



**INDIANA
UNIVERSITY
SCHOOL OF
DENTISTRY**

**ANNUAL
REPORT**

*Alumni Bulletin
Special Edition
Vol. 8, No. 1
Fall 1993*

Building a New Life

On the Cover

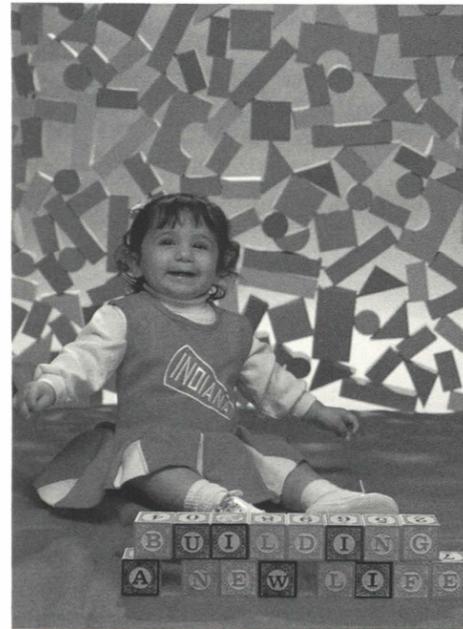
A little baby in Russia and a big dental school in Indiana had an experience in common during the past year: both encountered life-altering events that

propelled them onto pathways quite unlike the ones they started out on.

Life began for infant Aza at Children's Home #1, an orphanage in Tula, Russia. Her opportunity to begin a new life in a home of her own was facilitated by IU School of Dentistry faculty member Lawrence Garetto and his wife, Denise, who traveled to Moscow to adopt the baby in February 1993.

Although she's been in America for less than a year, 14-month-old Elizabeth Aza Garetto—Leeza for short—is thriving in her Hoosier home and has already had several adventures, including visits to

California to meet new relatives and a request to pose for the cover of this publication. Miss Garetto became a citizen of the United States in October 1993. Colleagues of first-time parent Dr. Garetto, best known to IUSD alumni as one of the school's NASA researchers (*see report on page 38—ed.*), have observed with delight his swift adaptation to fatherhood. "My students kid me about never seeing me keep late hours at



Cover photograph by Rob Ling

Editorial office is located at the Indiana University School of Dentistry, 1121 West Michigan Street, Indianapolis, IN 46202; phone 317/274-5405.

All photos of IUSD staff and students with building blocks by Doug Bartlow, IUPUI Integrated Technologies, as well as photos appearing on pages 40, 42, and 44.

Graphic design - Cerato Design

Eight of the hundreds of faculty, staff, and students who are participating in the school's restructuring program—from left: Dr. Donald H. Newell, assistant professor of periodontics; first-year dental hygiene student Trinh T. Vu; fourth-year dental student Denise A. Flanagan; Marsha K. Brickey, dental assistant and staff coordinator of Cluster D in the Comprehensive Care Clinic; dental assisting student Tracey R. Walker; first-year dental student Eric L. Treadwell; Dr. H. William Gilmore, dean of dentistry; and Karen M. Beard, lecturer in dental assisting.

the dental school anymore," says Dr. Garetto, adding with a laugh: "Now I'm always out of here by 7:30!"

The turn of events at the IU dental school has been equally dramatic for Dr. Garetto and for every other member of the faculty, staff, and student body. Each person's role at the school has been evolving during a year of unprecedented growth and change. A major restructuring campaign launched last year is the theme of the 1992-93 annual report. It's a campaign that is infusing new life into the dental school by demanding from each of us a fundamental reevaluation of our mission in dentistry—the subjects we teach, and how they are taught.

Since individual creativity is indispensable to the success of the new program in dentistry, we dismantled the building blocks from the background of our cover photo and gave them to various individuals and groups to reassemble. Their imaginative efforts echo in photos appearing throughout the pages of this report, and are symbolic of the innovations occurring throughout the curriculum, clinics, and departments. ■



A Year of Renewal

With IUSD faculty and administration working together, more enhancements were built into the School of Dentistry's programs during 1992-93 than there were at any other period in the school's history.

Renewal was accomplished by the group's ability to identify the high quality core of this institution, and to build upon that core by redesigning existing programs and creating new components to accelerate our progress toward excellence in dental education. The IUSD mission will take dental education to higher levels and guide us into the next century.

The government's goal is to eliminate common dental diseases—caries and periodontal disease—by the year 2020. Each year modest reductions in the incidences of these diseases are reported. Such improvements are signals that the time is right to formulate new concepts related to patient services. Dentistry

faces these challenges while new national health schemes are being debated.

A quality education must prepare dentists and dental auxiliaries to be skilled survivors who can contribute to any healthcare system. These challenges, in combination with the present economic conditions, illustrate why a vigorous renewal strategy was entrenched to guide the School of Dentistry.

Today a quality dental education is assessed in 20 to 30 categories of performance. A school is also measured by its parent university, which evaluates the school's ability to contribute to the academic health center and campus life. Tomorrow's graduates must be able to learn and perform in new ways, for they will be judged by new assessment methods devised by a faculty that must be able to continually chart the future needs of the curricula.

The leadership of the faculty, staff, alumni, students, and organized dentistry worked together to devise the IUSD plan of renewal. This support must continue and will be solicited each year.

The highlights of the year included accreditation exercises, the planning process, implementation of changes, and acquisition of new faculty.

The accreditation visit is scheduled every seven years by the American Dental Association Commission on Dental Accreditation. The most helpful part of the exercise is the opportunity it affords us to conduct a self study, which in our case was accomplished by a committee representing the faculty. The Commission's visit last October was followed up by a favorable evaluation of the school's programs, and IUSD's accreditation approval status was continued. Responses to the Commission's key recommendations have already been incorporated into our activities. The list of the Commission's recommendations, and our responses, begins on page 14 of this annual report.

