

Alumni Bulletin

INDIANA UNIVERSITY
SCHOOL OF DENTISTRY

MARCH, 1961

INDIANAPOLIS, INDIANA

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A free and non-profit bulletin issued by Indiana University School of Dentistry, Indianapolis, Indiana, for the purpose of keeping its alumni informed of the activities and progress of the School.

Historadiographic Study of Dentin Sclerosis

by Dr. Grant Van Huysen, Professor of Oral Histology

A new research tool has recently been developed which is beginning to provide some new information about tooth and bone calcification at a microscopic level. This new method combines two already well-known instruments, the X-ray machine and the light microscope. The process is called historadiography. With this method one can obtain photomicrographs of undecalcified bone and teeth using X-rays instead of light rays. With this method one cannot only visualize the structure of the dentin but the density of its calcification can also be measured.

Figure 1 shows a clinical X-ray film of an exfoliated deciduous molar. In the dentin between the mesial occlusal filling and the pulp chamber one can see an area of marked dentin sclerosis. It is obvious that this sclerosis is a marked increase in the calcification of the dentin in response to either the caries or the filling materials. It is probably a protective mechanism of the tooth. This X-ray does not show whether this increased calcification occurs in the matrix between the dentinal tubules or whether it occurs within the tubules, let us say, obliterating the lumen of these structures. Historadiographic methods can, however, answer this question.

The first step in the preparation of a historadiograph of dentin is to cut a thin section of the dentin through the teeth, through the area of sclerosis as is indicated by the line drawn across the X-ray film shown in Figure 1. This section is then ground to a thickness of 20 microns. This thin ground section of dentin is mounted on the brass ring shown in Figure 2. A contact X-ray of this thin section is then made with a low voltage X-ray machine

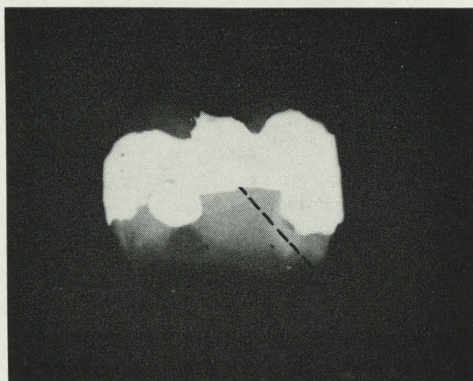


Figure 1 shows the clinical X-ray film of an exfoliated deciduous tooth crown. The line shows the plane from which a ground histologic section through the area of sclerosis was made.

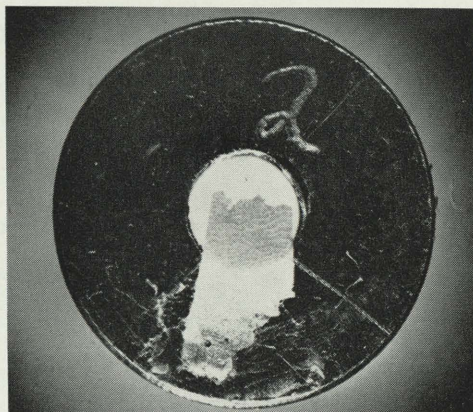


Figure 2 shows the (20 micron) thick ground dentin section from the area of sclerosis seen in Figure 1. This section is mounted on a washer for placement in contact with the fine grained film in the X-ray camera.

using a very fine grain film. Figure 3 shows a picture of the X-ray machine and the assembly (camera) used to hold the fine grained X-ray film and specimen. The specimen holder is seen in the left hand of Figure 3b. In Figure 3b at the right of the specimen holder one can see the film, the specimen, the specimen holder metal washer and the rubber retaining

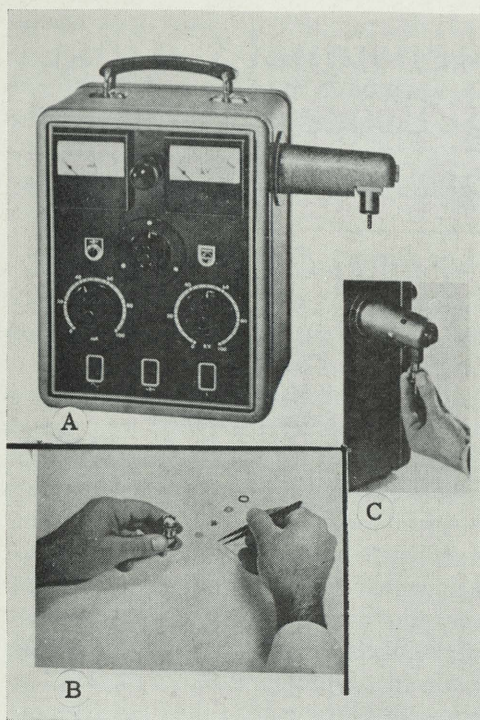


Figure 3 shows at (a) the low voltage X-ray machine. The metal housing extension on the right above contains the X-ray tube and the camera holder projects downward from its outside end. At (b) one can see in the left hand the camera being loaded. At the right is the film, the specimen, washer, and rubber retainer ring. They are laid on the spring mounted plunger seen in the upper end of the camera in the order named. In this project the specimen is cemented to the washer and inverted so that the specimen is in contact with the film. Figure 3c shows the camera containing film and specimen being inserted below the X-ray tube.

ring in the order named. The circular piece of fine grained film 9 mm. diameter is placed on the spring plunger of the specimen holder with the emulsion side upper most. The brass ring on which the specimen is mounted (see Figure 2) is invested and placed on the film on the specimen holder so that the ground dentin section is in contact with the emulsion side of the film. The ring and specimen pressed down against the plunger of the specimen holder so that it can be locked in with a rubber ring that fits in a groove around the edge of the camera. The entire assembly is then inserted into the arm of

the X-ray machine shown in Figure 3c. This puts the dentin ground section in contact with the film at a distance of 11 mm. from the low-voltage X-ray tube in the arm of the X-ray machine.

The X-ray exposure is made of 4 kvp., 30 ma. for five minutes. This exposed film is developed in D-19, fixed, washed and after drying is mounted on a glass slide and covered with a cover slide as one would a histologic section. The contact X-ray of the ground dentin section is then photomicrographed using a magnification of from 200 to 400 times. The grain of the spectrographic film used to make the contact radiographs of the ground dentin section is so fine that it can be magnified 500 diameters before it can be seen. This is in contrast with the grain of the much faster periapical X-ray dental film, the grains of which are so coarse that a magnification of 4 to 5 times makes them clearly visible.

Figure 4 on the left shows a historadiograph of a ground section of dentin removed from an unerrupted premolar tooth of a young individual. Here one can see the dentin matrix and the dentinal tubules and in one area the shadow of an interlobular space. One can see in this historadiograph that there is an increased calcification of the peritubular dentin matrix even in this young dentin.

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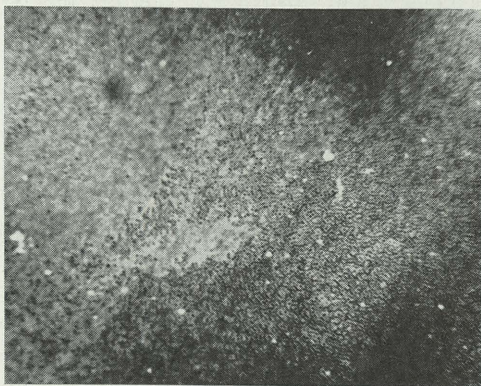


Figure 4 shows the historadiograph of the sclerotic dentin taken from Figure 1. Original magnification 100X.

A Review of the Dimensional Changes Which Occur During Processing and Use of Acrylic Denture Bases

by Dioracy F. Vieira, D.D.S., M.S.D.

The following paper was prepared by Dr. Vieira during his graduate studies at Indiana University where he received an M.S.D. degree in 1960 majoring in dental materials. He has returned to the faculty at the University of Sao Paulo, Brazil.

R.W.P.

linear shrinkage

Sweeney: 0.44 - 0.62%

Sweeney: 0.25 - 0.44%

Peyton and Mann: 0.35%

Jones and Skinner: 0.33%

Dahl: 0.6 - 1.33%

CURING CHANGE

From the actual shrinkage of methyl methacrylate monomer (21 per cent) one would expect a reasonably great contraction of the final denture base resin. However, the shrinkage of the dough, after polymerization, must be lower than that of pure monomer since only the monomer is responsible for the contraction of the dough. When a ratio of one part of monomer to 4 or 3 parts of powder is used, the actual change in the resin dough is approximately 5 to 7 per cent. It has also been shown that the addition of some inorganic fillers may decrease the thermal shrinkage of the poly (methyl methacrylate).

Although there is some disagreement among authors regarding the amount of polymerization shrinkage of denture bases, at least one fact is concrete, namely that the shrinkage which has been found after curing is much lower in the actual denture than should be expected from the theoretical considerations. This fact does not mean, however, that these changes, even if small, do not have an influence on the fit of the dentures or on the final occlusion.

Some of the values for dimensional changes as found by various investigators are:

volumetric shrinkage

Carter: 1.75 - 3.25%

Dahl: 2 - 4%

Schroeder and Santoril: 7%

These observed differences may be due to several factors or to different conditions of research but mainly are attributed to the inherent conditions of denture polymerization. Naturally this contraction, as has been pointed by Schroeder and Santoril, varies in different directions, causing distortion or warpage of the final denture.

THERMAL CHANGES

To the curing shrinkage must be added the thermal contraction ($0.000081/^{\circ}\text{C.}$) of the denture bases. Obviously one would expect that this thermal shrinkage would be less in the case of self-curing acrylic as the thermal change is due only to the development of heat from exothermic chemical reactions. Some believe that the precarious adaptations of denture bases is a consequence of the thermal contraction of the heat cured acrylic resin and not from polymerization shrinkage and that the better results obtained with self-curing acrylic resins for dentures is due to the smaller thermal shrinkage.

WATER SORPTION

The water sorption is another factor to be computed since the denture will naturally imbibe water when in use. It has long been recognized that the water sorption brings some compensation for the curing shrinkage due to the expansion that this sorption causes. There are authors, however, who believe that this ex-

pansion from water imbibition is greater than the polymerization shrinkage. Others state that only part of the shrinkage may be compensated for in this manner.

DIMENSIONAL CHANGES IN THE OTHER MATERIALS USED IN PROCESSING

Another interesting problem is related to the dimensional changes caused by shrinkage or expansion of materials associated with the processing, such as impression, model and investing materials. Some studies have been done regarding the influence of the setting expansion of the plaster in which acrylic resin is molded. Steck advised the use of a high expansion plaster, while Jorgensen states that the plaster or stone used to invest the base plate should have a low setting expansion. Using stones with a large and a small setting expansion, Vieira showed that there is not a significant difference between the two. Dimensional changes are masked by the much more significant distortions which occur in the processing procedure.

Recent work by Woelfel and Paffenbarger showed that even with unusual methods of heating of the denture resin, "the induced shrinkage of the upper dentures used . . . probably has less clinical significance than many dentists have indicated". This is a statement which must be accepted with considerable care, because it implies a very subjective and psychological judgment of the patient. It should be remembered that there are numberless cases in which dentists have not been successful in the construction of truly satisfactory dentures. This inability to provide a well fitting denture may or may not have been influenced by dimensional changes in the materials employed. The exact amount of inaccuracy which is clinically significant in a denture base is still unknown. There are several studies now in progress which are designed to determine the tolerance of denture fit which can be clinically detected by the patient.

MORPHOLOGICAL CHANGES

The morphological stability of a denture is responsible for the correct adaptation of the denture to the mucosa, for the maintenance of a correct occlusion, and for the conservation of both of these factors during clinical use.

It has been stated that during the molding and the curing of denture resins there are several factors which exert an influence which decreases the significance of the previously cited dimensional changes but, simultaneously, increases the morphological changes and thus causes distortion or warpage. Some of these factors are: different cycles of polymerization (in 1953 Sweeney reported the existence of more than 40 different processing techniques for curing of acrylic resins), excess of material, adherence of the resin to plaster, release of internal stresses, shape of the mold, restrictions of the mold, use of different liners for plaster, flow of the resin, etc. It is very interesting to remember here the statement of Atiyyah: "If the denture base shrinks equally in directions, all changes in distance between the various reference points will be the same, when compared before and after polymerization. If, however, these changes were not the same, we must conclude that the denture base suffered stresses during processing and resulted in distortions or warpage." These distortions have been shown by several authors. As a consequence, the fit of the denture is impaired and the occlusion, as well as the vertical dimension previously recorded, may be lost.

It is possible that the greatest distortion occurs when the cured denture base is removed from the model. Naturally this distortion is unavoidable, although it can be minimized with a slow cooling. It is important to remember that these distortions are proportional to the number of heatings after the curing of the dentures and a drastic heating may release stress.

Several researchers have been studying the warpage of dentures in clinical service. The methods of evaluation include simple

clinical evaluation, use of comparators for measuring in two dimensions and studies on the entire denture contour.

The distortions during curing are different between a lower or an upper denture. For acrylic resins, there is a general tendency for the upper denture to contract in the frontal directions, while the lower dentures tend to contract in the frontal directions and to expand in the sagittal ones. In trying to study the factors responsible for these changes, it is reported (1) that the techniques used in common laboratory methods give very reproducible results when correctly followed, (2) that the storing of the base plate denture, as well as the final finishing and polishing of dentures are causes of distortions, chiefly if the latter is followed without the necessary care of avoiding unnecessary heating of the denture, (3) super polyamides resins (used in Europe) showed greater distortions than acrylic resins, (4) the use of compression or injection molding of the resin, the use of investment stone with low or great setting expansion, or the use of internal Perlon mesh as advocated by some operators are factors which do not significantly influence the degree of distortion.

DISTORTIONS AND THE FIT OF PROCESSED DENTURES

As mentioned, the development of special equipment has made it possible to study the contour of dentures and of the impressions and models used in the construction of the denture. It has been possible to study the changes of the palatal contour of dentures during polymerization or when in use in the mouth. The equipment consists of the use of special microscopes, pantographic comparators or dial gages. With these it is possible to study the discrepancies between a model or an impression and its consequent denture immediately after processing, after special storing, or after having been used by a patient.

In the research done by Dolder, distances between three different coordinates, in three different planes, and located on the palatal side of upper dentures, were measured. After observing 58 complete prostheses for a period of 21 months he found that there was a group of materials which expand with use in the mouth, and the acrylic resin was one which presented this type of change. Appenzeller, working by the same method proposed by Dolder, found an enlargement of the order of 0.1 mm., using as a point of reference the palatine part of the prosthesis.

Rupp and Sweeney, using the pantographic comparator developed at the National Bureau of Standards, found the greater change to be of the order of 0.61 mm. in the vertical direction. The effects of the water sorption on the contour were then studied and the changes found indicated expansions similar to those reported with linear measurements done by the other researchers. Ryge and Fairhurst developed an apparatus to compare the surface contour of impressions, models and dentures. By observing dentures stored in water at 37°C., for 10 days, one month and a year they found that in general the adaptation is better as the denture ages, due to water sorption or to flow of resin, and that, "in general, the adaptation of the dentures immediately after deflasking is poorer than after one month or one year storage." Their work agrees also with that of Dolder and of Appenzeller in the fact that, "there occurred a slight change in the position of the flanges in a lateral or outward direction of an order of magnitude of approximately 0.25 mm."

CHANGES IN OCCLUSION AND VERTICAL DIMENSION OF PROCESSED DENTURES

It is often observed that after the polymerization of the dentures the occlusion, as well as the vertical dimension previously obtained by the dentist, is lost and it

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Faculty Active at A.D.A. Meeting

A large number of faculty members attended the annual A.D.A. meeting in Los Angeles last October. Many were active not only in the scientific session but also in the programs of the various specialty groups. Those presenting papers at the scientific session of the A.D.A. were Drs. L. Rush Bailey, Thomas H. Beavers, Donald Cunningham, Roland Dykema, Frederick A. Hohlt, Charles L. Howell, John F. Johnston, Arthur Klein, David Mitchell, Lloyd Phillips, James R. Roche, William G. Shafer and Professor Ralph Phillips. Mr. James Platt presented a student clinic.

Dr. Maynard K. Hine attended as 7th District Trustee, and Dr. Drexell Boyd presided as Chairman of the Operative Section. Dr. Harry Healey served as a member of the reference committee and as a delegate at the meeting. Dr. H. William Gilmore attended the Operative Section meeting and presented a paper to the American Dental Hygiene Association. Miss A. Rebekah Fisk also attended these meetings and Misses Josephine Hansen and Miss Nancy Dudding presented a table clinic at the A.D.A. meeting.

In addition to the scientific session, Professor Ralph Phillips and Dr. Lloyd Phillips appeared on the program of the American Society of Dentistry for Children. Dr. John Mink presented a paper at this meeting, and Dr. Ralph E. McDonald participated in this meeting and also served as section chairman (pedodontia) of the A.D.A. meeting. Dr. David Mitchell presented a paper before the American Academy of Periodontology along with Dr. Henry M. Swenson.

Others attending the sessions were Dr. R. A. Misselhorn, and Dr. Robert Tarplee, who presented the I.U. School of Dentistry

(Continued on page 50)

Twenty-five Added to Teaching Staff

Expansion of the teaching staff for the Indiana University School of Dentistry to meet increased enrollment of students in dentistry and dental hygiene has been announced by Dean Maynard K. Hine. All but five of the appointees have dental degrees from Indiana University. However, it will be noted that the new faculty members include not only graduates from other schools in the United States but also from universities in three other countries.

Appointments were:

Assistant Professor—Robert Callis, orthodontia; Maurice J. Healey, basic science; George Mumford, dental materials.

Instructor—David L. Cook and Francis E. McCormick, pedodontia; Gene M. Fryar, orthodontia; John R. Hodges, dental hygiene; Ray K. Maesaka, crown and bridge; Victor Mercer, basic sciences; Varoujan Tchalian, prosthetics.

Consultant—Warren Hamula, orthodontia.

Graduate Assistant—Thomas J. Connell, Robert L. Dickerson, Harvey G. Levinson and Reece A. Townsend, crown and bridge; Walter A. Doyle, pedodontia; William H. Dudley, and Earl R. Ley, prosthetics; Jon Herrold, basic sciences; James D. Higgason, Don C. Nesler, periodontia; Darrell McFall and Marvin S. Schmidt, operative dentistry; and Narendar N. Soni, oral histology.

Second-Year Resident — George T. Childes, oral surgery.

Dr. Mumford has dental degrees from the University of Sidney, Australia; Dr. Doyle from Emory University; Dr. Higgason from the University of Tennessee; Dr. Soni from the University of Bombay, India, and the University of Rochester, New York; and Dr. Tchalian from the Ecole de Chirurgie Dentaire, Paris, France.

