149, Kingston, Wash. 98346, and signed Pat, Marty, Leann, Jack and Beth Barrett. *"We hope the past year has been as happy for you as it has been for us. Marty and Leann realized a little girl's dream and a big girl's long time wish—horses of our own. We have two registered half Arabian, a mare and a gelding. They are at the time a challenge and a pleasure. We have learned other aspects of horse ownership such as the cost of shoes (eight in all), worming procedure, shots, proper*



grain mixture and the graceful art of 'wheelbarrowing'.

"Jack started kindergarten this year. He met new friends and some old ones from his pre-school days—if you can call a five-year old an 'old' friend. Kindergarten is all right but the high light of the day is riding the school bus. Next to Daddy's motorcycle it is the best way to travel.

"Beth, our only native-born Seattle-lite, goes to pre-school twice a week and manages to find things to keep her bussy while brother is in school. It is an excellent time to play with his toys.

"Pat's practice is growing and experiencing the usual growing pains—not enough room or hours in the day. He is teaching Intravenous Sedation at the University of Washington one day a week. It is a stimulating break in office routine and involves a ferry ride across Puget Sound of which he never tires. Pat also is teaching all the elementary school teachers in the county proper brushing and flossing techniques. He will then make periodic checks to see what progress is being made with the children in the schools. It is time-consuming but seems to be improving the general oral health of the children in the county. All this leaves him little time for his motorcycle, boat, chainsaw, and other assorted toys!

"The chainsaw has been put to some pretty vigorous use lately clearing our five acres. It was so thick we couldn't walk through it until Pat made some trails. We are planning to build a house in February. We are very happy with the plans. It is to be a tri-level Spanish style house with arched windows and tile roof. We are very anxious to get started.

"Marty is busy with the usual wife and mother things, being a 4-H leader, helping in kindergarten and pre-school, sewing, toile painting, and various other projects. We love living in Washington and never tire of showing off the beaches, mountains, and forest. Come see us—we'll show you. Happy New Year."

I have a feeling that Marty wrote this very interesting letter but I think Pat may

have added the following since it is in pen and the letter was typed. He said, "Remembering the encouragement you gave me during those hard times and passing it on to other D.D.S. hopefuls." Isn't that lovely? That letter really made my day when it arrived back in December. I have really been blessed by my association with pre-dental and dental students. I see dozens of students during the year here on the Bloomington Campus on the day I go out for counseling and so often they have come to see me for advice because one of our graduates had sent them. I not only enjoy knowing that the graduates remember me but I always get some news about them from the student.

Thank you, Pat and Marty, for writing and I am so glad that things are working out well for you. You both tried so hard and were so willing to give of your time and money to help your brothers and sisters (I'm not sure about there being a sister) and I know you will be blessed. Do write again some time—I have a feeling the house is built, etc. Would like to know how you like it, it sounds wonderful.

As I have said many times, I am so glad our dental students married such lovely girls—and that they take time to write me about their busy, busy husbands and family. Dr. and Mrs. Howard Beastall of 531 B, Birch Circle, Pearl City, Hawaii 96782 are another example of this as Sue wrote the letter and said, "We arrived in Hawaii August 23 and are still trying to adjust ourselves to island living. This area is far from the paradise we had expected and have been very disappointed.

"Howard is at Camp Smith with the Marines and is in command of the dental clinic there. The clinic is small, but he is enjoying his work very much. Christmas will seem very strange here as our weather is still in the 80's and very much like a June day. Of course, our children have never seen snow, so there's nothing to miss for them. Hope you have a very merry holiday season." It breaks my heart that you are disappointed in Hawaii as I have my heart set on going back there some day. It has been 20 years since we were there and of course it has changed so much



since then that people keep telling us on their return from there that we, too, will be disappointed. I am afraid we shall have to see for ourselves one of these days. It was good to hear from you.

The Indianapolis News of 11-14-73 carried an interesting article concerning Dr. William M. Goebel 3648 N. Madison Drive, Indianapolis, Ind. *"An Indiana University graduate student is finding that crying may pay off for some of his patients. Dr. Goebel collects tears from the Patient's eye for testing diabetes. Dr. Goebel, a graduate in the School of Dentistry, does the test when necessary at any time throughout the year on patients who have diabetic symptoms."*

*"When we have a patient whose symptoms suggest diabetes, said Dr. David F. Mitchell, chairman and professor of oral diagnosis at the school, 'we make a tear test. We gather the tears on a Shirmer paper, which is pressed against a chemically treated indicator paper which changes color depending on the sugar content of the tear.'*

*"Dr. Goebel was a member of a research team on the tear testing during his undergraduate study and is now conducting a survey so that the most practical and pertinent information can be used by practicing dentists."*

*"Diabetes affects healing in particular, Dr. Goebel said, and affects tissue response to cleaning teeth. We may observe other diabetic symptoms while treating the patient, such as dry mouth, loss of weight, susceptibility to infection. It is convenient to the patient and dentist to run the test."*

*"Dentistry today attempts to treat the whole patient, said Dr. Mitchell. We have one of the few training grants in such studies, and it was recently renewed by the U.S. Public Health Service. It is believed that 5 per cent of the total population indicate diabetes and 1.3 per cent are diagnosed. The tear test is as good, if not better, than the urine test."*

*"Graduate of the I.U. School of Dentistry, Dr. Goebel is a candidate for his master's degree in dentistry in May, 1974. He is the son of Mr. and Mrs. Clarence L. Goebel, Evansville."*

I received a Christmas greeting from Dr. Dominic Lu, 83-60 118th St., Apt. 4F, Kew Gardens, N. Y. 11415. I am sure he enclosed a letter and I have searched diligently for it, but it has been pretty hectic around here for several months—guess I am lucky to have lost only one letter! Dominic, I promise to write you as soon as I find it. Inasmuch as this is April 7, and April is that awful month when tax reports have to go in—I haven't done one thing on my own, my brother's estate (which is still in Probate Court), or Evelyn's. Wotta life! But this column comes first or I shall get fired, that is for sure. We can always get an extension on taxes but there is *no way* to coax the editor into letting me be too late. Ah, well, I love doing it and I must say to all of you that I am sure when Dominic wrote he was doing okay or I would have been worrying and I don't get any worry vibes when I think about him, so I am sure all is well with our good doctor from Formosa.