Dean Hine reports that...

Each week we find it possible to move into more of the dental school addition, and by the first of February we were in about three-quarters of the rooms. Tentative plans are to hold "open house" for this addition in connection with the dental school Honors Day Program, which will be held Sunday, June 4. According to all indications, by then the entire building will be available to us.

These new facilities have already proved to be most helpful to our teaching program. There are of course many minor adjustments that remain to be made; locks were not placed on some doors where they now seem indicated, and vice versa, and it has become apparent there are a few minor building changes that would be desirable. However, the only real criticism that we have of this addition is that it is not large enough! Plans are also proceeding rapidly to make changes in the original dental school building to take advantage of the space which has been released by moving some of the departments into the new addition.

Since the last issue of the Alumni Bulletin was published, the Council on Dental Therapeutics of the American Dental Association gave Crest tooth paste a Class "B" rating, which indicated that they are convinced the dentifrice has therapeutic properties. Since this is the first time that the A.D.A. has indicated that any dentifrice on the market might have therapeutic value, the announcement created much interest. It is well known that the basic research which led to the development of this dentifrice was done at Indiana University and the basic patients are held by Indiana University Foundation. While we are not involved in marketing the product, we are of course gratified that the product has gained A.D.A. recogni-

tion and good acceptance by the public. Some of the royalties from Crest tooth paste have already been utilized for dental projects.

That our students are working diligently is indicated by the grades they have earned. There were only five "F" grades in the entire Freshman Class. This speaks well for our method of selection of students; the curriculum we have planned is difficult, but not impossible!

Most students are convinced they are required to work too hard while in dental school, yet most alumni write me that they soon learned to appreciate the fact that they were required to meet I.U.'s high standards!

The American Board of Periodontology is again holding its annual examination at our dental school. Of the six practical examinations which this board has held, five of them have been given at Indiana University. The facilities here are good for this examination, since the applicants can stay on the Medical Center campus at our Union Building. We also have an advantage that many schools do not: Indianapolis has a central location which is readily accessible from all parts of the country. Details associated with this examination are cared for in a competent manner by Dr. Henry M. Swenson.

Did you notice the great number of individuals from the faculty of Indiana University School of Dentistry who were on the scientific program of the Annual Meeting of the American Dental Association in Los Angeles last October, and the recent Chicago Midwinter Meeting? Our dental faculty members presented more than 200 programs for dental meetings last year. While this takes an appreciable amount of time, it is justifiable for many reasons. It also indicates that the prestige of our dental faculty is increasing yearly.

From the Alumni President:

I would like to take this opportunity to thank Dr. Fred Hohlt for his fine leadership the past year. The fall conference in Bloomington was, as usual, a wonderful weekend. The accommodations, facilities and program were superb! I hope that many more of our membership will plan on visiting our beautiful campus next year.

The past year saw the dental hygienists become affiliate members of the I.U. Dental Alumni Association. We extend a warm welcome to our co-workers.

I hope all our members become more

familiar with the many worthwhile projects we carry on each year: student scholarship and loan fund, varsity club, mouth piece construction and recruitment of good students for dental school.

The last named item will be our main project for the coming year. We are in the process of working on the plans and hope every dentist in the state will give us their cooperation.

It was nice to see so many of you in our alumni room at the Chicago Midwinter Meeting. As usual, Frank Jones was as efficient as ever in organizing the details and I express the sentiments of all of you I know when I convey our thanks to him.

*A. C. Yoder, Jr., President
I.U.S.D. Alumni Association*



The newly elected officers of the Indiana University School of Dentistry photographed at the annual meeting in Bloomington last October. Front Row, left to right, H. William Gilmore, secretary; A. C. Yoder, Jr., president; Frederick A. Hohlt, immediate past president; Thomas A. Boyd, board member; Back Row, left to right, Paul Starkey, board member; Robert E. Peden, president-elect; Robert Davis, board member; Malcomb Boone, board member; Robert McGeorge, board member, deceased; Jack Carr, vice-president, was not present.

Faculty Publications for 1960

Last year the Alumni Bulletin carried abstracts of papers published by the dental school faculty. So many favorable comments were received that a list for 1960 has been compiled. Although it is not entirely complete, it contains a major share of the publications from January 1, 1960, through December 31, 1960.

R.W.P.

Hine, M. K.: *Dental Research: A 1959 Summary, Bulletin of the Millard Fillmore Hospital, Buffalo, New York. Vol. 7, Part I, p. 99, 1960. (Special Research Institute Dedication Number.)*

Dental research has increased in volume and scope so tremendously in the past decade that it is difficult for anyone to keep informed. Recognizing this, the Editor of the Bulletin of the Millard Fillmore Hospital requested that a summary be prepared of pertinent dental research for 1959. This article, which was based in turn upon reviews of research written by several authorities, covered the research reports published in 1959 in the fields of Oral Pathology, Microbiology, Periodontology, Oral Surgery, and other related fields.

Hine, M. K.: *Fund for Dental Education—Report, J. Am. Col. Den. 27:131, 1960.*

It is generally recognized that dental education is expensive, both to the dental student and the dental school. There can be no doubt that economic pressures handicap dental education; many capable students are unable to finance the long dental education, and many important dental educational programs are not presented in optimum fashion because of limited funds. The Fund for Dental Education was organized a few years ago to raise money to help dental education. This program although still a new one, has already collected considerable money which has been granted to the American Association of Dental Schools, to many individual dental schools and for several projects designed to improve dental education.

McDonald, R. E.: *Practical caries control Measures, D. Abs. 5:369, 1960.*

The dental profession is responsible for informing the public of the causes of caries and the preventive and corrective measures that

can be instituted. No one measure will solve the problem of caries, but the dentist should utilize the following five measures when considering the dental health of an individual patient or that of a community: (1) reduction of the freely fermentable carbohydrate in the diet; (2) reduction in the number of acidogenic microorganisms in the mouth, by brushing the teeth after each meal; (3) fortifying the tooth against acid attack, through topical application of stannous fluoride and by recommending flouridation of the community's water supply; (4) restorative dentistry, including prophylactic odontotomy, and (5) education and periodic recall of patients.

McDonald, R. E.: *Relationship of pedodontics and pediatrics, J. Den. Child. 3rd Quart., 212, 1960.*

In the future, we can look to the pediatrician to assist us to a greater extent in our preventive program designed to reduce the dental needs of children. Increased dietary counseling for the control of dental caries, early recognition of dental problems and subsequent referral, to greater assistance in the management of psychological problems and oral habits will be invaluable aid to the pedodontist and to the dental profession as a whole in meeting the challenge in the decade ahead.

McDonald, R. E.: *The management of fractured anterior teeth in children, (in) Endodontics, Healey, H. J., St. Louis, The C. V. Mosby Co., p. 292-314, 1960.*

Success in the management of traumatic injuries to the teeth in children and in young adults often is dependent upon the thoroughness of diagnostic and initial treatment procedures. The operator must be cognizant, however, of the inadequacies of our present-day methods of determining completely the initial pulpal reaction to the injury and likewise the difficulty in predicting the long-range reaction of the pulp and supporting tissues.

Bixler, David and Muhler, J. C.: *Retention of fluoride in soft tissues of chickens receiving different fat diets, J. Nutrition Vol. 70, No. 1, 1960.*

Day-old White Leghorn chickens were divided into five experimental series receiving

different diets. One series received a fat-free diet and the other four were fed different fats at a 20 per cent dietary level as follows: series 2, cottonseed oil; series 3, oleic acid; series 4, stearic acid; series 5, lard. Each series was divided into three groups, one receiving no added fluoride, another, 2 mg. of NaF/day by stomach tube and the remaining group 0.5 mg. of NaF/day by injection.

After eight weeks the animals were killed and the following observations made: (1) no effect of fluoride administration upon serum cholesterol level was noted, although after six weeks, the animals fed the diets containing 20 per cent of fat had consistently high serum cholesterol levels as compared with those fed fat-free diets; (2) increased skeletal retention of fluoride by the fat-supplemented animals when the fluoride was administered either by injection or stomach tube; and (3) increased retention of fluoride in heart and kidney of animals on the fat-supplemented diets.

Muhler, J. C. and Shafer, W. G.: *The effect of irradiated yeast on salivary glands and dental caries in the rat*, J. D. Res. 39:188, 1960.

The effects of adding irradiated yeast to a cariogenic diet has been studied in the rat. The data indicate a significantly greater incidence in yeast-fed animals than in those receiving the control diet. The mechanism for this effect has not been clarified.

Shafer, W. G. and Muhler, J. C.: *Endocrine influences upon salivary glands*, N. Y. Acad. Sci. 85:215, 1960.

A review of the existing literature on the hormonal influences of salivary glands have been carried out. It appears that the salivary glands, their morphology, physiology and pathology, are related very closely to the endocrine system, although the nature of this relationship appears to be a very complex one. Definition of this relationship may do much in the future toward solving some of the unexplained facets of the problem of dental caries and other oral diseases of man.

Standish, S. M. and Shafer, W. G.: *Experimental carcinogenesis in the duct-ligated and artery-ligated submaxillary salivary gland of the rat*, Am. J. Path. 36:473, 1960.

Carcinogenesis in submaxillary salivary glands with and without ligation of ducts or arteries

has been compared with regard to the effect of ductal obstruction, incidence of neoplasm production, tumor induction time, and degree of malignancy. Duct ligation was almost invariably associated with metaplasia or neoplasia in glands containing implanted carcinogen. The metaplastic epithelium provoked by duct obstruction was not necessarily potentially neoplastic.

Duct or artery ligation had no significant influence upon the incidence of neoplasm or the degree of malignancy in salivary glands in which 7, 12-dimethylbenz(a)anthracene had been implanted. The comparative increase of duct structures per unit volume in glands with ligated ducts and the appearance of metaplastic epithelium following arterial ligation, features which were considered to constitute optimum conditions for tumor induction, were thought to be negated by the reduced metabolic activity.

Shafer, W. G.: *Effect of Dilantin Sodium on growth of human fibroblast-like cell cultures*, Proc. Soc. Exper. Biol. & Med. 104:198, 1960.

Addition of sodium diphenylhydantoinate (Dilantin Sodium) to tissue culture of human fibroblast-like cells resulted in stimulation of their proliferation. A similar but more limited stimulation to proliferation occurred with HeLa cells but there was no detectable effect on cells isolated from rat fibrosarcoma.

Samter, T. G., Vellios, F. and Shafer, W. G.: *Neurilemmoma of bone. Report of three cases with a review of the literature*, Radiology 75:215, 1960.

Three cases of neurilemmoma of bone are reported, and the findings in 12 other recorded instances are summarized.

Neurilemmoma of bone may arise centrally, or in the nutrient canal of bone. It may occur at any age, in either sex, and presumably in any bone. It has been found most frequently in the mandible and sacrum.

Shafer, W. G.: *Generalized gingival hyperplasia*, New York State Dent. J. 26:362, 1960.

A discussion has been presented of the etiology, clinical and microscopic findings and treatment of inflammatory gingival hyperplasia.

Waldron, C. A. and Shafer, W. G.: *Current concepts of leukoplakia, Internat. Dent. J.* 10:350, 1960.

A review of recent publications on leukoplakia shows that there is considerable confusion regarding the use of this term. To many authors, "leukoplakia" is a clinical term used to designate a white patch on the oral mucosa. Others utilize the term "leukoplakia" for a microscopic diagnosis and require that the lesion show certain definite histologic features, principally dyskeratosis. Most workers consider leukoplakia to be a premalignant lesion although the estimated frequency of malignant transformation varies from only a small percentage to nearly 100 per cent. Part of this difference is due to confusion as to definition of the term "leukoplakia" i.e., whether the authors use the term clinically for a white patch or microscopically for a lesion showing cellular atypism.

Although there is considerable information on leukoplakia in the recent literature, there are very few well-documented clinico-pathologic studies relating to the course and prognosis of this condition. From the information available, it would appear that only a small minority of lesions which appear as clinical leukoplakia will show the histologic features required by some for the restricted microscopic diagnosis of leukoplakia.

To most clinicians, leukoplakia is a well-established clinical term. Attempts to redefine this clinical term on strict histologic grounds may be regarded as questionable. There appears to be considerable justification for the suggestion that the term "leukoplakia" should be used only for the clinical designation of a white plaque on the oral mucosa, and that terms such as hyperkeratosis, acanthosis, or dyskeratosis be used for the microscopic diagnosis of these lesions. This would eliminate misunderstanding in the variation in usage of the term "leukoplakia" and would contribute to better patient management.

Shafer, W. G.: *A comparison of surveys of dental school biopsy services, J. Dent. Ed.* 24:298, 1960.

A questionnaire-based summary of the biopsy services in dental schools in the United States has been presented.

The average number of specimens processed for all schools in 1958 was approximately 339,

with a range of 5 to 1,368. This average is almost double that for the year 1952-1953. Of the total number of specimens received in the laboratory, about one-third were from outside of the dental school in 1953, but in 1958 over one-half of all specimens processed were from outside practitioners. A total of 472 malignancies were seen in the 34 schools reporting in 1958 as compared with 328 in the schools reporting in 1953. The percentage of malignancies in the total number of specimens processed in 1953 and 1958 was almost identical, however. There was considerable variation in the percentage of malignancies seen among the various schools.

Standish, S. M.: *Pyogenic granuloma, New York State Dent. J.* 26:363, 1960.

The clinical differential diagnosis and histologic features of the pyogenic granuloma is discussed with regard to the rationale of conservative local excision.

Johnston, J. F., Cunningham, D. M. and Bogan, R. L.: *The dentist, the patient and ridge preservation, J. Pros. Den.* 10:288, 1960.

This is a review of what may be done by the dentist in planning for and in constructing a clasp-retained partial denture, and how the patient must cooperate with him in preserving the bony supporting ridge under the partial denture base.

Davila Alonzo, H. M., Van Huysen, G. and Johnston, J. F.: *Changes in pulp and periodontal tissues of teeth subjected to crown prosthesis, J. Pros. Den.* 10:350, 1960.

This is a report on a research project carried out on dogs and humans for the study of supporting structure reactions to crowns built into premature contact and of pulps in teeth subjected to a variety of cutting operations in good and poor environments.

Johnston, J. F.: *Porcelain veneers bonded to precious metal castings, J. Canad. D. A.* 26:657, 1960.

The combinations of materials are compared, as to good and poor qualities, differences in techniques are outlined, and reasons are presented for the shortcomings of the processes.

Ayers, H. D., Phillips, R. W., Dell, A. and Henry, R. W.: *Detail duplication test used to evaluate elastic impression materials*, J. Pros. Den. 10:37, 1960.

Accuracy of dental impressions not only involves dimensional accuracy but the accurate reproduction of surface detail as well. A test was devised to determine the ability of impression materials to register surface detail. The polysulfide polymers, silicones and reversible hydrocolloids all appear to be excellent in this regard. Alginates were markedly inferior to the other impression materials tested. The capability with which three gypsum die materials reproduced the detail of the impression was also evaluated. There was a difference in the stones and also in their performance with different impression materials. Again alginate was inferior.

Menegale, C., Swartz, M. L. and Phillips, R. W.: *Adaptation of restorative materials as influenced by roughness of cavity walls*, J. D. Res. 39:825, 1960.

Various types of instrumentation produce cavity walls of varying degrees of roughness. Cavity preparations were cut in freshly extracted teeth by three different instruments; one of which yielded extremely smooth, textured walls, the second produced walls of medium roughness and the third extremely rough surfaces. The teeth were restored with cohesive and mat gold foil, amalgam, resin, and silicate. The adaptation of the restorations was assessed by Ca^{45} at intervals of 48 hours, 30 days and 90 days after insertion. All materials at each time interval displayed less leakage when placed in rough textured cavity preparations.

Norman, R. D., Phillips, R. W. and Swartz, M. L.: *Fluoride uptake by enamel from certain dental materials*, J. D. Res. 39:11, 1960.

It has been shown that the solubility of both intact and powdered tooth tissue is altered by contact with various dental materials. Reductions in solubility appeared to be concurrent with the presence of fluorine in the restorative materials. This research was initiated to determine whether fluorine was leached from these materials and if the fluorine content of enamel was altered by contact with the materials. Chemical analysis revealed that over a five-day period appreciable quantities of fluorine were

released from silicate, resins containing fluorides and zinc-silico cements. There was a subsequent increase in the fluorine content of powdered enamel exposed to these materials. The results correlated with the previous findings on the reduction in solubility induced by the materials.

Mosteller, J. H., Nadal, R. and Phillips, R. W.: *A preliminary study of the characteristics of two centrifuge machines for removal of mercury from amalgam*, J. South, California D. A. 28:161, 1960.

The deleterious effects of excess mercury in the amalgam restoration are well known. In view of this, a number of devices have appeared on the market for the facilitation and standardization of mercury removal from the amalgam mix. Two machines of the centrifuge type were evaluated and it was found that the reproducibility of results with both instruments was good. Both the compressive strength and the mercury content of these specimens compared favorably with those prepared with a well standardized hand technic.

Mitchell, D. F., Shankwalker, G. B. and Shazer, S.: *Determining the tumorigenicity of dental materials*, J. D. Res. 39:1023, 1960.

Since many dental materials contact living tissues of the jaws of human beings, it seemed worthwhile to test some of them for a carcinogenic effect. Twelve materials, including nickel (known to induce sarcomas in rats when implanted beneath the skin for many months) a newly proposed nickel-gallium alloy, "Vitalium," and other metals and plastics were used. Fibrosarcomas developed around Ni and the Ni-Ga alloys, but not around the other materials, after seven months to one year. This seems to be a reasonable test for such materials.

Mitchell, D. F. and Tarplee, R. E.: *Painful pulpitis, a clinical and microscopic study*, Oral Surg., Oral Med. and Oral Path. 13:1360, 1960.

Much of our information regarding the clinical symptoms of pulpitis as correlated with histopathosis of the pulp is based on work done in 1934, before technical details for preparation of the tissues for study were well appreciated.

Twenty-eight such teeth have been studied in detail and among the findings are: the inevitability of pulp exposure; the necessity for serial sections; the constant finding of pain resulting from applied cold and heat; the surprise that 22 teeth were tender to percussion; the fact that all teeth showed "partial pulpitis" intimate with the exposure, ranging from horn involvement to invasion of canals. There was no apparent relationship between the degree of severity of the symptoms and the degree of inflammation.

Mitchell, D. F.: Differential diagnosis of odontalgia, (in) Endodontics, Healey, H. J., St. Louis, C. V. Mosby Co., pp. 15-49, 1960.

This chapter deals with the incidence, cause, nature and control of pain arising from the pulp, periapical and other periodontal tissues, and the differential diagnosis of pain arising from the tongue, maxillary sinus, salivary glands and other more obscure conditions.

Chaudhry, A. P., Gorlin, R. and Mitchell, D. F.: Papillary cyst adenoma of minor salivary gland origin, Oral Surg., Oral Med. and Oral Path. 13:452, 1960.

A case report and review of the sparse literature concerning this uncommon neoplasm are presented. This tumor occurs more frequently in males, and in the palate.

Panuska, H. J., Gorlin, R., Bearman, J. C. and Mitchell, D. F.: The effects of anticonvulsants on the gingiva—a series of analyses of 1048 patients, J. Perio. 31:336, (part I) 1960.

A most extensive survey which helps to separate fact from fiction in the study of epilepsy and intra-oral effects to therapy. 546 patients (32 per cent) showed gingival hyperplasia associated with Dilatin. Details of animal experimentation and design of the survey of patients are given. Part II will give results.

Mitchell, D. F.: Hyperplasia associated with denture injuries, New York State Dent. J. 26:364, 1960.

A brief review of the nature of chronic inflammatory hyperplasia of connective tissue and epithelium beneath ill-fitting dentures; and a discussion of the hyperplastic pulp.

Fahmy, Hassan: Gingival hyperplasia associated with systemic factors, New York State Dent. J. 26:365, 1960.

A discussion of gingival hyperplasia associated with Dilantin therapy, vitamin C deficiency, leukemia, pregnancy and puberty.

Fahmy, Hassan, Rogers, W. E. and Mitchell, D. F.: Effects of hypervitaminosis D on the periodontium of the hamster, J. D. Res. 39:743, (Abstract), 1960.

Excessive dosages of vitamin D resulted in a remodelling of the cementum and cribriform plates, and an endosteal bone loss of the jaws. Periodontal pocket formation was not induced. Kidney calcifications and remodeling of the femurs also were seen.

Boyd, J. B. Jr. and Mitchell, D. F.: Subcutaneous connective tissue reaction of rats to implanted dental cements, J. D. Res. 39:711, 1960.

Nineteen brands of crown and bridge cements were studied after implantation. The inflammatory reaction varied from mild to moderate to severe. Additives, such as metallic salts seemed to be associated with more severe reactions at the time intervals studied. No clinical correlation is available, but the need for such a biological screening technique for all the new commercial materials is obvious.

Scerimg, R. G. and Mitchell, D. F.: Tissue reactions to implanted post-operative dressings, J. D. Res. 39:711, 1960.

Thirty-eight dental schools reported using 29 different post-extraction dressings. Twelve were implanted in the rat, and the tissue reaction related to them varied from mild to moderate to severe. For the most part these dressings have been developed empirically and prior to this study, little or no evidence was available to indicate their compatibility with living tissues.

Hall, C. D. and Mitchell, D. F.: Rat connective tissue reaction to implanted periodontal post-operative packs, J. D. Res. 39:711, 1960.

As above, 10 post-gingivectomy dressings were studied. The response to all was either mild or moderate. From the standpoint of irritational qualities, these empirically developed dressings appear to be reasonably compatible with living tissues.

Mink, J. R., Ewbank, R. and Hutton, C.:
*Case report: Giant cell tumor of the
mandible, J. Den. Child, 2nd Quart.,
150, 1960.*

The case report covered the team work between the pedodontist and oral surgeon in complete care of the clinical patient following major oral surgery.

Sutton, D., Dworkin, M. and Smith, C.:
*The lethal effect of hydroxyzine on
eschericia coli, Bact. Proc. 99, 1960.*

This report deals with the mechanism by which the ataracthi drug hydroxyzine inhibits the growth of *escherichia coli*.

Dworkin, M.: *The effect of dark aerobic
growth on the photosensitivity of car-
otenoidless rhodopseudomonas spheroides,
Biochemica et Biophysica Acta 39:88,
1960.*

This study deals with the protective effect of prior dark aerobic growth on the photosensitivity of a carotenoidless mutant of *Rhodopseudomonas spheroides*. This protection could not be related to any of the following factors.

- a. Dilution of chlorophyll by aerobic growth.
- b. Migration of chromatophores.
- c. Change in the nature of the chlorophyll spectrum.
- d. Aerobic synthesis of catalase.
- e. Metabolic utilization of oxygen.

Van Huysen, G.: *The microstructure of
normal and sclerosed dentine, J. Pros.
Den. 10:976, 1960.*

This is a micro-radiographic study of sclerotic dentin from a deciduous tooth. The sclerotic dentin was visible in the clinical X-ray as a response to a restored carious cavity. This X-ray microscopic study showed that dentin sclerosis is an increased calcification of the matrix between and around the tubules with eventual obliteration of the tubules.

Muhler, J. C.: *The effectiveness of stan-
nous fluoride in children residing in an
optimal communal fluoride area, J. Den.
Child. 27:51, 1960.*

The effectiveness of a single application of stannous fluoride in reducing dental caries in children whose permanent teeth developed in an

optimal fuloride area was studied. The data obtained after 6 and 12 months indicate a significant anticariogenic effect of the stannous fluoride, thus suggesting that there is an added benefit to children who receive topical stannous fluoride therapy even though their teeth developed in an optimal fluoride area. This study extends the benefit of fluoride therapy to children who are already benefiting from water fluoridation, and as a means of practical caries control serves as another extension of preventive dentistry.

Dudding, N. J. and Muhler, J. C.: *What
motivates children to practice good oral
hygiene? J. Perio. 31:141, 1960.*

A total of 375 children, ages 6 to 14 years, were examined for their oral hygiene and classified as "good" or "poor." In addition, each child was asked where he learned to brush his teeth. It was found that of those classified as having "good" oral hygiene, 61 per cent said they learned such practices from their dentist. In contrast, only 33 per cent of those classified in the "poor" group provided such an answer. The influence of the dentist of promoting good oral hygiene in the individual patient is discussed.

Muhler, J. C.: *The oral tissues; the ba-
rometer of the body, J.A.D.A. 61:301,
1960.*

The science of nutrition is contributing substantially to the practice of dentistry. This paper reviews the complex oral manifestations of systemic disorders and reaction to drugs. Diagnosis and advice to the patient are also discussed.

Muhler, J. C.: *Combined anticariogenic
effect of a single stannous fluoride solu-
tion and the unsupervised use of a stan-
nous fluoride-containing dentifrice. II.
Results at the end of two years, J. D.
Res. 39:955, 1960.*

The routine use of a commercially available stannous fluoride-containing dentifrice in those subjects who receive a single application of an 8 per cent solution of stannous fluoride each 6 months was associated with a significant reduction in dental caries. This anticariogenic effect did not decrease in magnitude during a 2-year study period.

Peffley, G. E. and Muhler, J. C.: *The effect of a commercial stannous fluoride dentifrice under controlled brushing habits on dental caries incidence in children: Preliminary report, J. D. Res.* 39:871, 1960.

The controlled use of a commercially available stannous fluoride dentifrice reduced the incidence of dental caries in 10 to 19-year-old children residing in a military school who brushed their teeth three times a day throughout a 10-month period. This result is thought to be related to the greater frequency of usage of the product in their test than in those conducted previously with a similar product.

Muhler, J. C.: *The anticariogenic effectiveness of a single application of stannous fluoride in children residing in an optimal communal flouride area. II. Results at the end of 30 months, J.A.D.A.* 61:431, 1960.

The subjects of the current study were two groups of children, both of which reside in a community which fortifies its water supply with fluorine to the optimal level. At six-month intervals throughout a 30-month period, the experimental group received single topical applications of an 8 per cent aqueous solution of stannous fluoride whereas the control group was treated with single topical applications of distilled water. The results at the end of 6, 12, 18, 24 and 30 months showed a significant reduction in the incidence of dental caries in the children receiving stannous fluoride.

The results of the study indicate there are benefits to be gained from a "multiple principle" approach to the achievement of optimal caries resistance.

Wagner, M. J. and Muhler, J. C.: *The effect of calcium and phosphorus on fluoride absorption, J. D. Res.* 39:49, 1960.

When weanling rats were given 2 mg. calcium at 15, 30 and 60 minutes following the administration of 2 mg. fluoride, a significant ($p=0.01$) reduction in fluoride retention resulted, when compared with animals receiving fluoride alone. The degree of reduction in fluoride absorption, however, was not time-dependent.

The effect of phosphate given 15 and 60 minutes after fluoride ingestion was a signifi-

cant ($p=0.01$) increase in fluoride retention. The influence of phosphate was less pronounced when given after the longer time interval, possibly because of the rapid absorption of fluoride which had taken place before phosphate administration.

When calcium and phosphate were given concurrently with fluoride, a reduction in absorption was obtained amounting to nearly 16 per cent of the fluoride given. The effect of calcium plus phosphate 15 minutes after fluoride ingestion was significantly less, suggesting that most of the fluoride had been absorbed during that time and was not available for interaction with the added calcium and phosphate. Interference with absorption may be the principal means by which dietary calcium and phosphorus interfere with fluoride utilization.

Buttner, W. and Muhler, J. C.: *Placenta and salivary gland fluoride transfer in the rat, Proc. Soc. Exper. Biol. and Med.* 103:822, 1960.

When pregnant rats receive 50 ppm. F/day during entire pregnancy, their pups' molar teeth show a significant reduction in acid solubility. If fluoride administration is continued during lactation, no added antisolubility effect is shown. Saliva either inactivates fluoride or salivary tissue is selective against fluoride secretion.

Muhler, J. C. and Stookey, G. K.: *Metabolic availability of fluoride from oyster shells, J. D. Res.* 39:858, 1960.

Studies conducted on rats indicate the non-availability of fluoride when furnished in the form of oyster shells.

Muhler, J. C.: *Recent advances in fluoridation, J. Am. Col. Den.* 27:89, 1960

The recent findings which substantiate the safety and value of water fluoridation are discussed.

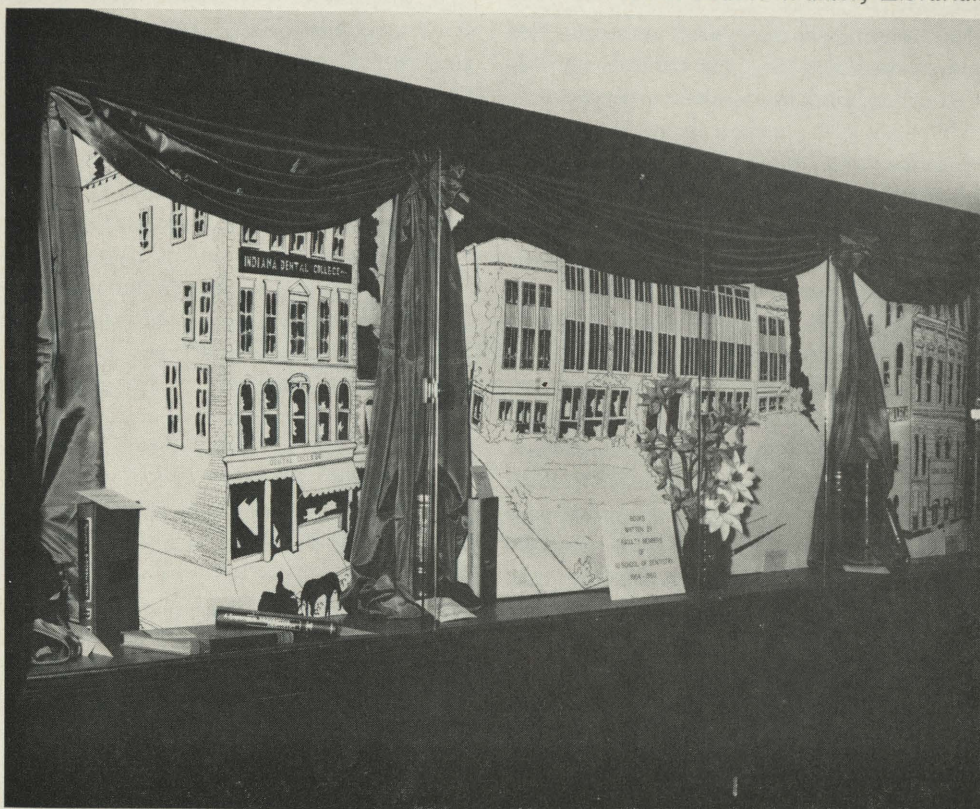
Muhler, J. C.: *Stannous fluoride as an anticaries agent for topical application in the dental office, J. Ind. State Dent. Assn.* 39:42, 1960.

In 12 separate clinical studies stannous fluoride has been shown to be an effective topical agent or reducing the incidence of dental

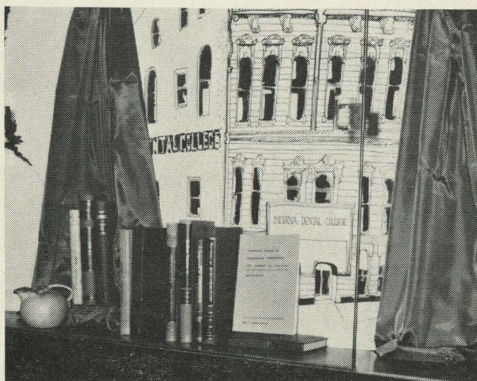
(Continued on page 47)

Library

Mrs. Mabel Walker, Librarian



The library display case for November 1960 showing, "Books written by faculty members of I.U. School of Dentistry, 1954-1960." Hand drawn ink sketches of two old buildings and the present building occupied by the school form a background for the display. The third and fourth floors of the building on the left were occupied by the Indiana Dental College from 1881-1894. The building on the right was occupied from 1920-1933, first by Indiana Dental College then by the Indiana University School of Dentistry when the former was purchased by the state in 1925. It is located at 635 North Pennsylvania Street, Indianapolis, Indiana. The center building on the Indiana University Medical Center campus was completed in 1933 and has been occupied by the I.U. School of Dentistry since August of that year.



A closer grouping of the books written by the faculty.

REVIEWS OF THE BOOKS PUBLISHED DURING 1958-1960 FOLLOW.

The Science of Dental Materials—Eugene W. Skinner, and Ralph W. Phillips, Fifth Edition, W. B. Saunders Co., Philadelphia, 662 pages, \$9.75.

Dentistry can be considered one of the unique professions in that its methods of clinical treatment are constantly being influenced with research findings from the

clinical and biological sciences. Eighty per cent of the supplies and materials currently being used for dental treatment have been placed on the market within the last five years. This textbook explains the handling of all dental materials and places emphasis on their clinical application when used in restorative dentistry.

The book was written primarily for the undergraduate dental student, but it can be utilized by the practitioner, educator and research worker. It can be used as a text or a reference guide because it contains multifarious diagrams and illustrations with a complete review of the literature for each subject.

Elastic impression materials are comprehensively covered with one chapter being devoted to the polysulphide and silicone rubber materials. The chemistry, composition and dimensional stability of each material are explained as well as how these properties are influenced by manipulation. Reasons are given why the various techniques differ and are supported with data showing clinical success of both the agar and rubber materials. Importance is given to the type and size of the impression tray employed because bulk of material is seen to influence the accuracy of the stone model. Advantages listed for the rubber materials include a longer storage period before the impression must be poured and the fact that additional stone dies can be constructed from the same impression without too great a loss of accuracy.

Since silver amalgam is the most common restorative material used, the authors have given much space to discussions on the metallurgy, physical properties and technical considerations of the material. Even though few inferior dental alloys are marketed, manipulation influences clinical success of the restoration from the time the cavity is prepared until the final product is polished. Forty per cent of the clinical failures are due to mishandling the alloy and the discussions on amalgam are concerned with these variables. Good

explanations are given about the clinical significance of expansion, contraction and mercury content of the amalgam restoration.

A discussion of amalgam particle size states that this is the greatest single difference between the marketed alloys. Although comparable physical properties can be produced with alloys of different particle size, the trend in dentistry today is toward the micro-grain alloys. Evidence is cited that the small grain alloys harden more rapidly after condensation and exhibit a smoother surface upon carving. Popularity of these alloys should continue to increase since they are easier to carve and have the possibility of being less susceptible to clinical tarnish and corrosion.

The chapter on tooth restorations with acrylic resin, probably the largest controversy existing in restorative dentistry, seems to be the most inordinate change from the previous editions of the book. From an esthetic point of view the resin restoration is superior to others but certain physical properties and manipulative factors are conducive to marginal percolation and leakage. Although techniques have been devised to minimize the danger of percolation, the authors feel that none are too successful in preventing this phenomenon from occurring in the clinical restoration.

A new chapter with present-day application is that on rotary power sources and gives special reference to dental burs. Since the type of power source and speed range used by most dentists has drastically changed in the last five years, numerous researches have been conducted on the efficiency of the cutting tool. Information is given on the type of cutting tool needed at increased speed ranges and how bur rake angle design, the number of teeth on the bur and handpiece coolants influence the removal of tooth structure.

It is virtually impossible to comprehensively review a book including so many subject headings and containing as many

intricate details related to each topic. All 36 chapters can be used by the student, dentist or ancillary worker to help produce more adequate dental services. Whether the book is employed for a thorough study of the subject matter or for a check on various restorative procedures, the end results of clinical dentistry can be enhanced by its use.

H. William Gilmore

Modern Practice in Crown and Bridge Prosthodontics — John F. Johnston, Ralph W. Phillips, and Roland W. Dykema, W. B. Saunders Co., Philadelphia, 1960, 420 pages, 385 illustrations, \$12.00.

This first edition textbook concerned with the multiplicity of concepts and procedures contained in crown and bridge prosthodontics was produced with the idea of affording the beginning operator, the laboratory assistant and the older practitioner a source of reliable, new, practical and usable information in the field. From the first chapter, about diagnosis and treatment planning through the last one concerned with case histories, the authors have succeeded in presenting a well organized, comprehensive and knowledgeable treatise of the many parts of this subject. This has been done with almost no repetition in areas which normally might be considered overlapping.

The terminology, description and explanation, so necessary for continuity and understanding when discussing concepts, procedures and technics, are clear, concise and are uncluttered by the extraneous material so often found in technical dental textbooks. Basic ideas and concepts concerning the various preparations, attachment-retainers, facings, pontics and fabricating procedures are so well explained and so clearly illustrated that a dogmatic expression of opinions by the authors is not necessary for an evaluation and a comprehension of their relative merits by the reader.