Dr. John W. Miskuf, Post Dental Surgeon, Department of the Army, US Army Medical Department Activity, Herlong, California 96113 sent Dr. Bogan a bit of news which he thought might be of interest to him. It is from the Communicator, a news sheet of the Sierra Army Depot, January 23, 1974. It reads as follows: *"Children's Dental Health Week will be observed at Sierra during the week of Feb. 3-9, according to CPT (Dr.) John Miskuf, who is incharge of the local dental clinic."*

*"He and his staff will present information programs to students of grades kindergarten through eight at Herlong schools during the week. The preventive aspect of oral health will be stressed and literature and dental health aids will be distributed to the children."*

*"The theme of this year's observance is 'Kick the Sweet Snack Habit.'" In support of the program COL Skinner E. Anderson has issued a proclamation which stresses that 'the future is, in large measure, dependent on the good health of children and youth, the citizens of tomorrow'. "The proclamation also stresses that good physical and mental health can be achieved*



through good health habits and therefore he urges all citizens and community organizations to join in the observance of Children's Dental Health Week." Thank you, Dr. Miskuf, for this interesting news about yourself—we really appreciate this sort of information. I forgot to quote from Dr. Miskut's letters to Dr. Bogan, so here goes, "I'm sending you a local newspaper that explains some of the program we have planned locally for Children's Dental Week. With such a fine background in preventive from I.U.S.D. we cannot help but get involved to the fullest with the children in the schools here. The administrators are extremely cooperative. I feel like I brought a little bit of Indiana out here to California." There now, that should have come first—but as you know this column is very informal!

Dr. and Mrs. Virgil Ullom's field address is P. O. Box 90-B, Port-au-Prince, Haiti, West Indies and his letter is dated February, 1974 so the news is more up-to-date than most of the material we have. He writes, "It is Sunday, January 20, and we have just returned from l'Eglise Riviere Sale (Salty River Church). It is a young church without a regular pastor, nevertheless the attendance was over 40 this morning. But what so deeply impressed me was the thoughts shared by a young layman. He spoke about the ten lepers whom Christ healed from this devastating disease but only one took time to express his gratitude. An outsider is prone to wonder just what a member of this little urban church could be grateful for. The building consists of only a few upright posts and some palm leaves to protect from the sun—not the rain.

"It was very interesting to listen to this young Haitian Christian as he enumerated and elaborated on areas for which they should be careful not to be ungrateful. He mentioned the church, the Sunday school teacher, the church leaders, also their health, homes, food, and clothing. He cautioned them about not only being grateful when they have a big bowl of rice but also when they have only a few kernels of corn.

"Have you ever seen anyone give thanks for a glass of water—unless they were in the middle of a desert? I hadn't either until I came to Haiti. However, the older I get the more I realize how important it is to be grateful for everything in our lives, every moment of the day.

"As we look back at the past few months we certainly have much for which to be grateful. We think of the construction of the clinic and those who helped to make this possible. We also think of those who have faithfully stood behind us permitting us to be involved in His work here.

"In December we had a blessing in disguise. Lea had developed a persistent physical problem and because of the lack of extensive medical facilities it was necessary for her to return to the States. Lea is not so sure it was a blessing because it turned out she had to have surgery, but it certainly was for the rest of us who accompanied her. And now that Lea has recuperated she is feeling fine. I took advantage of the occasion to briefly update my dentistry and of all things to have a dental appointment myself. It was a treat to be able to briefly return, especially during the holidays. We were able to surprise a few friends, but some must have heard we were coming because no one answered when we phoned. Seriously, we are sorry we couldn't contact more of you but know the holidays are an unusually busy time. We didn't complete all the business we had hoped, nor did we see everyone we wanted to. But after this morning's message I'm again reminded to be grateful for the unaccomplished, plus all the wonderful things that were cared for.

"What a contrast to be back in Haiti again, but a delight to be doing what we feel He would have us do."

Virgil and Lea were always somewhat special to me. As we go through life we meet so many people who have no sense of direction—no goal—but Virgil and Lea knew what they wanted and with prayer and loads of patience they took time out for Virgil to become a dentist so he could be a blessing to the people in Haiti where



there probably is one dentist per zillion people. It is not too wonderful to just send money to help them out—although it is a joy—but when I think of what they have given up to minister to these people who need it so much—well, I just think my life is a little richer because they came my way. I am sure all who read join me in saying to these dear people, God bless you and give you good health and strength to continue in the missionary work to which you have committed yourselves.

Dr. Rick Wagner, 7740 Camine Real, Apt. G 409, Miami, Florida 33143 surprised us with a letter written in the States as he says, "How have you been. I haven't heard from you in a long time. Have you adjusted to living in Bloomington?"

"After two years of teaching at the Dental School of the University of Amsterdam, I returned to America this fall. Presently, I have started a position with the Dental Division of the Dade County Department of Public Health. I am practicing as the only dentist in a clinic in Homestead, Florida, which is located about twenty miles south of Miami. I treat only children under the age of fifteen and enjoy very much working with children.