Of particular interest and significance are the chapters dealing with relatively new information in the field of crown and bridge work. Indirect fabricating procedures and the materials used in these technics are fully explained from both the theoretical and the practical aspect. A method of fusing porcelain to gold is introduced and recommended as a possible solution for certain esthetic and technical problems. This method and material has been presented objectively.

Another new procedure introduced in this textbook is that of using orthodontic treatment to correct and to improve the preparation of certain abnormal regions before they receive bridge work replacements. The chapter on "Bridge Failures, Indications and Corrective Measures" is an excellent compilation of the causes of problems and their prevention and correction. The discussion of "Mouth Preparation for Removable Protheses" emphasizes the necessity for, and importance of, proper crown and bridge work and restorative dentistry as a foundation for successful design, construction and function of partial dentures.

The illustrations, both the photographic reproductions and the original line drawings, are of outstanding clarity and quality and are used effectively to augment the descriptive and explanatory content.

The direct, orderly and complete consideration of both the conventional and the newer aspects of crown and bridge work found in this textbook makes it one of the best in its field. It is recommended to all students, practitioners and technicians interested in this subject, as a text and source of reliable information.

Drexell A. Boyd

A Textbook of Oral Pathology—William G. Shafer, Maynard K. Hine, and Barnett M. Levy, 714 pages, 416 illustrations, W. B. Saunders Co., Philadelphia, 1958, \$15.00.

This textbook represents a manageable, yet complete, compilation of the principal

features of the many oral diseases, both common and uncommon, with which the modern dentist is expected to be familiar. Considerable emphasis has been placed on clinical and radiographic features and carefully selected illustrations are used to demonstrate salient features without laborious repetition of inconsequential details. In addition to the usual histopathologic descriptions, treatment and prognosis are discussed briefly and concisely.

The scope of the book may best be illustrated by listing the five sections into which it is divided: "Disturbances of Development and Growth" (includes tumors), "Diseases of Microbial Origin" (includes dental caries and pulp and periapical infections), "Injuries and Repair," "Disturbances of Metabolism" (includes nutritional and endocrine relationships to oral disease), and "Diseases of Specific Systems" (includes diseases of bone and joints, blood and blood-forming organs, periodontal disease and diseases of skin and nerve). Appendix tables of normal laboratory values, blood and urine values, nutrition requirements and chronologic tables of normal tooth development are included, a most valuable and apparently unique addition to an oral pathology text.

In keeping with the changing professional and patient concepts of the diagnosis of oral disease, the authors have successfully molded information, not only from general pathology but from the basic biologic sciences as well, into a workable reference guide, suitable not only for the dental student but for the dental practitioner as well.

S. M. Standish

Laboratory Manual of Biological Chemistry for Students of Dentistry—Walter C. Hess and Joseph C. Muhler, C. V. Mosby Co., St. Louis, 1959, 118 pages, \$2.25.

This manual of experiments has been designed to satisfy the needs of the dental student taking a thorough 16-week course

in biological chemistry. Directions are provided for 30 three-hour laboratory periods, the remaining two periods are left open that the students may perform investigations of their own design. The first experiments, dealing with properties of solutions and suspensions, enable the student to refresh his knowledge of pH, titration and like matters. After this introduction, attention is concentrated on carbohydrates (3 periods), lipids (2 periods), proteins and amino acids (4 periods), enzymes (3 periods), and analysis of the constituents of blood and urine (5 periods). This order of presentation of biochemical topics is time-proven and follows the development in the *Textbook of Biochemistry for Students of Dentistry*, edited by J. C. Muhler, which the laboratory manual is intended to accompany.

The nine remaining experiments are given over to topics of particular interest to the dentist, the properties of saliva and teeth. In this group of experiments the students isolate mucin from saliva, determine the calcium concentration of saliva, do various tests for caries susceptibility, demonstrate chemical methods of inhibiting acid production by oral microorganisms, measure the release of carbon dioxide from saliva, analyze teeth, and study the effects of fluoride on the solubility of tooth enamel. Not only are these experiments very interesting but many of them cannot be found elsewhere.

The size of the manual corresponds to that of the textbook, it uses a spiral-type binding which allows it to be opened flat, and the type is clear and well blocked. The manual was written with a specific function in mind and satisfies this need efficiently.

Wm. E. Rogers

Endodontics—Harry J. Healey, The C. V. Mosby Co., St. Louis, 1960, 370 pages, 149 illustrations, \$7.75.

In the past decade, endodontics has been very successful in keeping abreast

of the scientific progress which has been made in all areas of dentistry. This has been accompanied by an abundance of published articles pertaining to endodontics in the various journals. For the busy practitioner, however, it has been difficult to evaluate the current literature and from it to decide what methods, drugs, and treatment concepts would be best utilized in his office. No doubt he has frequently had a desire for a book containing less material unrelated to the urgent nature of a case at hand.

Dr. Harry J. Healey, Chairman, Division of Endodontics, Indiana University School of Dentistry, has prepared such a textbook, and it has recently been published by The C. V. Mosby Company, St. Louis, Mo. The book is specific and compact, presents simplified but effective everyday endodontic procedures, and should be of considerable value to the dentist in his attempt to maintain pulp involved teeth in the mouth.

The contents of the book are logically presented with the early chapters discussing differential diagnosis of dental pain and the pathology of the periapical area. Later chapters deal with selection of cases for therapy, treatment objectives and procedures, canal instrumentation, and canal filling techniques.

The methods for treating pulpitis and pulp necrosis are presented in an organized manner by carefully delineating the objectives and procedures for each treatment appointment.

While emphasis is placed on the techniques and procedures advocated and used by the author for obtaining good results, those of others are also described with stimulating comments on their efficacy. The author, for example, does not feel the need for a negative bacteria culture test to determine the readiness of the canal for filling in the treatment of pulpitis; nor does he believe in the routine use of a polyantibiotic paste in the treatment of necrosis. Valid reasons in

support of the foregoing are presented as well as for other instances wherein he expresses disagreement with often-used practices.

Detailed chapters on systemic medications and prescription writing (with examples of prescriptions frequently needed for the patient), bleaching of discolored teeth, and surgical intervention in endodontics are included in the book. Certainly wisely so, other chapters discuss restoration of the treated pulpless tooth, the management of fractured anterior teeth, and the utilization of endodontics in oral reconstruction. The concluding chapter on the current status of intracanal microbiologic control is essentially a review of the endodontic literature and provides excellent references for additional reading or as a basis for the preparation of papers for publication.

Everyday endodontics is adequately covered by the author and the illustrations are superb. The book should prove to be very helpful to the general practitioner who feels the need for additional or current information on endodontics.

Daniel Arefian and James Guttuso

Fluorine and Dental Health: The Pharmacology and Toxicology of Fluorine—
Joseph C. Muhler and Maynard K. Hine, Indiana University Press, Bloomington, Indiana, 1959, 216 pages, \$5.75.

The editors of this book have compiled a series of articles from the second symposium on fluoridation. The individual papers are concerned with original research in the fields of pharmacological and physiological reactions of fluorine.

From the works of some of the outstanding scientists these noted authors of the various papers have presented the biological data on fluorine. The most controversial subject of toxicity has been covered by two well-known men, Drs. Smith and Hodge. Their paper was a good review of this subject and points out the great advantage of fluorine as

well as the lack of data to support "claims" of toxic fluorine damage from communal water.

The subjects of metabolism, enzyme inhibition, natural and added fluorine, as well as the effects of fluorides on food, medicine, and tissues were covered in detail. An important addition to the book has been an article on morality data as related to fluorine. In support of the biological data, Mr. Conway has presented the legal aspect of fluoridation.

In summary Dr. Muhler has prepared a paper of concise review of the authors' works. The safe and reliable means of dental caries reduction through the use of fluoridation has been presented. Furthermore, the evidence is reassuring.

In general, the book is somewhat technical and detailed. Yet, to cover such a field would require this detail. To anyone interested in fluoridation and reduction in dental caries, this book would provide the scientific data and discussion necessary to evaluate communal water supplies and the fluoridation program.

Richard D. Norman

Textbook of Biochemistry for Students of Dentistry—Joseph C. Muhler, C. V. Mosby, St. Louis, 1959, 539 pages, \$9.00.

In the introduction to his book Dr. Muhler points out that dental biochemistry should provide the student with "fundamental principles of chemistry and serve as a background upon which he may integrate the subsequent dental theory and principles of technique. With current interest in preventive dentistry, the recent dental graduate must be increasingly better versed in the application of chemistry to recently developed prophylactic anti-cariogenic factors and proposed periodontal therapeutic agents." To this end Dr. Muhler has enlisted the aid of several dental educators and scientists who write authoritatively on their particular biochemical speciality.

Special features of the book include discussions of "Chemistry of Specialized Tissues" by Harry M. Leicester, "Saliva" by Gerald J. Cox, "Biological Antagonism" by L. S. Fosdick, "Drugs and Chemotherapy" by E. Campaigne and chapters on "Fluoride Metabolism, Constituents of an adequate diet" by the editor. Material presented in these discussions is well documented with references to the original research publication.

The major emphasis in this work is on nutrition and chemistry and metabolism of the major foodstuffs, carbohydrate, proteins and lipids. Discussions of the chemistry of respiration and acid-base balance and blood electrolytes which are usually covered in considerable detail in a general textbook of biochemistry have received little emphasis. The book reflects the special interest of the authors and is presumably designed to emphasize those areas of chemistry felt to be of greatest importance to the dentist.

James Ashmore

As stated in the September 1960 issue of the ALUMNI BULLETIN it is planned to publish in each issue the abstracts and conclusions of the master's theses submitted to the faculty of the Graduate School of Indiana University School of Dentistry. Four of these abstracts follow.

CHILD BEHAVIOR AND THE DENTAL EXPERIENCE, William L. Croxton, August, 1959.

ABSTRACT

Despite the abundance of theoretical writing on the subject of the child's reaction to the dental situation, a review of the literature reveals a lack of specific studies regarding the effect of dental procedures on the child. Many of these hypothetical discussions are concerned with the speculation that the dental situation may inflict psychic trauma on the child. The purpose of this study is to formulate and test an hypothesis that the dental experience is not, or need not be

one connoting or leading to the production of fear, and that it certainly need not be a traumatic experience of a psychopathic nature.

The method used was to collect data through intervals with the parent (medical history, oral habits, psychological problems, and social background), observations of the referring dentist, and recordings of the child's overt behavior in the pedodontic office. The increase or decrease of oral habits and psychological problems were used as one of the factors in determining the child's adjustment to the dental situation. This was done because some authors have expressed an opinion that oral habits and psychological problems become more predominant in stressful situations. The data were collected at the beginning of dental care and again at the completion of a series of appointments.

The observation group consisted of 88 male and female children ranging in age from three to 12 years. Twenty-eight of the children were referred to the pedodontist as behavior problems, while the remaining 60 were routine new pedodontic patients who, to the knowledge of the observer, had not previously presented a problem or rejected treatment by another dentist.

This was a companion study of these two groups of children who were subjected to the same dental circumstances in order to compare the reaction of the "problem" child with the reaction of the routine child patient. From the data was determined the percentage in each group that adjusted positively to the dental situation.

The median age of the observation group in this study was five years. There was a low incidence of management problems among four-year-old children. In the referred group 81 per cent of the management problems were in the three to six-year age range; 91 per cent in the routine group were within this age. In both the referred and routine groups there was a positive attitude change in the

overt behavior of 93 per cent of the children toward the dental situation. Ninety-three per cent of the parents in the referred group commented positively in regard to the child's acceptance of dental care, as did 95 per cent of the parents in the routine group. The incidence of oral habits was found to be higher in the routinely appointed children than in the referred group, but psychological problems were higher in the latter group. Eighty-nine per cent in the referred group either improved or remained the same in regards to their habits or other problems. This was also true of 92 per cent of the children in the routine group.

It was concluded from the observations and data collected in this study that hypothetically the dental experience is not, or need not be, one producing fear or trauma of a psychopathic nature.

CONCLUSIONS

The psychological aspect of the child in the dental experience presents no absolute factors; however, we may, from the results of this study, make the following conclusions which were substantiated in both the referred and routine groups.

1. In both the referred and routine groups the four-year-old children presented a low incidence of management problems.
2. Children between the ages of three and six years presented the most management problems. Eighty-one per cent of those in the referred group and 91 per cent in the routine group reacted unfavorably. However, after the age of six the incidence of management problems was considerably less.
3. In both groups there was a positive attitude change of the overt behavior of the management problems in 93 per cent of the children toward the dental situation.
4. The parental comment in regard to the change in overt behavior veri-

fied the observations in 93 per cent of the referral group and 95 per cent of the routine group.

5. The majority of the children with oral habits and/or other psychological problems showed some improvement or at least no exacerbation of these factors following the dental experience.
6. The positive findings of this study made as a result of observation of the child's overt behavior, parental comments, and effects on oral habits and other psychological problems, substantiate the hypothesis that the dental experience is not, or need not be, one producing fear or trauma of a psychopathic nature. It indeed may be socially beneficial experience for the child.

A NEW APPROACH TO THE TOPICAL APPLICATION OF FLUORIDES FOR THE REDUCTION OF DENTAL CARIES IN CHILDREN, Charles W. Gish, June, 1960.

ABSTRACT

The previously advocated procedure for topical application of fluorides required four visits to the dental office once every three years in order to obtain the maximum benefit. As a result many dentists did not adopt the use of topical applications as a routine office procedure. Therefore, in order to develop a more simplified procedure which would be used more frequently, it was decided to compare the anticariogenic effectiveness of a single application of a highly concentrated solution of stannous fluoride with that of the conventional four applications of a 2 per cent sodium fluoride. Stannous fluoride was used since it has been shown to be more effective than sodium fluoride in reducing powered enamel solubility, rat and hamster dental caries, as well as human dental caries.

Only second grade children were used because this program was designed to con-

tinue throughout a five-year period by continuing the treatment each year and by adding new second graders for four years to complement the original group.

The children were given a detailed oral examination and divided into two groups. One group received a prophylaxis and a series of four applications of a 2 per cent solution of sodium fluoride every third year according to the recommended use of sodium fluoride. The other group received a prophylaxis and a single application of an 8 per cent stannous fluoride solution once each year.

Dental caries data were recorded for each child as he reached each new year of study. A total of 972 sodium fluoride treated children and 934 stannous fluoride treated children completed one year of study; 875 sodium fluoride and 862 stannous fluoride completed two years; 646 sodium fluoride and 586 stannous fluoride completed three years; 387 sodium fluoride and 364 stannous fluoride completed four years; and 170 sodium fluoride and 157 stannous fluoride treated children completed five years of study. The results at the end of each year of study indicated a significant superiority of a single application per year of stannous fluoride over four applications of sodium fluoride at three year intervals. In terms of DMF teeth and DMF surfaces, respectively, the stannous fluoride group showed a superiority of 34 and 38 per cent for one year, 29 and 32 per cent for two years, 30 and 31 per cent for three years, 26 and 28 per cent for four years, and a 30 and 35 per cent superiority at the end of five years.

The stannous fluoride treated group also showed a 35 per cent superiority in dental caries attack rates on teeth erupting during the five year study period.

The total average increment for the five years was 3.84 DMF teeth (0.77 per year) for the sodium fluoride group and 2.62 (0.52 per year) for the stannous fluoride group. The Indiana and national average is 5.0-7.0 DMF teeth (1.0-1.4 per year).

In a fluoride area such as Grand Rapids after ten years of fluoridation the caries increment is 2.0 DMF teeth for five years.

It was shown that a single application of a freshly prepared 8 per cent solution of stannous fluoride applied once each year was significantly more effective in reducing dental caries in children than a series of four applications of a 2 per cent sodium fluoride solution applied at three-year intervals.

CONCLUSION

A single application of a freshly prepared 8 per cent solution of stannous fluoride applied once each year was significantly more effective in reducing dental caries in children than a series of four applications of a 2 per cent sodium fluoride solution applied at three-year intervals. These clinical results indicate a marked advantage in topical fluoride treatment in preventive dentistry due to savings in clinical time, cost, patient and parent convenience and an increase in effectiveness. If the total prevalence rates can be significantly reduced throughout the ensuing years of high caries incidence, real progress has been made in preventive dentistry, especially for the child who cannot or has not had fluoridated water.

OBSERVATIONS OF THE EFFECTS OF HIGH FREQUENCY SOUND WAVES ON THE SKIN AND ORAL TISSUES OF THE RAT, Niles McKendra Hansen, Jr., April, 1960.

ABSTRACT

Ultrasound waves from 0.5 to 1.25 watts per square centimeter were applied to the backs, abdomens and mandibular regions of a group of 61 Wistar rats. Time of these applications was varied from 1 to 15 minutes.

Gross and histologic observations were made of the effects of all tissues receiving the ultrasound application.

It was grossly noted that petechiae

formation was a frequent gross finding and that extended application produced blister formation of the skin.

Histologically, areas of application demonstrated hyalinization, destruction of hair follicles and, in cases of blister formation, ulceration of epithelium. Visceral organs of animals in this study were unaffected, save for one case of gastric ulcer.

Salivary glands of animals in this study demonstrated unusual histologic appearance at the end of 24 hours. There were no immediate effects observed. The 24-hour specimens presented changes in granular tubules and destruction of cellular membranes. Changes in bone, periodontal membrane or pulp were not observed.

The conclusion reached is that ultrasound waves are capable of producing changes in rat tissue. At the intensities used, these changes appeared to remain a superficial phenomena.

CONCLUSION

1. Minimal dosages of 0.5 to 0.75 watts/cm² produced no significant gross nor microscopic change in the skin of the rat.
2. Dosages of 1.25 watts/cm² produced gross skin changes, the severity of which were proportionate to the treatment time used.
3. At a dosage of 1.25 watts/cm² petechiae formation was an early sign which occurred within the first two minutes of treatment. The petechiae were not limited to the area of treatment.
4. Microscopic changes in skin of animals treated at 1.25 watts/cm² were thinning and ulceration of epithelium, absence of cell nuclei, atrophy of hair follicles and areas of hyalinization.
5. Salivary glands of animals treated with dosage of 1.25 watts/cm² showed no immediate effect. Two- to four-day specimens presented

changes in granular tubules and destruction of cellular membranes.

6. Application of ultrasound to the mandible did not produce changes in bone, periodontal membrane or pulp or rat molar or incisor teeth.
7. Further study of salivary gland effects as well as possible pupal effects would seem to be indicated.

THE EFFECT OF HIGHLY CONCENTRATED SOLUTIONS OF STANNOUS FLUORIDE ON HUMAN GINGIVAL TISSUE, Robert Paul Swieterman, May, 1960.

ABSTRACT

During the routine use of high concentrations of stannous fluoride for topical applications in adults, it has been observed that when a gingival irritation is present some tissue reaction results from the high concentration of stannous ions used. This investigation was designed to determine what effect stannous fluoride has on gingival tissue when topically applied. Normal and periodontally involved tissues were obtained from patients at Indiana University. The tissue to be removed was photographed and given a topical application with either stannous or sodium fluoride, stannous chloride, or sodium chloride solutions, and immediately re-photographed. Treated areas were surgically removed by gingivectomy immediately, or at 1,2,7,14,21, and 28-day intervals. The tissue was placed in 10 per cent formalin and stained with hematoxylin and eosin. Histologic studies included an evaluation of the degree of inflammation, types of inflammatory cells present, depth of penetration into the epithelium, and length of time coating remains in tissues. The results of this study showed no effect upon the gingival tissue either histologically or clinically from sodium chloride or sodium fluoride. When stannous fluoride or stannous chloride was used a white coating, which will be referred to as a local tissue precipitate, was

noted. This local tissue precipitate disappears clinically after the first day. As the degree of severity of the gingival inflammation increased so did the degree of tissue precipitation. With "normal" gingival tissue, none, or at most, only a moderate tissue precipitation of the gingival margin was observed. No change in amount or type of inflammatory cells was found after treatment with any of the agents. The depth of penetration of both tin salts was observed to be in the keratin layer and in the upper portion of the spinous cell layer, depending upon the amount of inflammation present. One may conclude from these studies that, clinically no injurious reaction results from stannous fluoride on gingival tissues even when chronic inflammation is present.

CONCLUSIONS

1. Gingival tissues treated with sodium chloride or sodium fluoride, regardless of the concentration, showed no gross or histologic changes when compared to untreated gingiva.
2. Patients who received either stannous chloride or stannous fluoride all had a similar white, shiny, and smooth gingival coating, which disappeared within 24 hours without incident. This gross appearance did not seem to be altered by varying the concentration of the stannous solution. The clinical reaction of these solutions on the gingiva varied in intensity with the amount of inflammation present at the time of the initial treatment.
3. Histologically, in gingival tissues that received application of either stannous fluoride or stannous chloride, a heavier staining reaction was observed in the outer layers of the epithelium. Cell morphology appeared normal and no epithelial changes were observed.

(Continued on page 50)

Dental Hygiene

A. Rebekah Fisk

It seems that the longer our graduates are away from school the less frequently we hear from them. While we understand that this is due to your absorption in new and varied interests, we do wish that you would remember to send us notification of change of address as we want to maintain an up-to-date mailing list—otherwise, you might miss something of interest.

Following our usual precedent we are including the news we have received from each class in this article.

Class of 1952

The second child of Mr. and Mrs. (Charlotte Havens) Ernest Verberge is a daughter, Karen Elizabeth, who is a replica of her big sister Kathy. Mary Louise Dreher and family are now living at 2510 South 99th Avenue, Omaha 24, Nebraska. During the year I have talked with Pauline Revers, Barbara Mann, and Gloria (Horn) Huxall. All three were busy and happy.

Class of 1953

During the summer I met Elizabeth (Gilchrist) Keck at the home of a mutual friend. It was she who told me that Anne Keenan is living at 1812 Clay Street, San Francisco, California, and would spend her vacation in Indiana. Madalena Stanley, who is in private practice in Miami and Miami Beach, paid us a surprise visit in August.

Class of 1954

Dorothy Eastlund Robinson called one day to tell us that they had moved to a bigger house at 3529 Moller Road, Indianapolis. She is associated in practice with Dr. Shaw in Lebanon. Gerry Bailey writes that she has been working two and one-half days a week, and that Bob has

doubled up on classes in order to complete law school. Their two little girls are now 2½ and 4½. The warm weather in Houston has made confirmed Texans of this little family. The third child of Mr. and Mrs. (Donna Way) Samuel Dodd is a son Brett; and the fifth child of Mr. and Mrs. (Kay Landreth) Edward Boese is a son Christopher Eugene. Joan Kline has changed her position and is now associated with Dr. Cleveland in Muncie, Indiana.

Class of 1955

Mary Cora (Walker) Jackson stopped in and left a new address 341 East Penamar, LeHabra, California. Marjorie McLarnon Williams is living at R. F. D. 1, North Vernon, Indiana. Mary Ann (Penn) Rolando is working two and one-half days a week, and little Chuck goes to nursery school. Doris (Rock) Klitzke took the Texas Board and expects to practice part time. Carolyn Tucker Reighley and her husband are still enjoying Germany and the traveling they have been able to do in Europe. She is doing volunteer work in the base dental clinic one day a week.

Class of 1956

Mr. and Mrs. (Dede Ent) Richard Abbett moved to their new home at 5207 North Illinois, for Christmas. Dr. and Mrs. (Janice Clinton) Gene Fryar are now living at 433 Washington Boulevard, Michigan City, Indiana. Dr. Fryar is limiting his practice to orthodontia. On a recent trip to Hawaii I was given a true Hawaiian reception by Dr. and Mrs. (Judith Patterson) Larry Hodge, complete with leis, orchids and pineapple. I am also indebted to them for a drive around the beautiful island of Oahu and dinner at their home on the Navy base Barbers

Point. Judy and I attended a luncheon and style show at the Royal Hawaiian Hotel which was sponsored by the women's auxiliary of the Hawaiian Dental Society. I saw Virginia Gibson in the Manufacturers Building at the State Fair where she was helping her husband with this exhibit. It was a hot day and she was anxious to get home and into their new swimming pool. Jean Hansen Jones writes that many wonderful things happened to them in 1960. Her husband is part owner in a bowling alley and supper club, and they have a daughter, Karla Jean. Barbara (Jones) Myer is practicing part time with her husband, Dr. Bruce Myer, in Flora, Indiana, and is very active in a dental health education program in their schools. Priscilla Robards had a wonderful trip to Europe last summer. The second child of Mr. and Mrs. (Gwen Greenlees) Robert Russ is a daughter, Sheri Gwen. Their new address is 1610 Elizabeth Street, Gainesville, Texas.

Class of 1957

Dr. and Mrs. (Janice Miller) George Compton and son Eric Andrew are now living at 7743 Catalpo, Hammond, Indiana. Dr. and Mrs. (Jacquelyn Muehlbauer) Gerald French are practicing in Lebanon, Indiana, and daughter Leslie Ann live at 812 Northfield Drive. Dr. and Mrs. (Jaclyn Hite) Kenneth Gray have moved into their new home at 5927 West 29th Place, Speedway City, Indiana. Jackie is President of the Central Indiana Dental Hygienists' Association. Dr. and Mrs. (Mary Ann Healy) Michael Hogan have returned from California and are living at 2004 Greenrock Lane. Dr. Hogan is a resident in pediatrics on campus. Carol Stump Knox and family are now living at 318 Boston Avenue, Kalamazoo, Michigan. Corrine Nowinski Patton wrote a nice note about her two daughters Katy and Connie. Corky thinks that compared to raising children, dental hygiene is a peaceful existence.

From the Remley's card we learned of the addition of a baby sister Ann for Reed and Kent. There she was in the picture between the two boys just as bright eyed as she could be. Janna Woolsey is now Mrs. James Martin and lives at 224 Breckenridge, Louisville, Kentucky. Does anyone have any news of Loretta Massa Redelman?

Class of 1958

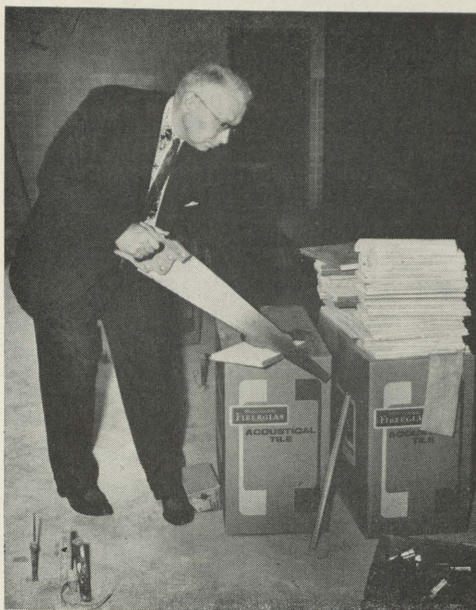
In March we received an announcement of the wedding of Donna Doss to Mr. Dell Reese Hales. They are living at 1306 Elizabeth #6, Denver, Colorado. Carol Ann Guthrie is now Mrs. Keith Fitch and lives at 1900 North 15th Street #11, Arlington, Virginia. Dr. and Mrs. (Jacqueline Zumbun) James Hennigar, are now living at 20029 Sheffield Avenue Muncie, Indiana. Mr. and Mrs. (Sue Kraybill) Robert Kaiser have a son Mark Robert; and Mr. and Mrs. (Judith Haag) Philip Carichoff have a son Steven Philip. Patricia Cox Blackwell is now living at 612 Hoosier Street, North Vernon, Indiana, and is practicing in Columbus. We are grateful to Pat for her recent participation in the interest of dental hygiene in a health science project in Columbus. Dr. and Mrs. (Linda Lobdell) George Coleman took the Tennessee Board in December. Mr. and Mrs. Theodore Meserve have returned from Germany and are living at 237 Highland, Hammond, Indiana. During the summer Patricia Nienaber was married to Mr. George Oberfeldt and is living at 2940 North Delaware Street, Indianapolis. Dr. and Mrs. Louis Urschel are now back in Louisville and living at 2206 Sherwood Avenue. Marjory is associated in practice with Dr. Lyden and her husband is a senior resident in oral surgery at the Louisville General Hospital. Dr. and Mrs. (Ann Buche) Robert Spedding have a son Robert, and Dr. Spedding is doing graduate work in pedodontia at Riley Hospital. Judith Becker received the habit of the Bene-

dictine Sisters of St. Lucy's Priory, Glendora, California, in August.

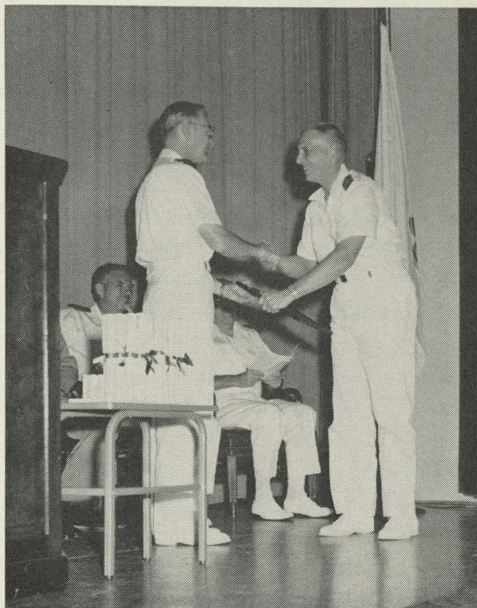
Class of 1959

Dr. and Mrs. (Carol Temme) Richard Leyda are stationed with the Navy on Guam. We received a very interesting letter from Carole telling us about their lovely home furnished in blonde ratan and with a view of the ocean. Their Christmas card was a picture of Santa Claus landing on the island on water skis. Personally, I would rather have him arrive that way than on a sled as he did around here. The Leyda's address is Box No. 62, Navy 943, c/o Fleet Post Office, San Francisco, California. Kay Camp is most enthusiastic about her position with Dr. Springer in Fort Lauderdale, Florida, and about her new apartment at 1499 N. E. 32nd St. Deanne Conrad is now associated in practice with Dr. Robert George who has a beautiful new office in The Meadows Shopping Center complete with white contour chairs, audiocassette and the latest in decor. Mr. and Mrs. (Ruth Peyton) James Cadle have a daughter Joy. Weddings in this class include Jean Bushong to Dr. David Leyda, 440 North Winona, Indianapolis, Indiana; Sondra Cletter to Richard Roberts, 3340 Meadows Court A-2, Indianapolis, Indiana; Karen Drier to Robert A. Hubbard, 1931-B Blackford Avenue, Evansville, Indiana; Sandra Klein to Robert L. Alman, 53 Laurel Drive, Scranton, Pennsylvania; Nancy Porter to Joseph Blackburn, 1215 North Gilbert, Danville, Illinois; and Linda Swihart to Dr. George Von Mohr, 126 Escondido, Vista, California. Linda writes that anyone who can pass an Indiana Board can also pass in California provided they know how to prepare themselves as to materials for the Board. Carol Arnold is now an Assistant in Public Health Education of the Division of Allied Health Sciences, I.U.M.C. She is living with Edna Railey at 3743 North Central Avenue, Indianapolis, Indiana.

(Continued on page 51)



We are sure that the alumni will be interested in witnessing Dean Hine assisting in the construction of the new wing being completed at the School of Dentistry. The results of his efforts will be shown in the next issue of the Alumni Bulletin which to a large extent will be devoted to the new facilities.



Cmdr. Thomas A. Garman, DC, USN, a graduate of the class of 1953, was a recent recipient of a special award from the U. S. Navy Dental School in Bethesda. Dr. Eric Pollard, Commanding Officer, is presenting the Award for Excellence in Operative Dentistry, a most signal honor in the class of 28 dental officers who completed their ten-month postgraduate course at the Navy Dental School.

Alumni Notes

by Mrs. Cleona Harvey, Recorder

1961 . . . another opportunity to wish each and everyone of you everything that is good for the new year. That it may fulfill your hopes and dreams is the wish of everyone on the staff of the dental school to you, our graduates and good friends! You know, it has been my pleasure to write this column and make this wish for a number of years now, and every year the same wish is just as sincere as ever, and with the passing of the years I believe my joy increases. Thinking about the students, the many, many records I have checked, and the many, many State Board applications I have notarized, I am still convinced that the I. U. S. D. graduates are just the best!

I have been pleased to receive so many letters and cards from many of you this past year; it would be a real thrill to hear from *every* one of you! Just think, we'd have to have a special issue of the Alumni Bulletin just for the Alumni Column! Why don't you get out that pen and write that letter you have been intending to write ever since you received the last issue of the Alumni Bulletin? We would like to hear from you, even if you just want to correct some mis-information that may have been published about you! For instance, a glance in the following class notes will show that we have quite a bit of apologizing to do to some of our more lively corpses. They insist that they are *not* "deceased"; they just haven't written to us recently. So take the hint—YOU write to us! And we do offer most humble apologies to anyone to whom they are due and ask your indulgence; remember that there are quite a few I.U.S.D. alumni to keep track of nowadays, and some errors are bound to creep in—but we'll try to keep them to a minimum!

As is our custom, we are listing below the names and addresses of the members

of the class which will this year celebrate their golden anniversary, and here they are, the Class of 1911:

*George Edward Bell
622 Lafayette Bldg.
Lafayette, Indiana

Clyde Richard Boyd
3114 Clifton Street
Indianapolis, Indiana

"I am semi-retired; practicing part time by appointment."

Paul E. Bruick
Deceased

John Congleton
Deceased

Bruce G. Cox
Deceased

Carl S. Emmert
Deceased

*Warren Earnest Esslie
9400 Euclid Avenue
Cleveland, Ohio

John W. Gans
Deceased

Robert Manley Gifford
307 North West Street
Tipton, Indiana

"I am partially retired. I enjoy the Bulletin and look for news of the 1911 Class. I was 81 December 19, 1960 and still do some work."

Paul B. Griffith
Deceased

Charles F. Guzman
Deceased

Everett R. Hebbe
Deceased

* Indicates that we had no reply to the letter sent out. If anyone has any information about, or an address for, these graduates, we would be pleased to receive it.

John Charles Heidenreich
Deceased

Ivan Allen Hill
131 North Jefferson Street
Knightstown, Indiana

"I retired in 1951. I practiced two years in Indianapolis, twenty years in Calcutta, India and eighteen in Knightstown."

Walter J. Huff
Deceased

Ira Thomas Hull
R. R. 3
Boonville, Indiana

"At present I am in Hallandale, Florida; will remain here until spring when I will return to my home on farm which is six miles northeast of Boonville. I fixed me up a little office on the farm just to keep me partially busy. I extract and make plates. I lost my dear wife 2½ years ago and by having office time passes better. I made 57 plates from April 14 to November 15 when I left for Florida."

"If class has reunion I want to know and will be there."

"I am 78 past—able to drive car to Florida and back to Indiana in spring and get around fine, for which I am thankful."

Charles E. Keener
Deceased

George W. King
Deceased

*Henry Carl Luetkemeier
526 Main Street
Vincennes, Indiana

*Joseph Aloysius McGrath
70 College Street
New Haven, Connecticut

Lee U. McIntyre
Deceased

Mrs. McIntyre writes us the following message:

"My husband, Lee U. McIntyre, passed away this past August 12,

1960—death was due to coronary occlusion. He would have been 70 years old August 19 and was still active in his general practice of dentistry."

Otho L. McKay
Deceased

M. P. Magenheimer
Deceased

Charles W. Marriott
Address unknown

Vernon F. Moore
Deceased

R. W. Nesbit
Address unknown

Harry W. Neuenschwander
Deceased

George A. Nighbert
Deceased

George R. Nimmons
Address unknown

Daniel P. Nolting
503 First National Bank Building
Albuquerque, New Mexico

"It is my hope and wish that the Class of 1911 may have a reunion during the May Meeting."

James Rank
Deceased

V. O. Ridley
Deceased

Roy E. Ritter
Deceased

Earle Robbins
Address unknown

*Mark J. Rozelle
310 West Third Street
Anderson, Indiana

William M. Smith
Deceased

Tilman H. Soldner
Berne, Indiana

"Hi, fellows—Time to discard your old teeth. Get new ones. The ivory kind we carved out of blocks. . . ."

Hubert H. Stilson
Deceased

Harley Newman Turney
504 Glass Block
Marion, Indiana
"Greetings to all the boys—and a fine bunch they were!"

Clinton R. Whitmore
213 Bankers Trust Building
Indianapolis, Indiana
"Private general practice. Have enjoyed my fifty years of practice."

Charles N. Wilson
Flora, Indiana
"I have been a life member in West Central, State and American Dental Association since 1952. Only missed three state meetings; one time in service in Dental Corps in World War I; another time on vacation in California; other time business obligations. I have practiced in Flora, my old home town, for over forty years. I have attended several American Dental meetings, also Pan American Dental Congress Meeting in Mexico City. Mrs. Wilson and I are spending the winter at Delray Beach, Florida. I think dentistry is an outstanding profession and I have never been sorry that I chose it for my life work."

Jacob E. Wood
Deceased

Class of 1899

We regret to report that a letter from Daniel A. Andrews, Jr., informs us of the death of his father, Dr. Daniel A. Andrews, Sr., in Cedar Key, Florida, May 21, 1960.