"I am living in the southern part of Miami in a new apartment complex. I am about a half hour's drive from the nearest beach. So I have been enjoying the beautiful weather and beaches here. Please write me when you can find the time. I would enjoy very much hearing from you. I hope this finds everyone fine. Have a Merry Christmas and a Happy and Healthy New Year." Rick, I especially appreciate your good wishes concerning my health as I really got off to a poor start this year, but each day I feel a little better and that is as it should be. I am so glad you wrote and gave us your new address as I really thought you might stay in Amsterdam for several years. Best wishes for your success and enjoy some of that sunshine for us. It is raining, which for Hoosiers is not news—it just seems to rain all the time. However, when the sun does shine it is an event for which we give thanks—so count your blessings!

Dr. Bogan (bless his heart) forwarded a letter to me from Dr. and Mrs. D. Bruce Clem, 2905 Arrowhead Drive, # E-6, Augusta, Georgia 30904. *"Christmas—a journey of the heart—a renewal of the spirit—a pause in our lives to rekindle love and friendship. We wish you the very best that it offers!"*

*"Permit us to share with you some of our past years' happenings. We have completed a little over one year and three months in the Army, leaving our forseen discharge date to be around the first part of September, '74. Bruce has had a number of varied clinical experiences and educational opportunities, which he has found to be very worthwhile. For myself, I did not go back to teaching this fall. It has truly been my pleasure to be a full-time housewife. In between being wife and homemaker, my time has been spent with sewing, arts and craft projects and more reading. Might as well make the most of the time while I have it, because now for the best part of our news—we're expecting an addition to our twosome sometime around the end of June. Naturally, we're very happy about the coming event. As of right now, we can't know just where in Indiana we will be after the Army but centrally located, we hope.*

*"Life has been very good to us this past year, and we wish the best of it for you during the coming one."* I think Bruce wrote the postscript since it is in pen, and of course we know Ann wrote the above. Bruce added, *"Hope the holidays bring you some joyous relief from the work of school. We look forward to being somewhere near Indianapolis this time next year. Enjoy the season's spirit!"* Congratulations on the coming event in June. We do hope all goes well with you both. I know your classmates will enjoy this bit of news from you. Please write again some time as we want to know if it is a girl or boy or both!

I received a clipping from the Indianapolis Star that Dr. Leonard Stephen



Scott "has opened an office for the practice of dentistry at 3532 N. Keystone. (Indianapolis of course). "A member of the American Dental Association, Dr. Scott is a graduate of the Indiana University School of Dentistry. He is a member of Christ Temple Apostolic Church and participates in the church's Young Adult Choir." The article had his picture with the write-up and he is a mighty fine looking young man. Congratulations, Dr. Scott, and we wish for you many patients and good health always.

With that happy note we must sign off because we have run out of news. Don't forget to remember in these troublesome times, when we almost dread to read the paper or watch T.V. that God is in His Heaven and All's Right With the World.

Babies are being born, churches are being built, a wonderful number of young people are turning to religion for the answer to the problems of the world, so all is not lost—we must count our blessings. One of my blessings is the receiving of mail from graduates all over the world and passing it on to you. If any of you receive letters containing news which would be of interest to the readers of the Alumni Bulletin won't you send them on to me? If you do, then I'll be happy! —I do want to not only be happy but stay happy, so grab a pencil and scribble a note to me—it doesn't have to be fancy—no one will see it but me—but what you have to stay about you will be told to your classmates and everybody will be happy! God bless you all, God bless you every one!

## Message From the President

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*Byron E. Price, President Indiana University School of Dentistry  
Alumni Association*

I am grateful for the opportunity to thank the many persons who made up the Indiana University Dental Alumni Roster and for the many courtesies they have shown me. Many have given of their time and energy to make our Dental Alumni a very vital and active part of our great institution.

It has been many years since my graduation from Indiana University, and to meet and talk with the ones I had gone to school with and the many who have graduated since has been a real pleasure.

The growth and change that have taken place since those early years are fantastic, and all alumni are justly proud of the many achievements of our school and the high standards that have been instilled in its graduates.

The coming years will be as important as any in the past with the proposed curriculum changes that are to be instituted. I hope that many alumni all over the State will encourage and participate in this unique training of our graduates, helping them to fit into the field of health care.

The dental profession will be asked to make many changes and adjustments in the years ahead, I am sure it is foremost in the minds of all practicing dentists to help in any way possible to implement these changes to the best advantage of all concerned.

Among us will be some with different opinions, but I am sure we all have the same desire. That is to see dentistry prosper and to make an important contribution to the prevention and relief of dental disease.



## ORAL PATHOLOGY

(Continued from page 5)

### Research

An active research program is conducted by the graduate students and staff alike. As part of the requirement for an advanced degree, each graduate student must complete an original research project. To date, 34 masters' degrees have been awarded by the Department. Basic research has been done in such varied areas as wound healing, salivary gland and odontogenic tumorigenesis, muscle physiology and pathology, bone physiology and pathology, and bone transplantation; in addition, clinico-pathologic studies have been carried out on such entities as ameloblastoma, lichen planus, peripheral giant cell granulomas and peripheral ossifying fibromas, and odontogenic keratocysts.

As a result of the various activities of the Department of Oral Pathology, staff members and graduate students have published over 300 articles in the scientific literature. The staff has contributed chapters in numerous texts, as well as co-authoring three textbooks, the best known being "A Textbook of Oral Pathology" by Shafer, Hine and Levy. An updated third edition of this text was published in early 1974.

### Service

By far, the most important service which the Department provides to dental practitioners is the diagnostic biopsy service. From a humble beginning of 150 surgical specimens accessioned in 1950, the service has steadily grown. During the fiscal year ending June 30, 1973, nearly 3700 specimens were accessioned. The majority of the surgical specimens accessioned by the Department are received from practitioners in Indiana; however, many specimens are sent in by graduates and non-graduates alike from many states.

## PLAQUE CONTROL

(Continued from page 7)

said that the greatest benefit was in the area of motivation. Some responses follow:

"The patient felt the individual attention was good. The films also helped to motivate him."

"My patient told me that for once she understood why she was brushing and flossing instead of just following the orders of her dentist."

"The special effort of such a program seemed to impress the patient."

"The patient has greatly improved her oral hygiene interest and habits."

There were these comments from students who believed that the patient had not benefited:

"Patient fell asleep during the film."

"My patient was hopeless; he was age 73 with poor oral hygiene, but had only one missing tooth."

"Patient would benefit if following through is possible; so far, patient has not kept appointments."

Except for five juniors who had not yet decided, all students answered that they were planning some type of plaque control program. Some comments:

"I think a qualified plaque control therapist is invaluable to a practice."

"There is no other way for restorative work to hold up and to eliminate periodontal problems."

"Yes, there is a definite need to stop or slow disease before restoration."

### Looking Ahead

Among the rather large group of students who were involved in this experimental project, there were only a few negative responses to the program. Most students showed interest and enthusiasm. The program is being continued this year, with increased emphasis.

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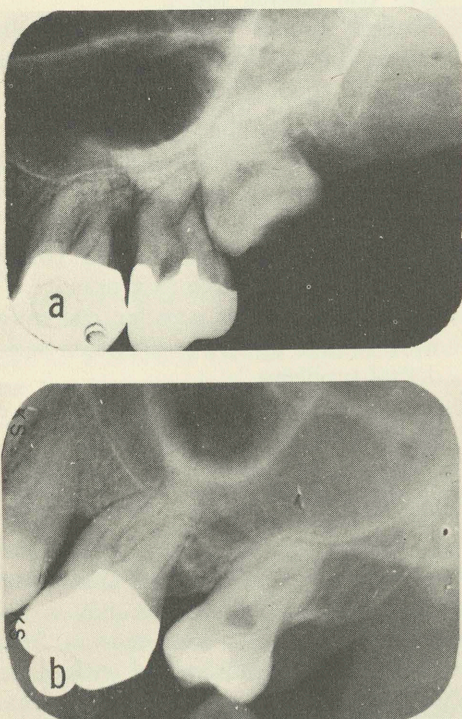


## EXTRACTIONS ALTERNATIVE

(Continued from page 9)

There may even be opportunities to apply this thinking in treating patients in whom the development of the third molar is complete.

In the case of a 26-year-old woman, bone support of the first and second molars was failing due to periodontal disease (Figure 2). It was necessary to remove the second molar, but instead of also removing the impacted third molar, it was allowed to erupt into the second molar space. Of course, whether this would happen in other patients at this age is open to a good deal of question, but as in this case, there is no harm in setting the stage for it to happen.



**FIGURE 2**

(a)—Periapical radiograph of a 26-year-old woman shows periodontal involvement of the second molar, requiring its removal.

(b)—Approximately two years later, the third molar has assumed a nearly normal second molar position.

The following precautions should be observed when making the decision to extract:

1. It should be ascertained that the opposing dentition will not be subject to movement, e.g., erupting into the extraction site.
2. Unerupted replacements should be present which are suitable in size and shape, and free of any developmental defects such as hypocalcification (insofar as this can be determined by radiographs.)
3. The patient should be young enough so that eruptive forces will still be present for the particular teeth involved.
4. This philosophy should be applied only to carefully selected cases.

Although root canal therapy and proper restorative procedures are excellent means of retaining problem molars, these efforts sometimes fail, or may continue to present problems to the patient. When appropriate, it is clearly much better to have a new sound molar that has not been altered by modern dentistry.

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### A CASE REPORT

(Continued from page 17)

years of age total flow may be as little as  $\frac{1}{2}$  ml. in a 15-minute period.

Initially, the case was of interest because of the unusual complaint of excessive saliva. Ordinarily, an excessive flow of saliva is expected for anyone undergoing dental procedures.<sup>4</sup> It has also been reported that excessive salivation may be associated with faulty dentures, pain



and metal intoxication.<sup>4</sup> Sialorrhea also has been known to be psychogenic, systemic, or local in origin.<sup>5</sup> The imposition of a prosthesis introduces alien material into the oral cavity and in the usual case increases salivary flow to which the patient quickly accommodates. Complaint of increased salivary flow of up to one year is considered unusual.

Upon observation of the lack of abnormal increase in flow, additional interest in this case was developed due to the patient's insistent complaint of a condition that apparently did not exist. Xerostomia was reported as early as 1888 by Hutchinson<sup>6</sup> and there are numerous reports of pathologic conditions producing decreased salivary flow. Oral tumors, drug reactions, and auto-immune diseases such as Sjögren's Syndrome, although rather uncommon in the general population, must be considered when faced with reduced salivary flow. Dry mouth also may result from fear, diabetes mellitus, dehydration and ill-fitting dentures.<sup>4</sup> On the lower denture an increased width for additional retention can impinge on the ducts of sublingual glands and interfere with salivary flow.<sup>7</sup> Emotional factors have been known to precipitate xerostomia and Wainwright<sup>1</sup> has documented reduced salivary rate in elderly patients.

This case illustrates the symptomatic treatment of what appears to be a psychologic problem. It also points out the importance of a thorough examination in arriving at a diagnosis and the use of the patient's chief complaint only as a starting point of a systematic procedure to reach this goal.

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#### FLUORIDE IN MILK

(Continued from page 18)

the authorities are not counting on the fluoridated salt used at the table, but upon the 0.25 milligrams of fluoride in 100 grams of bread that would be eaten each day by the child, since bread intake is a significant part of the Swiss food culture pattern.

There is strong opposition by the Swiss people to adding fluoride to the water, but they apparently buy kitchen salt with fluoride in it and are unaware of the fluoride content because they do not read the package labeling. By 1974 or 1975, there will be results reported on the use of fluoride in salt using better controls and more sophisticated research techniques.