Class of 1910

This is one of the apologies we are most pleased to make! In our last Bulletin we reported that Dr. Cy Seidel, 2035 West Diversey Parkway, Chicago, Illinois, was

deceased. He corrects us with the following letter written to Dr. Furnas:

"That's a darn lie; I'm not 'deceased' as the Alumni Bulletin stated. Am very much alive and I'm happy to say, feeling fine. Am seventy years old, since my birthday, September 9th. Have two wonderful daughters—both married to GIs, from the last world war. One has three boys and the other has two girls. Wonderful grandchildren. I have a lovely wife—the sweetest one I think that there is in the world . . . I hope we can get together again in Indianapolis."

And then he also wrote Dean Hine as follows:

"was certainly very glad to get your letter and look forward to reading the next edition of the Alumni Bulletin, which I'll appreciate very much your sending me. I graduated from the Indiana Dental College in 1910 but never practiced dentistry—I was a pianist while in school, playing my way through the Indiana Dental College—when finishing the college I went into the music publishing business. I was the pianist with Paul Whiteman's Collegians. Had my ups and downs since then, but I'm in good health—have a lovely family and am very happy."

"Would appreciate your publishing ALL of my letter that I wrote to Dr. Furnas—I think a lot of him. With best wishes."

Now, Dr. Seidel, it has been proven to everyone's satisfaction that you ARE very much alive, for which we are truly grateful! Write to us again!

Then we had a letter regarding Dr. Seidel from Dr. Lester Furnas, 928 Silverado Street, La Jolla, California, and enclosing the letter quoted in its entirety above. Dr. Furnas also relayed to us the news about Dr. Charles Jackson's illness. Dr. Furnas reports *"Dr. Jackson was one of the finest men ever to grace the dental profession in the State of Indiana and no teacher ever had the respect of his every student more than Charley Jackson."*

Class of 1913

A Christmas greeting received from Dr. Raul Montero, 3rd A., #8810, Miramar, Havana, Cuba, sent best wishes to us at the school.

Class of 1914

We are sorry that we received a note from Mrs. Harry F. Gravelle informing us of Dr. Gravelle's death October 25, 1959.

Dr. Carl S. Schmucker sends us the following change of address:

Dr. Carl S. Schmucker, Route 5, Garver Road, Mansfield, Ohio, with the note *"My mailing address has been changed, so please correct your record as I like to receive the Alumni Bulletin and other information. 'Thanks!'* Thank YOU, Dr. Schmucker!

Class of 1916

A note from Dr. Louis M. Daum, 375 H Street, San Bernardino, California, reports that he has not been receiving the Alumni Bulletin and that he regrets that so many of his classmates have passed on. We have changed our records, Dr. Daum, and hope you receive future issues!

Class of 1924

Dr. H. L. Forber, 145 Cherry Street, Phillips, Wisconsin, writes us the following interesting personal information:

"Since my graduation from your fine school in 1924, in active practice the past 36 years and we wonder just where the time has gone. Practiced in Bloomington, Illinois, my native state, 19 years, moved to Phillips, Wisconsin 1949, built my own office here, also a fine home right on the banks of the famous Soo Lake ten miles west of this town. As you may guess, the hunting and fishing attracted us up here in the first place.

"Member Blue Lodge Wade Barney 512, Bloomington, Illinois; Bloomington Valley Consistory; Mohammed Shrine, Peoria Chapter, 32 degree; First Presby-

terian Church, Phillips, Wisconsin. Mrs. Forber and I have enjoyed every minute of it up here, since we both like the fishing and hunting.

"I would be interested to hear from any of the members of the 1924 class. Also member Psi Omega, we were quite active there in Indianapolis at that time."

Class of 1926

So we have another apology! And again we are pleased to make it! Dr. Kenneth L. Flora, 5752 Calumet Avenue, Hammond, Indiana, reports that he was *"born 1903, dead—not yet."* He also says, *"I shall admit to inactivity in Alumni affairs—but I am NOT dead—please! Think of the consternation you might cause the more active members, should I, by chance, show up at a meeting!"*

For your information, Dr. Flora, we are not sure just where we got this information—but believe us, we have corrected our records!

A Christmas card from Dr. Howard Maesaka reports that Mrs. Maesaka was in Japan during the Christmas holidays, and they plan to go to Boston to attend their son John's graduation, and then to Indianapolis to attend Clifford's graduation.

Dr. Charles A. Seal also corrects our "incorrect records" with this message:

"Mrs. Seal detests living with a corpse and in order to set the record straight, I have been practicing in Columbus since 1928, recently built a new office at 2309 Lafayette Avenue. For some reason rigor mortis has failed to set in as yet."

Class of 1928

Dr. Wm. O'Hara, 94-229 Depot Road, Waipahu, Oahu, Hawaii, writes:

"I am writing in your column for the first time! Dr. and Mrs. Harry Smith were visitors to Hawaii; we had a get-together and traveled to a few places of interest on this island of Oahu. Also, I met at the local hotel Dr. and Mrs. Van

Arsdale who were going around the world.

"I had a letter from Dr. Seth Shields recently and he sent me his famous book, 'Brevity is the Soul'."

Dr. Seth Shields, 207 North Pine Street, Seymour, Indiana has quite a scope of activities. He gave a demonstration and clinic in Paris, France, in August, visited Hawaii on his way back to the States and is scheduled to give a clinic at the Mid-winter Meeting of the Chicago Dental Society. He is attending the Greater New York Dental Meeting in December. He visited the dental school recently and expressed interest in our rapidly expanding educational program. He is also collecting some material for his new book which he reports he is working on.

Class of 1932

We received a Christmas greeting from Pauline and Seiya Nakamori, 908 North King Street, Honolulu, T. H.

Class of 1933

Does anybody know a better address for Dr. Quellman?

Dr. Irving J. Quellman, 725 Ponce de Leon, Santurce, Puerto Rico.

The Alumni Bulletin was returned from the above address, and we would appreciate receiving latest addresses for all of those you feel may be incorrect.

Class of 1940

Professor Phillips received a most interesting letter from Dr. Frank K. Etter, DC, USN, U. S. Naval Station, Box 15, Navy #961, Fleet Post Office, San Francisco, California, and we are pleased to quote it in its entirety:

"A few days ago the most well done September 1960 issue of the Alumni Bulletin arrived. Now that I have read it from cover to cover you know what I'd better let you know of my address change. The letterhead will give you some idea

where I am stationed. For the benefit of the Bulletin I'd like to say a bit of information so it may let others know my whereabouts as I certainly like to read of others.

"On June 10, 1960 I was detached from duty at the Naval Training Center, San Diego, where I had been on duty for four years. We had a lovely home there and leaving it behind was pretty tough. After a pleasant trip up to San Francisco (our 'second home') and visiting there we left on board a Navy ship for the Philippines. We spent a day in Honolulu and saw numerous friends who met us and gave us the traditional welcome with leis. We then went to Guam where we spent the better part of a day, which happened to be my birthday (July 6). We (my wife Nellie and daughter, Alice, age 9½) arrived in Manila on 10 July and it was then we realized how far from home we were. It was half way around the world.

"Duty for me here is very interesting. I am head of a small dental department of four officers. This is a welcome change after large departments of about fifty officers. I am also the Staff Dental Officer being on the staff of the Commander of the Naval Philippine Forces. This job entails being cognizant of several other activities in the Philippines and assisting them with certain problems. Another interesting part of my duty is being associated with the Philippines as well as the Manila Dental Associations. I have made numerous appearances and talks at such meetings and seminars. The dental profession here is a very active group in such meetings and depends very much on Navy dental personnel for appearances and it is our pleasure to participate.

"The tour of duty here is two years and the time should fly by very quickly. So far my wife and I have traveled all over the Manila area and have had a trip through the southern Philippine Islands by air. We visited Legapsi, on southern Luzon, Cebu, Del Monte on northern

Mindinao, Davao, over to the famous place "Zamboanga"—where I saw no tailless monkeys, by the way—and up to Bacolod and Ililo and return to Manila. Last week I dashed over to Hong Kong, which is a wonderful and interesting spot.

"In the near future I plan to go to Japan and later my wife and I will take a trip to Saigon, Bangkok, India, etc. When our tour here is over we plan to return to the States via Europe and that will be the finale. We hope to also squeeze in a trip to Australia to see some friends there but there are just so many days of leave per year and we shall have to see about the Australia trip.

"Well, this has become quite an epistle. I would appreciate it if you would put some or all the information in the Bulletin. Who knows, some guy might be interested in knowing where Etter is and think the States is better off for my being out here. He may be right."

Class of 1942

A note to Editor Phillips from Dr. Merle A. Niederhofer reports his address as 122 Nordica Lane, Cincinnati 30, Ohio. He says "The purpose of my letter is to change my mailing address and assure my receiving the Alumni Bulletin. . . Thanks for the Bulletin; it keeps me well informed and always arouses a pleasant nostalgia."

Class of 1944

Dr. Morris Weiner, 228 Elm Avenue, Rahway, New Jersey, sent the following newsy epistle to Dr. Ralph McDonald:

"I hope this letter will find you and yours enjoying the best of health . . . You may recall that Bernard Wiener, loved the job of anesthetist in dog laboratory back in freshman physiology. Today, he is chief of General Anesthesia for dental cases in Long Branch Memorial Hospital.

"Carl Stoner, 325 State Street, New London, Connecticut, teaches at Tufts part time and is going after the Periodontia Board.

"Henry Rankin, 1508 Central Avenue, Union City, New Jersey, has had tough sledding and is now in practice in New Brunswick, New Jersey.

"I still plug along trying to learn some dentistry but it's a long row to hoe, and I only hope that I don't run out of time . . . As you know, I love pediatric dentistry deeply and dearly. I seemed to find it my niche and a comfortable groove. I never specialized in it and I enjoy all the other aspects of practice almost as much."

Class of 1947

Received Christmas greetings from Dr. and Mrs. Marvin A. Tuckman, 18 Garwood Road, Fairlawn, New Jersey.

Class of 1948

Dr. Richard S. Edwards, Rensselaer, Indiana, wrote "Happy New Year to all at I. U. S. D."

Dr. and Mrs. R. H. Marlette (Lt. Col., 060102), 97th General Hospital, APO 757, New York, New York, sent a Christmas card with this added message:

"We're still gadding about in Europe . . . Moved to Frankfurt in July and it is wonderful being in a 'big city' again!"

Class of 1949

We are sorry to have to tell you of the death of Dr. Wigand Kenter in October 1960.

Dr. and Mrs. Ernst Rosenthal, 1266 Oliver Avenue, Indianapolis, Ind. sent Season's Greetings.

Class of 1953

Dr. and Mrs. William Crawford, 4233 East 38th St., Indianapolis, Indiana sent Christmas greetings.

And Season's Greetings also came from Dr. Henry Plaschkes, 2334 North Delaware Street, Indianapolis, Indiana.

Class of 1954

Dr. Paul Denver wrote in from Friendly Hills Medical Center, 9200 Colima Street,

Whittier, California, asking the address of Dr. Wallace Bell.

We received a wonderful greeting card from Dr. and Mrs. Robert Johns—it was a picture of their three darling boys. Dr. Johns' address is 606 Eley Road, Elgin A. F. Base, Florida.

Dr. J. Oscar Leiva, 3a Avenue. #1376, Guatemala C. A., sent best wishes to all his friends in school.

Class of 1955

Dr. David Amos, 1315 West 10th Street sent Christmas greetings.

Dr. Wallace Bell wrote Dr. Johnston, *"Things have been pretty busy here for me for the past three weeks, here in Nihon University School of Dentistry, Kanda Surugadia, Shiyoda-ku, Tokyo, Japan. The new students are busy with their technic work and the ones that I have had for the past couple of years are approaching the time when they will be starting in the clinic. Every Friday morning I have a lecture-seminar with the faculty and graduate students of the orthodontic department trying to make them familiar with some of the changes that are to be made and the reasons for them. It's quite interesting at the things that can create an uproar. The department has been operating on a barber-shop basis with patients dropping in when they please and when I said that this had to change, it seems that I was attacking a sacred cow in Japanese dentistry. Well anyway it will be interesting to see what happens along this line and the next few months should tell."*

Drs. Werner and Ursula Bleifuss, 18786 San Quentin Drive, Lathrup Village, Birmingham, Michigan, sent Season's Greetings.

Dr. and Mrs. Stuart Everard sent Christmas greetings, with this note: *"1960 has brought an increase in our number—Amy Alane born in June."*

"Northern Virginia could do with some more dentists, if any of your graduates want to move to the East."

"I always enjoy receiving the Alumni news as we seldom see any Indiana graduates 'cept Prof. Phillips, who is a regular visitor to our meetings."

Class of 1956

Dr. and Mrs. Lou D'Angelo, P. O. Box 271, Gronton, Connecticut, sent Season's Greetings.

Dr. Karl W. Glander, 63 East Front Street, Red Bank, New Jersey, wrote to Dr. Johnston, *"I hope this dispatch finds . . . my friends at the dental school all in good health and spirits. . . . On a trip back to Indianapolis last July the old school sure looked good to me, a fact which I never would have predicted in my undergraduate days."*

"Since January 1, 1959 I have been associated in general practice with Dr. Lawrence R. Burdge here in Red Bank. He is past President of the State Board of Dental Examiners and past President of the American Society of Dentistry for Children—a wonderful person and very dedicated to dentistry. I have built up a nice practice of my own and we are very happy here in Red Bank."

"I find that my greatest interest in dentistry is in the orthodontic cases that I refer out and in the minor tooth movement cases that I do myself. After much soul-searching I have come to the conclusion that I should make an all-out effort to enter the specialty field of orthodontia, as I know I will not be happy or enthusiastic in general dentistry, feeling as I do."

Dr. Young Ok Lee, College of Dentistry, 111 South Kong Dong, Seoul, Korea, sent Christmas greetings.

Class of 1957

Dr. and Mrs. Pedro Colon, P. O. Box 36, Puerto Rico, sent Christmas greetings.

Dr. Robert H. Owens, 629 Madison Avenue, Covington, Kentucky, sent Christmas greetings with this note, *"I started private practice in surgery in Cincinnati and Covington, Kentucky, August 1. Prior*

to that I took the Florida Board and am happy to say 'passed.' Took and passed the Ohio Board in November, and I think as far as Boards, I've had enough. Private practice is nice—I am associated with two other surgeons."

Dr. George Von Mohr, 235 Palm Drive, Vista, California, sent greetings.

Class of 1958

Dr. Russell C. Boyd II, 1866B Florida Avenue, Homestead AFB, Florida, wrote, "Greetings from sunny Florida . . . How did the rest of the I.U. boys do on the Florida Board? I passed, I'm happy to say. I saw Bob Owens, as well as several of the fellows who graduated this year. I hope they did well."

Dr. Daniel S. Kleehammer, (Capt.), 04018612, 86th Medical Det. Den. Sv., APO 169, New York, New York, writes:

"With the beginning of this new year and a thorough investigation of old letters, records, policies, etc., I have come across your unanswered letter of many months ago. My sincerest apologies for this oversight. Ridding myself of the habits that plagued me as a student is not easy.

"In regards to Ramona, Richie, Chris and myself; we are enjoying our stay here immensely. However, our rapidly growing family has limited us to only short tours of the sights. Paris, London and Rome remain for this spring and summer. Germany, Austria and the Alps are all beautiful. We "flatlanders" have come to love the mountains. We are planning another skiing trip in March.

"Professionally, I've had a wonderfully complete experience. I have a six-dentist clinic in which each of us conducts a general type of practice. All phases of care are given, both to troops and dependents. We have even conducted our own children's topical fluoride program with the gracious help of Dr. Muhler and Dr. Gish.

"My problems of directing free dental care have been few and minor but I'm

anxious to return and begin my own practice.

"We hope to be back in Indiana in time for the next Holiday season. We're looking forward to meeting old friends and seeing the changes we've heard so much about at the Med. Center."

Dr. Keith D. McCavit, Box 1418, Palmer, Alaska, wrote to Dr. Cunningham the following news:

". . . . I have a very busy general practice here in Palmer When I do get away I have some of the most fabulous fishing you have ever seen—grayling in one lake near here average 17 inches or over. Trout abound and in the latter part of the summer you can battle salmon in the local streams until your arms are sore.

"The moose you see in the enclosed photo delivered 705 pounds packaged prime meat for our freezer. The goat is probably in the lower part of the record books—both came from within 30 minutes of Palmer. I have also shot a caribou and I backed up a friend while he shot a grizzly.

"The standards of dentistry in Alaska is very high—fees are generally higher than in Indiana but cost of living is proportionately high. My office is all new in a beautiful building—air rotor, euphorian chair, vacudent, modular cabinets.

"Best wishes to everyone."

We received such a nice letter from Dr. S. L. Mangi, 147 Jail Road, Indore, India, who received his M.S.D. degree with this class, that we'd like to quote most of it to you:

"I have been working fairly hard all these days. I have been able to prevail upon the Government and convince them about the immediate necessity for opening a dental college in our state. I am glad to inform you that the government has finally decided to start a dental college in our state this year, from July 1961.

"Secondly, there was the XVI All India Dental Conference at Indore this year and I was the secretary of the Reception

Committee. Everything went well and passed on smoothly. I read two papers at the scientific session of the All India Dental Conference, also. The papers were very well received and appreciated by the delegates of the Conference."

Class of 1959

Dr. Jo Ann Nichols Hearn, 20907 Amie Avenue, Apartment 9, Torrance, California, writes, "Please change my address for Alumni news and the Indiana State Dental Association Journal, as we have moved. Thank you very much and please say hello to everybody for me."

Dr. W. S. Mull, Parris Island, South Carolina, sent Season's Greetings from Naples, Italy.

Dr. and Mrs. Robert Modlin, 02295823, 2nd Recon. Sqdn., 15th Cav., APO 696-3, New York, New York, sent Season's Greetings and note, "accept a warm hello and Season's Greetings from Nancy and myself. We are now finding ourselves one-half through our tour of duty in Germany and thoroughly enjoying every minute. To closely study and share in a different culture and society is indeed a rich and rewarding experience. Our travels throughout Europe have opened our eyes to many different ways and modes of living, but has sustained our desire to keep our United States citizenship. Trust all is well at I.U.S.D. Believe me, to return and say 'hello' is at the top of my list, come summer of '62!"

We received a lovely Christmas greeting from Dr. Hala Zawawi, 12 Darabsha Road, Bombay 26, India.