It should be noted that in the Canton of Ticino the sale of candy in the schools is prohibited.

The report by the authors of the interview with Dr. Regolati is not an endorsement of this method of fluoridation, but rather a report on what is being attempted in Switzerland and some of their thinking behind their method of fluoridation.

#### NOTES FROM THE DEAN

(Continued from page 23)

The alumni will be pleased to learn that, at long last, the initial phase of dental school renovation will soon begin. Although we have not yet been able to identify sufficient funding to allow complete renovation of the original building and replacement of the outdated equipment, we can move ahead with several other priority projects. The Indiana Uni-



versity Board of Trustees and the Indiana State Budget Agency have authorized the school to spend approximately \$840,000 in the initial project. Top priority has been given to air conditioning of the original building. Mechanical drawings and specifications for air conditioning and upgrading of the electrical system in the school have been completed and forwarded to the Board of Trustees for approval. It is anticipated that contracts will be let in June and the major air conditioning project will get under way in July. All existing package air conditioning units will be replaced with a more efficient and effective central system.

A second major renovation project will involve a doubling of library space to accommodate new reading rooms and audiovisual facilities. The library expansion will include the area once occupied by a lecture hall in Room 122 and the dental hygiene locker room and lounge in the southwest corner of the first floor of the original building. A recent renovation of the basement of the original building has resulted in an increase in library stack space and a new lounge for the members of the Assisting Staff.

In the future, dental schools will be expected to provide effective sterilization of instruments and materials. The technic laboratory in the northwest corner of the third floor of the original building will be renovated to house a central sterilization area for the entire dental school.

A steam sterilizer, a hot air sterilizer, and a gaseous sterilizer have been ordered. The combination of these units will allow the effective sterilization of all instruments and handpieces used in clinical practice. Classes entering dental school in August 1974 will no longer purchase instruments for clinical use. Instead, the students will be provided with prepared trays of instruments for specific clinical procedures. The trays will be transported from the central facility to the individual departments where they will be dispensed to the students.

I am also pleased to report that it will be possible to replace the handpieces in Room 402 of the Medical Science Building. Dr. Boyd has long needed more

modern equipment for the teaching of operative dentistry. Air control units with high and low speed handpieces will be purchased and the equipment will be ready for use in the fall of 1974. Approximately one-half of the expenditure for this project will come from the generous gifts that have been made by the alumni during the past year.

The alumni of the school are cordially invited to visit us as often as the occasion permits. We are always glad to personally inform our many former students of the changes that are occurring in dental education and in the physical facilities of our school.

## STARKEY'S COLUMN

*(Continued from page 27)*

me to go in his place. They were meeting at the Athenaeum and I can't really say I was greatly excited about the whole idea, but I did have a close friend and colleague in that class and I knew I would enjoy spending the evening with him. He is Dr. Ted Lilly of Dayton, Ohio and we had practiced for years together in the Fidelity Medical Arts Building in Dayton.

Well, let me tell you that I had a great and wonderful evening and I am absolutely certain that everyone of them did, too. I didn't take a count but there must have been more than 20 there. They told jokes and reminisced, and the fraternalism and the rapport were a delight to behold. Dr. Orin Simmons from Indianapolis brought



The 50th reunion of the class of 1923 was a time for old friends and good memories.



with him some photographs that he had taken in the anatomy laboratory when they were students and he allowed me to duplicate them so that you might also enjoy seeing them. I am sure that some of you will have fun identifying some of these fellows.

Here's hoping that all of you who are reading this have the opportunity to enjoy the 50th anniversary of your graduating class as did the class of 1923.

## AUXILIARY EDUCATION

*(Continued from page 29)*

award, and the Excellence in Dental Hygiene award was given to Cindy Jo Parks. The Elkhart Dental Auxiliary Award was given to Mary Fulnecky, and Pam Craig was given the annual Dorothy Fromm Award in Preventive Dentistry.

In January the Dental Hygiene Capping Ceremony was held, and 17 students were capped. Dr. David Avery was the principal speaker.

During Children's Dental Health Week, all of the Dental Hygiene students teamed up to present programs in 37 schools in the South Bend-Mishawaka area. They presented Dental Hygiene education to approximately 2,400 third grade students.

The Junior American Dental Hygienists Association has been very diligent in working to raise money for a JADHA Workshop at Ohio State University. They have held a spaghetti supper, numerous bake and apple sales and a pancake and sausage dinner.

Mrs. Corine (Corky) Patton has joined our faculty and has begun the students' in-field service training. This training takes place in the public school system of Goshen. She has made some excellent additions by including the Logan School for exceptional children and the Essex and Carlyle Nursing Homes in South Bend. She has also developed a program for 100 retired nuns at the St. Mary's College Infirmary. Her efforts will result in the students gaining a wide variety of

experience with geriatric patients, as well as exceptional children.

In the area of recruitment for our Dental Hygiene Program here at Indiana University at South Bend, the Dental Hygiene students will offer a presentation about the profession at Model Cities Neighborhood Career Clinics in April.

We are approaching time for national boards, and special study classes are being arranged. Thanks to the diligent efforts of Mrs. Jacque Heine, our Dental Hygiene Supervisor, the National Board Dental Hygiene Examinations will be given for the first time this year at the South Bend Campus. This, of course, relieves the student of the expense of a trip to Fort Wayne, even though they have always enjoyed the hospitality extended to them at that campus.

Mrs. Heine and Miss Alice Smith, our Assistant Supervisor of Dental Hygiene, will present a table clinic at the Dental Hygiene Day in March at Indianapolis.

Your correspondent has today received the resignation of Jacque Heine, our Dental Hygiene Supervisor. The reason for her resignation made everyone here at South Bend very happy. As the saying goes, first she was single, then she made it double, and now she is making it triple. Our congratulations and very best wishes to the happy pair!

## THE BOOKSHELF

*(Continued from page 35)*

To determine the actual growth values for the treatment sample, a standardized technique was used for taking two lateral cephalometric headplates: one at the beginning of orthodontic treatment and another approximately two years later. A wristplate was also taken from which the developmental age of each subject was determined.

Two year growth prediction increments were calculated for each structure in the treatment sample based on the individual's developmental age. These prediction increments represent the average growth of the corresponding structure in the control sample.

With the exception of the female mandible, when the predicted growth increments were compared to actual growth, the correlation co-



efficients were not large enough to justify using mean growth values as predictors of individual craniofacial growth. It was concluded that the individual variation in growth rate precludes the use of a group statistic, such as a mean increment, for predicting facial changes.

## THE EFFECT OF SELECTED DIETARY FACTORS ON RADIOCESIUM RETENTION IN THE RAT

John R. Wolsieffer

Radiocesium is a potential health hazard to man because of its substantial yield as a by-product of atomic fission, long half-life, chemical and biological similarities to potassium and rapid incorporation into living systems. A series of laboratory experiments was conducted using the rat as an experimental model to explore the possibilities of reducing radiocesium retention by means of various dietary agents and/or their combinations. Age and sex-related changes in radiocesium retention were investigated as well as dietary influences upon growth, radiocesium excretion, and retention of the isotope in muscle, femur, carcass and other tissues.

Fluorides added to the diet in concentrations ranging up to 0.013 percent showed little if any promise of being effective agents for reducing radiocesium retention.

Ferric ferrocyanide, also known as prussian blue, was shown to have a considerable degree of effectiveness in reducing the body burden for radiocesium. Diets containing one percent ferric ferrocyanide reduced radiocesium retention in all tissues examined by approximately 95 percent.

Other dietary supplements investigated were beet pulp, sodium alginate, oat hulls, and various combinations of all of these dietary additives. Both beet pulp and sodium alginate showed some indication of reducing radiocesium retention in soft tissues but not nearly to the extent of ferric ferrocyanide. When various combinations of these substances were used in conjunction with ferric ferrocyanide, significantly greater reductions of nearly 100 percent were obtained.

It was concluded that dietary ferric ferrocyanide has the greatest potential for reducing radiocesium retention. In addition to its high degree of effectiveness at low concentrations, no toxic or undesirable effects were observed.

## SPEECH INTELLIGIBILITY CHARACTERISTICS OF PATIENTS WITH PARTIAL SURGICAL RESECTION OF THE MAXILLA

Aziz A. Majid

In this study the speech intelligibility characteristics of persons were measured following partial maxillary resection surgery. Six edentulous patients who had undergone this type

of surgery and whose surgical defects were subsequently obturated with a permanent maxillary prosthesis were studied. Following maxillofacial prosthetic treatment, each patient recorded six Consonant Rhyme Test and six Vowel Rhyme Test word lists under two experimental conditions: 1) without maxillary obturation of their surgical defects and 2) with maxillary prosthetic obturation. The word list recordings were randomly presented to fifteen untrained listeners. The listeners attempted to identify the words presented using a closed-set of alternative choice response forms.

The principal aim of this study was to measure and compare the speech intelligibility of each patient as a function of speaking with and without prosthetic obturation of large acquired surgical defects.

The results of this study indicated that partial maxillary resection resulted in significant reduction in speech intelligibility for all six patients. For this series of patients, the average intelligibility for CTR words spoken without maxillary obturation was 62% correct; for VRT words it was 58% correct. Average speech intelligibility scores for both CRT and VRT materials spoken without prosthetic obturation showed that there was marked inter-subject variation in intelligibility. For example, the range in CRT articulation scores among the six speakers extended from 32.14% to 80.66%. For VRT words, scores ranged from 30.56% to 79.12% correct. It was suggested that these variations in performance among subjects might be attributed to differences in size and site of the surgical resections and to differences in compensatory speech mechanisms employed by the speakers.

Maxillofacial prosthetic obturation was associated with a return to near-perfect intelligibility in all six subjects. The average intelligibility for CRT words was 96.36% correct; for VRT materials it was 94.40% correct. From an intelligibility point of view, prosthetic treatment provided a restoration of normal speech to each of the speakers.

## STUDIES CONCERNING VARIOUS DENTAL PROPHYLACTIC PASTES CONTAINING STANNOUS HEXAFLUOROZIRCONATE

Scott H. Polizotto

The purpose of this investigation was to determine if stannous hexafluorozirconate, a compound shown to be effective as an anti-cariogenic agent when applied topically, would be a safe and effective agent in a therapeutic dental prophylactic paste.

This research was limited to in vitro and in vivo laboratory tests. Studies were performed to determine the degree of protection against enamel dissolution afforded by various concentrations of stannous hexafluorozirconate with



various abrasives. Studies were performed to learn if the method of formulation or if the addition of excipients, such as glycerine, hydroxyethylcellulose, sodium saccharin, and flavoring agents, would influence the degree of enamel solubility resistance to acid dissolution. Studies were also conducted in order to explore the toxicity of stannous hexafluorozirconate and a prophylactic paste containing various concentrations of this fluoride salt. Finally, three experimental dental caries studies were performed in rats.

Results of these studies suggested that: 1, concentrations of stannous hexafluorozirconate of 30 percent or greater were generally found to be superior to concentrations of 20 percent or less; 2, zirconium silicate was the most desirable abrasive evaluated; 3, various excipients did not influence the efficacy of the agent; 4, a paste containing 40 percent of stannous hexafluorozirconate was stable when stored for 30 weeks; and, 5, the use of two different methods of adding the agent to the various excipients did not influence the ability of the paste to protect enamel against dissolution in acid.