Class of 1960

Dr. Hassan Fahmy, 11 Rifaa Stret, Apt. 6, Manshiet Al Bakri, Cairo, Egypt, writes, "I am certainly pleased to learn that the new extension of your school is progressing to your satisfaction. It would indeed make me very happy to be able to return one of these days to visit

with you and see your school, the ever-active place that I like so much."

Dr. James C. Hennigar writes that his current address is 2606 North Wheeling Avenue, Muncie, Indiana, and he would like for any of his friends to stop by and say hello whenever they are in Muncie.

Dr. and Mrs. Zack Kasloff, 592 Elm Street, Winnipeg 9, Manitoba, Canada, sent Season's Greetings.

Dr. Leroy Kochert, 726 Mill Avenue, Tempe, Arizona, says, "Hello . . . I just received my Alumni Bulletin by pony express the other day and thought it might be well if I forwarded to you my correct address. I am associated with an Oregon graduate here in Tempe. He has been graduated five years; his training was very similar to mine so it is working out very nicely. We are enjoying the Arizona sunshine very much. Tempe is a college town suburb of Phoenix. We are living in Phoenix at the present time. Will be looking forward to future notes and publications from Indiana."

Dr. and Mrs. Earl Ley, 334 North Randolph Street, Indianapolis, Indiana, sent Season's Greetings from "The Ley Family"—their baby girl was born August 8.

We are informed that Dr. W. Richard Leyda's address is DC, USNR, Box 62, Navy 943, FPO, San Francisco, California.

Dr. Pechara Sidhisunthorn writes that she is in active charge of Crown and Bridge Department of the University of Bangkok School of Dentistry, Bangkok, Thailand. She is writing a course of study based on the one at Indiana University School of Dentistry. She is responsible for introducing and translating for a group of 25 American dentists in that country to lecture to students and professors. (She wishes all of them were from I.U.S.D.)

Dr. Robert P. Swieterman, 1200 First National Bank Building, Lexington, Kentucky, informs us of the opening of his office for the "practice of periodontics."

Who's Who and Where ???

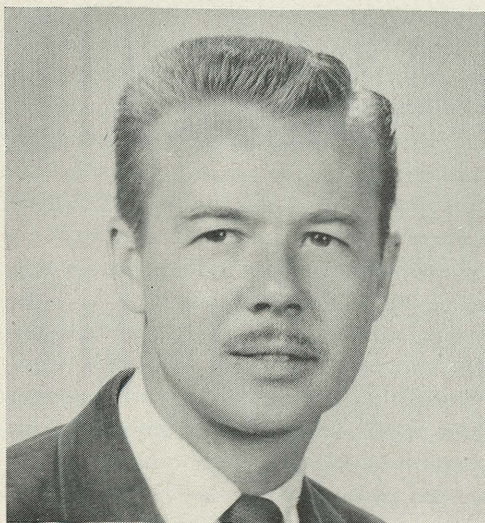
by Paul Starkey, D.D.S.

Dr. Paul Starkey, Associate Professor of Pedodontics, is the new editor of this column. Dr. Richard Jennings, the original editor, is now at the University of Texas Dental School. We wish to take this opportunity to thank Dr. Jennings for his past assistance and to welcome Dr. Starkey.

R.W.P.

When the former editor of this column, DICK JENNINGS, agreed to accept the position as Chairman and Professor of Preventive Dentistry at the University of Texas Dental Branch this last summer, Indiana University suffered a distinct loss. It seems fitting that we do a special feature on Dick, in this, our first publication since his departure, and cause his handsome countenance to adorn this page.

Dick has been an enthusiastic worker for Indiana for many years and has a long list of accomplishments. He graduated from Speedway High School in 1941, did his pre-dental studying at Butler University, and graduated from Indiana University School of Dentistry in August of 1945. He is a Zip and a member of OKU. He



Dr. Richard Jennings

served with the United States Navy after graduation, returning to practice in Speedway after the war, and also became Clinical Instructor of Pedodontics at IUSD in 1947. He received his master's degree from Indiana University in 1956 and was appointed Assistant Professor of Pedodontics the same year and in 1959 became a Certified Member of the American Board of Pedodontics.

In April 1945, Dick married Laura Lee Turner and they have been blessed with three offspring: Richard Lee in 1946, Michael Scott in 1949 and Stephanie in 1951. Dick has made many contributions to organized dentistry. He served two terms on the Board of Directors of the Indianapolis District Dental Society and was Chairman of the Publicity Committee of the Indiana State Dental Association for three terms. He is a Charter member of the Indiana Unit of the American Society of Dentistry for Children and served as president of this organization in 1959. He is presently Chairman of the Publicity and Public Relations Committee of the American Society of Dentistry for Children (national), and serves on its Executive Council. When Dick left Indiana he was serving as a member of the Board of Directors of our own IUSD Alumni Association. He has contributed to the dental literature in the Canadian Dental Association Journal, the New York State Dental Journal, the Indiana State Dental Association Journal, The Journal of Dentistry for Children, and in the Indianapolis District Dental Society Journal.

There, I told you he had a long list of accomplishments, and these only represent a part of them. In addition to these, however, Laura Lee tells me he is a good father, and an excellent hubby. We be-

lieve her. He has a charming family. The Jennings are members of the Memorial Drive Methodist Church in Houston, and Dick's hobbies include sports cars, singing in the church choir, golf, politics, photography and studying and making speeches on Communism.

Although the services of Dr. Richard Jennings to our school and community will be missed, we all wish him the fine success he deserves and that we know he will experience in his new work in Texas. Dick and his family reside at: 13047 Taylorcrest, Houston 24, Texas. I am sure they would enjoy hearing from you.

* * * * *

Sure glad to hear from WILLIAM M. LINDLEY, who in 1952 was the senior class secretary. He had lots of information about his buddies in Terre Haute where they all live . . . and that's the sort of thing that keeps us typing. ED LLEWELLYN is an oral surgeon and has three children. GEORGE JUSTUS also has three. DAN CHEEK practices there too. JIM HUMPHREY had a 267 game in bowling this winter and at last report had 2 and 6/9 children. Surely he has three by now. Fractions frighten me! BILL LINDLEY is past V.P. and President of the Western Indiana Dental Society and is active in the Elks, Masons, and Chamber of Commerce. He and Carolyn have three children and are active in the Christian Church.

Another sports car enthusiast! KENNETH MILLER, secretary of the 1958 class, has been busy. First, he joined the sports car club in Indianapolis and then was smart enough to get engaged to a lovely nurse named Patricia. We haven't heard if they've tied the knot yet. Maybe he's waiting to see how she does in the rallies! Incidentally, Kenneth practices in Cumberland, Indiana, and is *very* active in the Mt. Pleasant Baptist Church.

Up in Anderson, Indiana, you will find RICHARD E. HARRISON with wife Dorothy

and their three children. Dick was the V.P. in '55 and is now busy with a general practice. He has done some studying in investments and practice management. How about a good tip, Dick? He is also spending quite a bit of time and energy remodeling his house. On Sunday, though, you can find him at the Presbyterian Church teaching ninth grade Sunday School. Sounds like a mighty busy fellow.

We hear that bachelor GENE F. HEDRICK has gone down to the home town of MILES STANDISH at Salem, Indiana, to practice general dentistry. Since Gene was the Sec.-Treas. in 1959, he's just beginning to get into the swing of things . . . belongs to the Jaycees and the First Christian Church. His hobbies are, of course, golf and also basketball Whew! The thoughts of dashing up and down a basketball court make me feel forty.

Not every fellow gets the opportunity to have a dad and brother in this profession of dentistry and also have the chance to practice with them, but that's the luck of JERRY H. LEER . . . who was treasurer of his class of '58 and is a part time instructor in operative dentistry. We understand that Jerry is quite a golfer which he'd have to be in that family. Jerry thinks he can play euchre but your columnist and FRED HOHLT have reason to doubt. Maybe it was because he was carrying a load on his shoulders, namely one BILL GILMORE. Jerry reserves Sunday morning to teach fourth grade Sunday School at the Northwood Christian Church. Isn't it fine to hear that so many of our Alumni are interested in the religious life of their communities?

A man who's been studying is DONALD G. LLOYD, secretary of the 1957 class. He is living in Fort Wayne, Indiana with Lois and their son, Alan. Don did post-graduate work at I.U. in oral pathology, general pathology, pathology of neoplasms, special pathology of bone, pathology seminar, radiologic interpretation, and advance

radiology clinic. He's a member of the American Dental Society of Anesthesiology and specializes in oral surgery.

MAX E. COPELAND, who in 1951 was Sec., and wife Janet planned and had built a new dental office into which he moved this winter. Max lives and practices in Winchester, Indiana and has two little girls, ten and seven. They all attend the Friends Church there and Max has been the Sunday School Supt. for almost three years now.

Since he lives only a half block from the golf course, PAUL C. GILMORE takes quite an interest in his hobby of shooting par. On Sunday he serves as Vestryman at the Holy Trinity Episcopal Church and he's very active in the West Ashley Civitans, Omni-Investments, and Telephone trades. Maybe he could offer us a good tip, too. All this for a lad who was president of his class in 1957. Paul and Melva have a daughter, Gail, who is two years old . . . and live and practice in Charleston, South Carolina. Paul came back to Indiana last October and called on PAT CRANE, "HAIRY" MOLEND, and RICHARD FALANDER. He left messages for DICK BERGER, LLOYD DELMAN, and saw JOHN BUYER.

Anyone for fishing, hunting, trapping, boating, skiing, etc? CHARLES W. GISH, vice president of his class of '49, had a wildlife preserve area so you outdoor sportsmen may want to look this fellow up to help him keep the overflow down. He collects Indian relics which according to Webster is a product of human workmanship, especially simple primitive workmanship, so you might want to take along some hidden treasures when you hit him up for some fun. He can really provide a fine outdoor weekend as I can personally attest, because I and my family enjoyed their hospitality at his cabin on Lake Shaffer this summer. Chuck is in Public Health Dentistry and received his master's degree from I.U. this last year. He

provides the State of Indiana with his fine service and represents our profession in the finest of fashion. He and Treva live in Brookston with their three children.

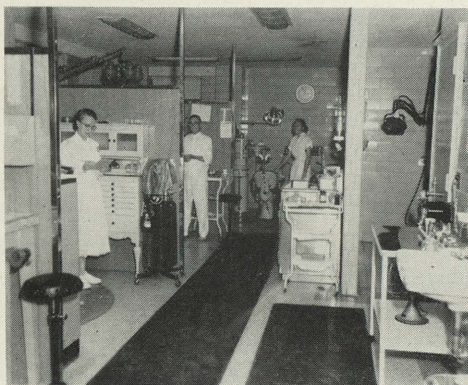
Remember JAMES L. PITTMAN who was president in '56? He's still studying! He is now a graduate student in pedodontics at the University of Michigan and will receive his degree in 1961. He is still single . . . he's hitting those books *too* hard . . . Keep us posted, Jim.

The Indiana University Union Board Award, Indianapolis Division, for "Distinguished service in teaching, research, and public service" for the year 1959 went to our own JOSEPH C. MUHLER, who was V.P. of his class of '48. Joe has an outstanding record and is a national figure in the field of research. He received his B.S. in '45; D.D.S. (with distinction) in '48; and his Ph.D. (chemistry) in '51. Joe and Majetta Jean have two children and live in Indianapolis as he is still teaching at I.U. His present teaching responsibilities are Freshman Bio-Chemistry, Junior Nutrition, Senior Preventive Dentistry, Freshman Seminar, Graduate Biochemistry and Nutrition. He's so busy that he doesn't have time for any hobbies and that sounds bad. You know what they say about all work and no play, Joe. He's an honorary member of the European Association for Fluorine Research, member of the American Chemical Society; American Dental Association; Carbohydrate Section, American Chemical Society; International Association for Dental Research; Society for Experimental Biology and Medicine; Indiana Academy of Science; to name just a few! Sound impressive? Seriously, we're proud to know you, Joe, and proud you're from Indiana.

Which direction is Monon? If you find the town, we know a big wheel there. He is KENNETH L. SMITH who was secretary of the class of 1950. Ken and Mary-

alice are active in the Methodist Church there and he is Past Master of the Masons, Past Patron of O.E.S., and among other jobs, is the trustee of the Monon Town Board.

ROBERT A. PERCIVAL, V.P. in '55, is the man to see when the leaves "turn." He and Elizabeth live down in the beautiful hills of Indiana in the town of Nashville with their boy and three girls. Bob is active in the Episcopal Mission, Army National Guard, Varsity Club, Lions Club, Scouts, and F. and A.M. 135.



Dr. Fred Decker

Above is a photograph of Dr. FRED DECKER '24, chief of dental service, Norristown State Hospital, Norristown, Pennsylvania. He reports that he finds his services in his clinic to be "interesting and soul satisfying." Fred was 65 last June and still maintains great enthusiasm for dentistry. Thanks for the letter and photos, Fred. We appreciate this kind of cooperation.

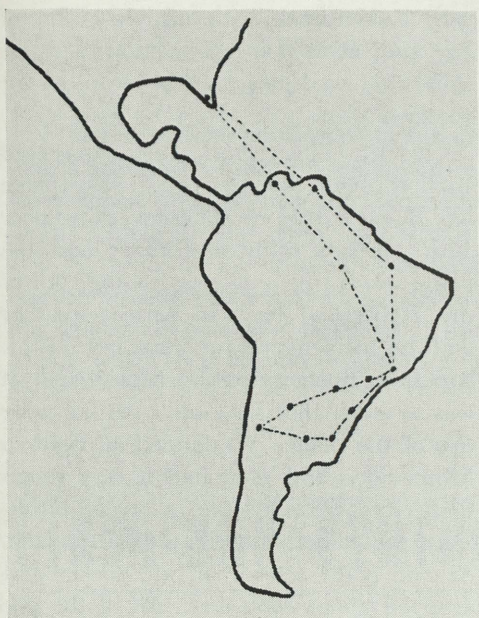
FLASH JOHN MINK, '56, is the proud father of his first son, and fifth child. Besides this blessed event, John was able to celebrate his certification by the American Board of Pedodontics which held its examination this last December. Appears as though he is discontinuing a specialty in one area and being officially recognized in another. Congratulations on both counts, John.

* * * * *

As a result of our inquiries into the activities of DARRELL A. STOCK, Sec.-Treas. '42, who practices general dentistry in Dunkirk, Indiana, we discovered that he made a very interesting trip into South America in the latter part of 1959, a tour that included more than 20,000 miles. Further inquiries brought to us some photographs which he took on the trip and some additional information concerning his adventure that we thought you might find interesting.

Darrell left home on October 9, 1959 and flew to Miami. This was to be his "jumping off" point. His next stop was Caracas (follow on the map). "It was a beautiful moonlight night and I had a seat next to a (plane) window, but went to sleep and woke up to land at Caracas. It is a dirty, dingy looking place at night. When we all got off the plane they kept us all together and herded us into the building under armed guard. The guards were armed with rifles and I didn't feel too comfortable. None of the natives would speak or smile and seemed concerned about something. I learned the next day that there had been a revolution attempt in which 30 people had been killed so they were not taking any chances with us that night. It was very hot in the building and I walked out on a small patio where I had a nice visit with a Mr. and Mrs. Easterly from Baton Rouge, La. Her brother is a dentist and she runs a travel agency. We finally left Caracas for another 5 hr. flight to Manaus and arrived about 1½ hrs. later and in perfect weather."

The ride to the hotel in a taxi from the airport in Manaus, "was quite a thrill for a country boy from Indiana—all by myself through the jungle at night with a person I couldn't talk to, but we got to the Hotel Amazonas and I was deposited in the lobby." It was here at Manaus that the country boy from Indiana got his first real view of the Amazon.



Map of trip

"The river is 15 miles wide at Manaus in the dry season and 30 miles wide during the rainy season. Manaus is 1000 miles up the Amazon right in the heart of the jungle. The only way you can get in is by boat or plane as there are no roads."

He commented on the boat trip which he took on the Amazon and Negro rivers, "The Negro is a beautiful silver blue and the Amazon a dirty yellow color; the two rivers flow together for 15 miles without mixing and a definite demarkation between the two. Now we are in the main part of this huge river and coming back we see all kinds of boats and ships. There are a string of 7 or 8 boats all being pulled by the first one, it being the only one with power. These are thatched roof houseboats that families live on. They spend their whole lives on the river." (see figure 2). He continues, "We didn't stop and go back into the jungle which was just as well as I wasn't on a hunting trip and it was hot. But we could see it and smell it and got the feeling of its vastness."

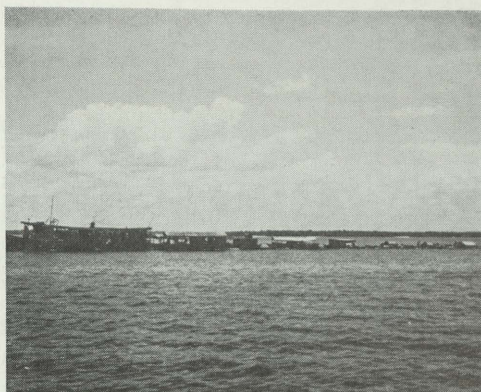


Figure 2

Dr. Stock left Manaus at 6:30 a.m. on October 14th for Rio. "We were in Rio about 2 hours and then on to Sao Paulo," where he met his sister, Lois Ross. They had a joyous reunion and then journeyed together to Iguassu Falls. The falls are located close to where Brazil, Argentina and Paraguay meet and the only way to get to them is by air. "Iguassu Falls are the greatest in the world. They are higher than Niagara and more extensive than Victoria. They extend for two and one half miles comparatively straight on the Argentina side curving into a great horse-shoe, with a 230 foot fall on the Brazilian side. There are over 200 falls separated by wooded islets and in some places rocks and ledges break the cascading water into many smaller falls. There is an easy path and walk with places built out for better views. (See figure 3). Nothing I have

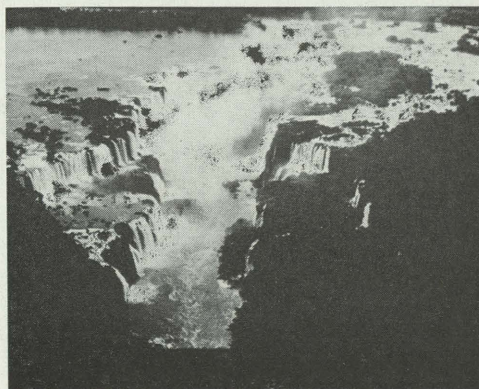


Figure 3



Figure 4

seen is so beautiful. Here they are, in the tropical setting right in the jungle. (See figure 4.) Hundreds of iridescent butterflies can be seen, some of them 6 inches across the wings."