The results of a feeding study in mice in which stannous hexafluorozirconate was added to the drinking water at concentrations ranging from 100 to 500 ppm indicated that all concentrations adversely affected the growth of the animals but only the greatest concentration resulted in an increased mortality. Acute oral LD<sub>50</sub> studies in mice and examination of the oral mucosa of rats exposed to various concentrations of a stannous hexafluorozirconate prophylactic paste indicated a reasonable margin of safety during the normal prophylaxis procedure.

The results of caries studies in rats generally confirmed the findings with regard to enamel solubility. With the use of a prophylactic paste containing 20 percent stannous hexafluorozirconate a significant ( $P < 0.01$ ) reduction in the incidence of dental caries ranging in magnitude from 73.4 to 86.5 percent was observed.

Collectively, these findings provide ample laboratory evidence of the safety and efficacy of a prophylactic paste containing stannous hexafluorozirconate to allow for a controlled human clinical dental caries study.

## THE ROLE OF THE FUNCTIONAL MATRIX IN MANDIBULAR GROWTH OF THE MONKEY

Stephen H. Troyer

Growth of the mandible has classically been described as a downward and forward shift of the entire mandible resulting from active growth occurring at the condyle. This concept has recently been challenged by those who believe that the functional matrix effects the

observed displacement and relocation of the mandible in space.

This study evaluated the role of the functional matrix in mandibular growth. The motor division of Cranial Nerve V was surgically sectioned in Macaque Speciosa monkeys to negate the effects of the functional matrix. Mandibular growth during the next ten months was then studied by making direct osteometric measurements and by comparing pre-operative and post-operative cephalometric x-rays; oriented lateral, occlusal, and anterior-posterior x-rays of the dissociated mandibles; and pre-operative and post-operative study models.

No changes in mandibular body length, ramus width, or ramus height were observed in the operated monkeys. Marked hypertrophy of the geniohyoid muscle (the lone functioning depressor of the mandible in the operated monkeys, as it is supplied by Cranial Nerve VII) was believed responsible for (1) increased bony growth at the area of this muscle attachment and (2) buccal flaring of the associated alveolar segment (seen on the post-operative study models.)

Alterations previously reported after condylectomy (antegonial notching, more obtuse gonial angle) were also observed in the operated monkeys, suggesting that these alterations may be due to an altered functional matrix (increased geniohyoid function) and *not* the loss of the "condylar growth center."

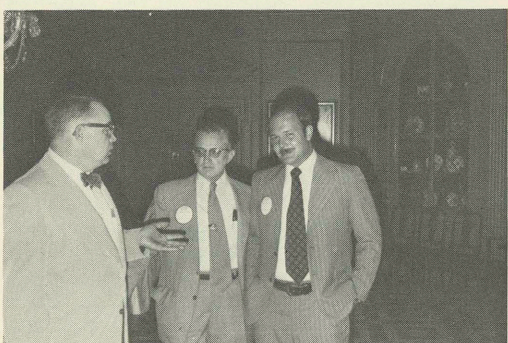
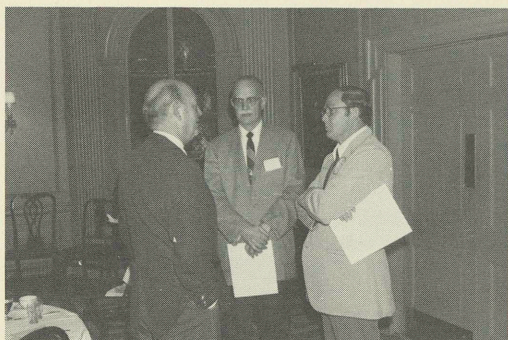
Concerning the condyles of the operated monkeys, an altered slope of the articular surface and an altered horizontal long axis relationship suggested that the ultimate morphology of the condyle itself depends upon the action of its related functional matrix.

There was little anterior and inferior displacement of the mandible of the monkey operated bilaterally when compared to the control monkey. This observation supports the concept that the functional matrix plays a role in displacement and relocation of the mandible.

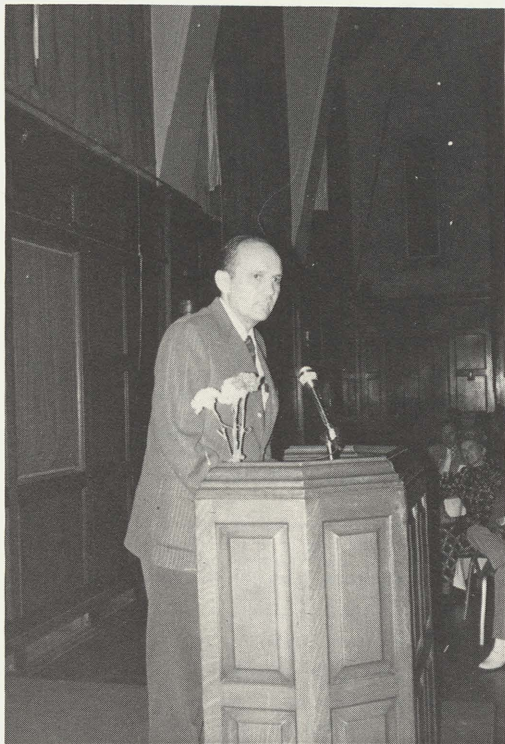
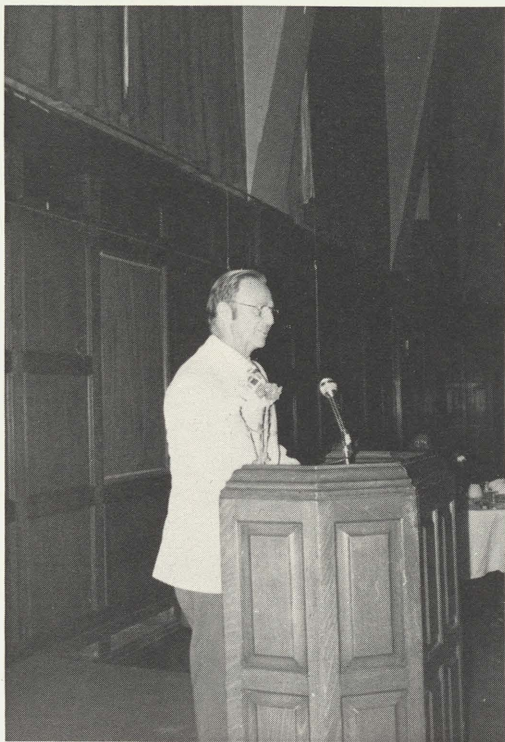
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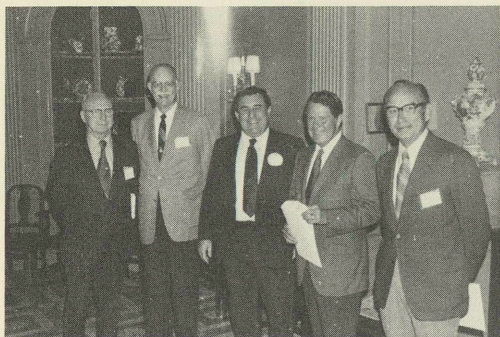
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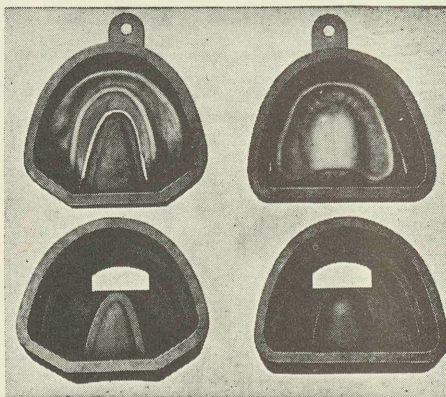
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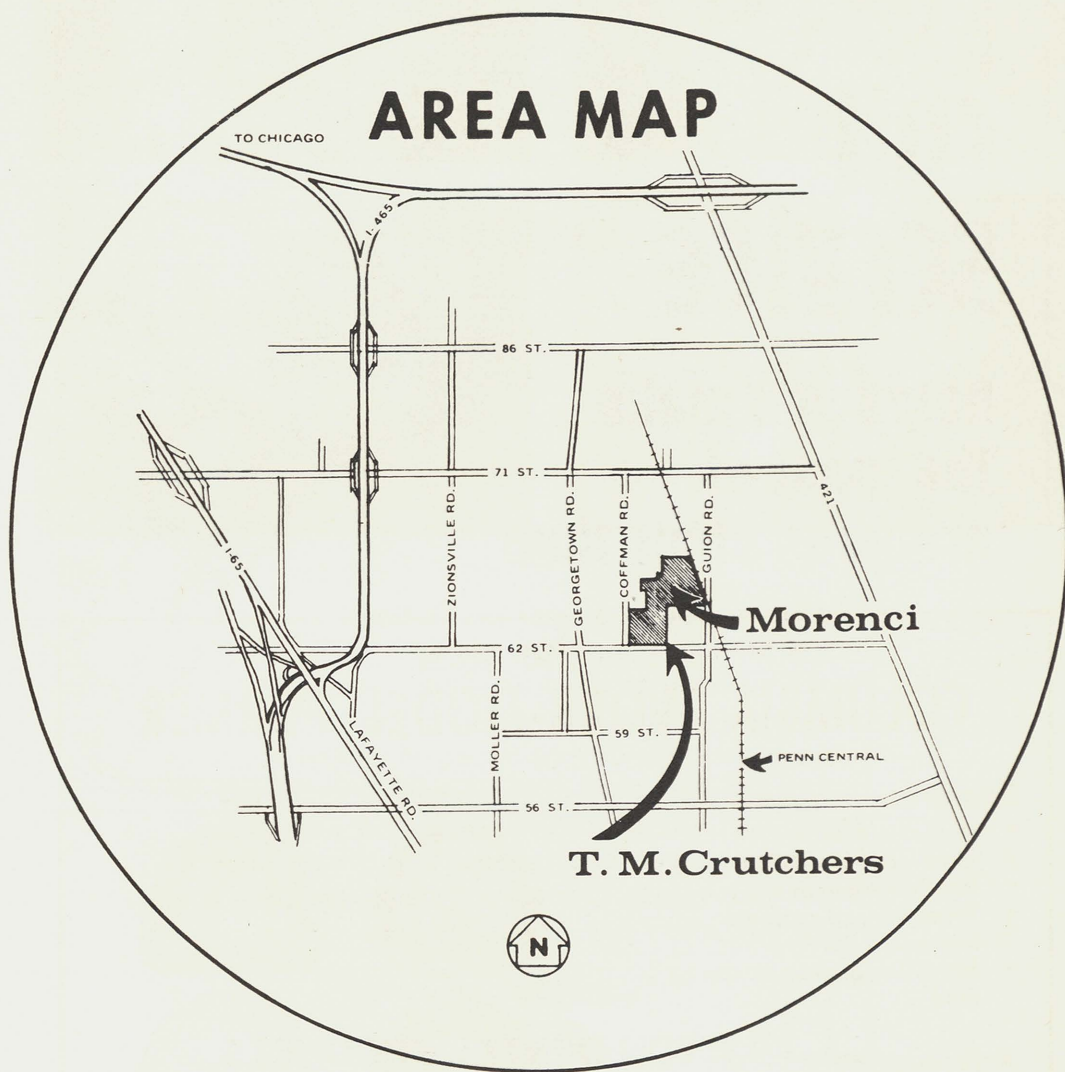
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