From the falls, Darrell journeyed back to Sao Paulo and then off for Buenos Aires with stops at Porto Alegre and Montevideo. He stayed four days in Buenos Aires and then travelled to Cordoba. From Cordoba he flew to Mendoza and from there took an all-day drive through the Andes. "We saw Mt. Aconcagua, 23,000 feet and the highest mountain in the Americas on the last check point on the Chilian border. (See figure 5.) We were within five miles of "Christ of the Andes" but couldn't go on those last five miles because the pass was still closed by snow. The Andes Mountains are rug-

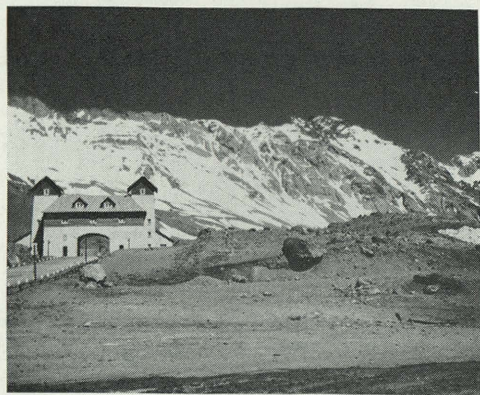


Figure 5

ged, barren rock with no vegetation of any kind at least in this section; I didn't think they were nearly as beautiful as our Rockies."

Our travelling Hoosier then journeyed back through Buenos Aires. "My plane left Buenos Aires on Tuesday, November 10th. It was rainy and foggy and the plane was an hour late in leaving. All of my flights had been in perfect weather with no incidents of any kind, but on this trip from Buenos Aires to Montevideo, it was so foggy that I couldn't see the wing tips of the plane. We landed all right in Montevideo and then had a very rough flight into Porto Alegre, a severe turbulence that shook and fishtailed the plane. At one point we hit an air pocket and dropped about 1000 feet. All of the pillows and luggage fell off the racks into the aisle . . . women screamed and got sick . . . the stewardesses took their shoes off but still couldn't walk. That was rough enough for me. The rest of the trip home was smooth again. I had no stopovers on the way home . . . for now I wanted to get back to Dunkirk as quickly as possible. We stopped in Sao Paulo, Rio, Manaus and Caracas again. This time it was daylight and Caracas looked different . . . no guards with rifles. We were taken to a nice restaurant for breakfast there. Then we were off again on a 5 hour flight over water to Miami. Miami sure looked good. I was glad to be back in the States again."

Darrell says, "The nicest sight of the whole trip was Dorothea, my wife, standing there to greet me when I got off the plane in Indianapolis."

"My trip covered over 20,000 miles, with a little over a week in Brazil and over three weeks in Argentina. From the steaming tropics of the Amazon jungle to the snow-covered Andes' highest peak . . . across both Brazil and Argentina at their widest belts . . . seeing the eighth wonder of the world, the Iguassu Falls . . . enjoying the hospitality of wonderful people,

now my friends . . . this was truly a grand experience, a dream come true."

* * * * *

It was nice being with you in this my first attempt reporting interesting bits of news about your friends and classmates from IUSD. If you enjoy this column, you can make it more interesting by sending me news of yourself and tips concerning interesting activities of an I.U. grad. about which our alumni would like to hear.

FACULTY PUBLICATIONS

(Continued from page 18)

caries. It is effective for deciduous teeth and for permanent teeth in children and adults. It is effective also in areas where the water supply has been fluoridated. A single topical application of stannous fluoride once each year reduces caries.

Muhler, J. C.: Stannous fluoride enamel pigmentation—evidence of caries arrestment, J. Den. Child. 27:157, 1960.

Evidence is presented to indicate the possible arrestment of caries by pigmentation of enamel. The mechanism is described.

Class and Fraternity Notes

FRESHMAN CLASS

Ninety-one bright and eager faces framed by white shirt and tie heralded campus this fall. Much collar-twitching and tie-adjusting took place the first few weeks as this recent "bulky sweater and sneakers" group struggled to adapt itself to professional training.

However, the advent of classes from 8 to 5 spent poring over microscopes, test tubes, cadavers and base plates soon acclimated the tyros and a strong and well-unified class developed.

The early weekends were filled with get-acquainted parties and fraternity rush. About the time everyone was beginning to feel securely at home, the exams started and each and every weekend afterwards was taken with exam study—save one weekend. This weekend was the highlight of our fall semester.

Right after Thanksgiving, the first social event sponsored by the class was held in the form of a stag party. Since it was a time of no pressing exams, the heretofore hidden talents emerged as mimics, comedians, musicians and all around entertainers. Skits were prepared and rehearsed, and a combo was formed to back them.

Using "A Typical Week of a Freshman Dental Student" as the theme, the class not only found opportunity to depict humorous events in the life of a freshman student, but also razzed the faculty. Almost all the freshman faculty came early and stayed late.

Plans for social events in the coming semester include a class dance and most assuredly another party to match our first.

SOPHOMORE CLASS

The academic year of 1960-61 for the Sophomore Dental Class was preceded by the annual election of new class officers. The outgoing pres., Ted Fullhart turned the class over to the new officers composed of Richard Fox, president; Bob Bartels, vice president; and Sam Hetzel, secretary-treasurer. Appointment of student council members was next on the calendar and these two posts were given to Hub Hoagland and Richard Gore.

Other than the normal busy work of running the class functions, there have been several activities in which the class has participated. A class party was planned and preparations made to have it just before Christmas and after the mid-semester exams. It was held at a downtown Indianapolis American Legion Post and the turn-out of class members and their dates was excellent. Santa Claus arrived on the scene with a word and gift for each member of the class present.

It is the job of the Sophomore Class each year at Christmas to decorate the large display case outside of the library on the Dental School main floor. This year the decorations consisted of a Christmas scene composed of snowmen, houses, and a brightly-lit church against a red and green background. There was also a picture of St. Nick with the face of Dean Hine transposed on the picture. Beneath the picture was written "Season's Greetings to everyone from Dean Hine and his staff." The display seemed a success and Walter Chang, chairman of the display, received much praise.

Traditionally each year the classes of medicine, dentistry, and other divisions at the Medical Center participate in an annual basketball tournament sponsored by the Student Union. The winner of the tournament last year was our Sophomore Dental Class; the first Dental class to ever win the tournament. In preparation for the 1961 tournament held in February the class has been practicing. We are planning to keep the trophy at the Dental School.

Richard Fox

JUNIOR CLASS

The junior class was eager to begin the year with 74 members after successfully completing the hectic sophomore year. We welcomed two new members, Rodger Allan Martin and Louis Kelly.

The class is enjoying their clinical assignments, but, as usual, they are having common mishaps of mechanical pulp exposures.

New class officers were elected on September 24. They are: President, Skip Nevill; Vice-President, Vern Ketner; Secretary, Charles Kerkhove; Treasurer, Jim Bailes. The class representatives to the Student Council are Jim Jinks and Don Bauermeister.

A stag was held at the Delta Sigma Delta fraternity house on November 22. The usual entertainment was well received and a good time was had by all.

Our annual Christmas Dinner-Dance has been planned for Thursday evening, December 22, at the Wayne Post Legion Hall.

The class wishes to express their thanks for the outstanding leadership of the outgoing officers of the past school year. We hope we can fulfill our duties as capably as they to make this year a successful one.

We extend to all our sincere wishes for a most prosperous and happy New Year!

Vern Ketner

SENIOR CLASS

With the end of our undergraduate training almost in sight, the seniors' minds are filled with a variety of doubts, wishes and questions. These considerations, however, have been faced by all the graduating classes in the past and therefore need not be brought to mind again.

Needless to say, social activities are not uppermost in our minds. But even with the quickening scholastic pace one cannot say that "Jack" is becoming a dull boy. The normal school routine has been interrupted so far this year by a periodontia symposium and lectures by Miss G. Archanna Morrison. There has also

been a break in the schedule for the annual Lilly trip. The all-day tour was climaxed in the evening by a dinner-dance held in the Travertine Room of the Sheraton-Lincoln Hotel. Junior ADA and ASDC meetings are also well attended by members of the class.

Class elections resulted in the selection of the following class officers:

Ralph Walls—President
Don Derrow—Vice President
Bill Scheerer—Secretary
Jack Williams—Treasurer
Bob Ricci—Student Council
Bill Rubach—Student Council

There have been two additions to the class this year. They are Fabio Beltran who received his dental education at the National University of Colombia, Colombia, S.A., and Karl Gossweiler, educated at the Teiburg and Karlsruhe Dental School in Germany.

Before closing we would like to acknowledge the efforts exerted over the past three and one-half years by the faculty in preparing the class for the coming state and national examinations. It is our earnest hope that, come June, those efforts will not have been in vain.

Bill Scheerer

ALPHA OMEGA

The midwinter months show Alpha Gamma chapter of Alpha Omega grown by the pledging of two new freshmen—Jerome Friedman and Burton Siegal. These pledges, and all the active members of Alpha Omega will enjoy the new laboratory facilities recently acquired by the chapter.

Planned for the holiday season is a winter dance and in the later months a stag.

Alpha Gamma's newly elected officers are: Michael J. Gross, President; Myron Kasle, Secretary; Stephen Bailie, Treasurer, who will aid in the forwarding expansion of Alpha Omega at the Indiana University Dental School for the benefit of all its members.

Michael Jonathan Gross

DELTA SIGMA DELTA

The 1960-61 page opened with major advances in all categories of our fraternity purposes. Additional equipment was placed in the dental laboratory, recreational equipment was added in the form of table tennis equipment, pocket billiard table and dart boards, and the entire interior of the fraternity house was redecorated.

The social program of Delta Sigma Delta has again lived up to its expectations and is proceeding according to schedule. During the first semester of the 1960-61 school term, we have offered our membership many and varied activities. The Election Shuffle, Sadie Hawkins Costume Stomp, Mistletoe Mardi Gras, and the New Year's Eve Dance represent our first semester dances. We provided six stag functions such as the golf tournament at the Indiana Lake Country Club, initiation, Las Vegas Casino, dinner and cocktails at the Indiana Athletic Club for the seniors through the courtesy of the Delt alumni, Christmas reception for the Delt alumni, undergraduates and the entire male faculty of the IUSD.

Our schedule provides for two meetings per month during which we discuss fraternity business and enjoy programs geared toward helping prepare us for a career in dentistry. These programs vary from a series of discussions on chrome-cobalt alloy to intra-oral photography equipment and technics.

We take great pride in announcing that there are seven presidencies available for dental students of IUSD and six of these gavels are presently wielded by members of Delta Sigma Delta.

The rushing and pledging of freshmen dental students is a highlight of each school year and we wish to announce that our philosophies and means of attainment were corroborated when the final tabulation revealed that of the 76 freshmen desiring to become members of a dental fraternity, 55 desired to become members of Delta Sigma Delta.

A bouquet of orchids to the Delt Wives for their industry and ingenuity as evidenced by their wide array of activities and their clever display of hors d'oeuvres for each of our dances.

We believe that a dental fraternity should include in its offerings: complete dental laboratory facilities, recreational facilities, reasonable living quarters for single male dental students, an adequate physical plant for social and professional activity, a well balanced social program, development of leadership, aid in dental education, and a feeling of brotherhood aimed toward the betterment of the dental profession. We believe that we include these phases in our fraternity program and are continually striving to improve them.

Bob Ricci

PSI OMEGA

The Psi O's have had a lot of activity this semester. It all started last summer when

almost \$1,000 was spent on house improvements. Some of the actives and their wives also pitched in and painted and cleaned up the house. The new officers got ready for a new school year headed by Dale Steele, Grand Master.

The wives' club gave the house a large ceramic tile coffee table, which took many hours of their labor. This was their project for the past year.

Our rush weekend was September 30th and October 1st. It started out with a stag Friday night and a dance on Saturday. The weekend was a big success. Our new pledge class consists of 21 fine men.

Our annual Christmas dinner and dance was held December 10th at the Washington Hotel. It was a big success thanks to Gene Sponseller, who was the chairman of the dance this year. I'm sure that all of the 135 people who attended had a wonderful time. We had a fine alumni turnout; next year we hope to have even a bigger alumni attendance. If you have changed your address, please let us know. Also, you are more than welcome to drop by the house anytime to see the improvements and our new recreational facilities.

Gerrit Hagman

XI PSI PHI

Our activities at Xi Psi Phi this year started out with rush. Our rush weekend consisted of a stag at the chapter house on Friday, Oct. 29 and a dance at the Severin Hotel on the next night. Sandwiches and drinks were served at the chapter house after the dance. Our new pledges are: Robert Winkler, senior; Drew Oldham and John Rahe, sophomores; and James Bayley, Charles Hollar, George Kehayias, Gordon Kelley, Jeffry Landrum, Ardis Melloh, Rodney Springer, James Tullis, Thomas VanOsdol, and Arden Walgamuth, freshmen. Alumni in attendance were Drs. Herrold, Dean, Oldham, Tarplee, McDowell, Standish, Moon, Kohlmann, Luse (Ft. Wayne).

Recently we had election of officers. The new ones are: James Ford, Pres.; Ronald Copeland, Vice; Thomas Doty, Secretary; Hank Garoutte, Treasurer; Robin Roberts, editor; and Paul Lew, Delegate-at-large.

We initiated nine new members at the chapter house including dinner, games and various activities. Our new men are George Smith and Robert Winkler, seniors; Thomas Rodgers, a junior; and Frank Faunce, Arnold Grindle, Charles Haves, Drew Oldham, John Rahe, and Robin Roberts, sophomores.

Robin Roberts

HISTORADIOGRAPHIC STUDY

(Continued from page 5)

Figure 4 on the right side shows a historadiograph of a ground section of dentin taken from the area of dentin sclerosis shown in Figure 1. In this historadiograph one can see that dentin sclerosis is an increase of the calcification of the dentin matrix between the dentinal tubules. This intertubular hypercalcification is very intense and brings about obliteration of many of the dentinal tubules in the area. This very definitely proves that dentin sclerosis represents a marked increase in the calcification of dentin. There is no doubt that it could effectively resist the penetration of caries into the dentin towards the pulp. If it were possible to stimulate the formation of this time of dentin formation, carious pulp exposure could be forestalled if not prevented.

ACRYLIC DENTURE BASES

(Continued from page 8)

becomes necessary to grind the teeth surfaces in order to try to re-establish the occlusion and fit.

Some work has been reported in which the authors tried to establish a relationship between distortions of teeth during polymerization and the consequent changes in occlusion and vertical dimension. Atiyah, Grunewald and Vieira indirectly showed such changes, by proving that the positions of teeth are changed during polymerization. According to the latter this may cause an opening of the bite of as much as 2-3 mm. Woelfel and Paffenbarger showed that great distortions in positions of teeth of the upper denture did not cause any change in the lower denture when the two were used together. The work of Vieira showing that lower and upper dentures present different

changes in denture shapes when polymerized explains, at least in part, that not only is the greatest problem presented in lower dentures but also that in the lower denture, the problem of fitting and of occlusion is greater due to the different changes of the lower and the upper dentures.

Summary

It is obvious that the final denture is subject to a series of dimensional changes and that the clinical significance of many of these variables is as yet unknown. However, it is known that certain factors are of special interest: avoid an excess of resin at the time of final closure; slow closing of the flask in order to permit an easy flow of the dough and use spring clamps to allow for a free thermal expansion in the heating of the resin.

FACULTY ACTIVE AT A.D.A.

(Continued from page 9)

exhibit. Dr. Bailey also attended the American Denture Society meeting, and Dr. Hohlt attended the meeting of the American Academy of Gold Foil Operators. Dr. Howell, who is a delegate, is also secretary-treasurer of the American Association of Public Health Dentistry.

LIBRARY

(Continued from page 28)

4. In this study no apparent harmful effects, as measured by the usual histologic methods and criteria of cellular change, were observed from a single dose of stannous fluoride up to and including concentrations of 20 per cent and up to and including periods of four weeks.

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Dr. Lester Furnas Honored

Last June 8 Dr. I. Lester Furnas was honored at a dinner by his many friends on the occasion of his 50th year in dentistry. Dr. Furnas received his D.D.S. degree from Indiana Dental College, Indianapolis, in 1910, and shortly thereafter became an instructor at that college. From 1914 to 1920 he served the college as professor of prosthetics. In 1920, he accepted the professorship of prosthetics and dental technology at Western Reserve University in Cleveland, a post he continued until 1938 when he retired from teaching. At that time, Dr. Furnas set up his present prosthetics practice in La Jolla, California, and became active in the San Diego County Dental Society and various civic affairs. We thought the alumni would be interested in this recent honor to Dr. Furnas (see photograph on next page).

DENTAL HYGIENE

(Continued from page 31)

Class of 1960

Judith Dixon was married to Lt. D. E. Smith, 3323 Mather Field Drive, Ranch Cordova, California. Judith has a Civil Service appointment and is working in the dental clinic of Mather Air Force Base. Other weddings include Sonya Bechaka to Dr. Elita Zapponi, 208½ East 28th Street, Indianapolis, Indiana; Elizabeth Campbell to Dr. Joe Gordon White, 4340 North Arlington Avenue, Indianapolis, Indiana; Nancy Patterson to Mr. Roger W. Cornett, 1055 East Jefferson Street, Franklin, Indiana; Joyce Perkins to Mr. James Laven-good, 907 Sherman Avenue, Evanston, Illinois; Carolyn Gill to Mr. Michael Hayes, 2727 Reidling Drive, Louisville, Kentucky; and Marolyn Gill to Mr. Webb Simpson, Terre Haute. Joyce Schenck is now living at 215 Indiana Avenue, Plainfield, Indiana; Karen Nickas at 921 South Walnut Street, Bloomington, Indiana; and Judith Arnott at 610 Fortage Avenue, South Bend, Indiana.

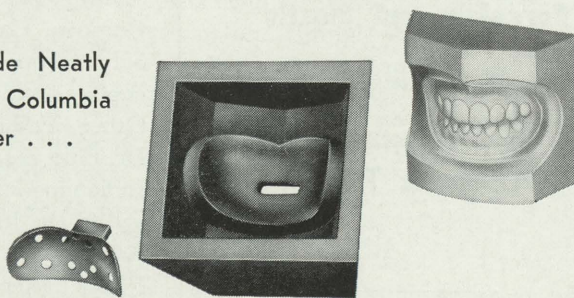


Mrs. Angela Furnas and Dr. Lester Furnas visit with Mrs. Hannah Nixon and Dr. Frank Casto, Past President of the American Dental Association at the dinner honoring Dr. Furnas for 50 years in dentistry.

San Diego Evening Tribune, June 9, 1960, pg. A-14.

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