The faculty and administration have worked actively for several years with an IUSD Planning Committee. This committee will continue and will include

leadership from all parts of the school. The primary mission of planning is to strengthen the undergraduate dental program; each year a new strategy will be engineered by the committee and will become the blueprint for our future. The new mission requires the participation of all faculty and staff in discussions of strategy.

The patient system and student involvement with clinical services have become the mainstream of the program. The new curriculum, computer technology, and faculty mentoring have sharply increased the quality of instruction in the school.

To stay on course with our new direction it was essential to seek out new faculty who are trained to teach subjects recognized by the profession as the new priorities in dentistry. Several investigators with world-class reputations have joined the basic science areas in the past couple of years. In addition to teaching dental students, many of these faculty members are associated with research investigations with the School of Medicine, Science, or Engineering and Technology. Several prominent educators have been placed in the departments; with their instructional cores come new talent and ideas. Introductions to our new full-time faculty members begin on page 22.

The following report highlights key events and transitions of the past year. We hope that the annual report captures your interest in the recent developments at our school—your comments about the direction dental education is taking at IUSD are most welcome. There will be many opportunities in the year ahead for alumni to interact with the school—we invite you to return to see the improvements and the new services for yourself. Quality leadership in the school is now more essential than ever. We must strengthen the professional programs, services, and relationships our students need to be competent healthcare providers tomorrow. ■

 **H. William Gilmore**
Dean

Building an Economic Model

The IU dental school's new system of operations goes by many names: program restructuring, Vision 2000, activity-based reorganization.

It takes many forms that have reshaped the clinics, the curriculum, and the departments.

It impacts the activities of every teacher, student, and staff member—but, more important, its success is contingent upon the influence exerted by employees and students to drive the system with their own contributions, creativity, and heightened sense of school-wide awareness. Personal input and accountability are at the core of the new program, which is designed to maximize—in the most fiscally efficient manner possible—the amount of time teachers devote to students through classroom, clinic, and research activities, and to minimize the time teachers spend in administrative and non-teaching duties.

Rising costs and diminishing state support for higher education have led Indiana University, like

many of its counterparts, to re-examine the economic aspects of the institution. Responsibility Center Management was implemented at the university level to give school administrators more control over their financial resources, but specific guidelines about how to go about their new duties were lacking.

In 1991 it was decided that a methodology was needed to guide school deans in the performance of their broader financial responsibilities within the university. To simplify the complex task of developing the framework for an economic model, the IUPUI campus was singled out from the university's eight campuses as the prototype site. The focus was ultimately narrowed to include only the DDS degree program at the School of Dentistry and the BS program at the School of Business.

Daniel W. DeHayes, Jr., IU professor of business administration and director of IU's Center for Entrepreneurship and Innovation, headed the team of developers, which included Joseph G. Lovrinic, management adviser to IU's vice president for planning and finance management; and Edward J. Althoff, IUPUI's director of accounting records and services.

“Now that resource managers have authority to allocate resources, they must better understand the costs of their operations and the impact of their reallocation decisions,” Mr. Lovrinic wrote in an article that profiled the dental school's pioneering role in the development of IU's economic models. (The article appeared in the July '93 issue of *Business Officer*, a newsmagazine of the National Association of College and University Business Officers.)

To create a model for dentistry, the group worked closely with Dean H. William Gilmore and Lynn K. Finkel, the school's director of administrative and financial affairs.

Months were then spent collecting data from each of the dental departments. “Precisely how much does it cost to offer one 3-credit-hour clinical course? One 4-credit-hour lecture? Those are the types of questions we tried to address,” explains Mr. Finkel. “We looked at each DDS-degree activity separately and at every related cost, including indirect or ‘hidden’ costs such as those the school is assessed to cover its ‘share’ of services from the campus's physical plant.”

As reported by Mr. Lovrinic in his article, the finalized DDS model, which was presented to Gerald L. Bepko, chancellor of IUPUI, in May 1992, was seen as a successful tool “for analyzing operations and costs, and for creating scenarios of various alternative resource allocation decisions.”

The economic model was refined and re-employed during the 1992-93 academic year to assess all of the dental school's other degree and certificate programs. Three fundamental changes to the school's operations are a direct result of information generated by the model:

- The school streamlined its successful Comprehensive Care Program, last reported on in the summer '92 issue of the *Alumni Bulletin*, by dividing the 96 dental chairs into six clusters instead of nine, as they were originally arranged. Clinic production and income have since leaped 24 percent, as revealed in a comparison of September '92 and '93 figures.
- The school's departments have been reconfigured from 13 to six, thereby removing administrative burdens from several key members of the faculty who are now able to redirect their time to increased teaching and research opportunities. “We've reduced and refined and taken a lot of administration



Lynn K. Finkel, dentistry's director of administrative and financial affairs

out of the school," Dean Gilmore told the *Indianapolis Business Journal*, which profiled the school in July '93. "We've made it possible for faculty who were involved in the administration to go back into teaching and research. We looked at the practice of dentistry and reorganized the teaching program to put the emphasis back on the students."

Creation of fewer departments is helping to foster an improved cross-departmental communications system, enabling faculty members to be better attuned to what one another is teaching and better acquainted with the overall educational needs of future practitioners. Recent evidence of this collaborative effort is the elimination of duplicated material taught in multiple courses. By working together, the faculty reduced the contact hours of non-basic science courses (taught in the overloaded first and second years) by a remarkable 30 percent. Attention has now turned to restructuring of the graduate program, where consolidation of some courses will help offset costs in an area of training that is one of the most expensive for the school to produce.

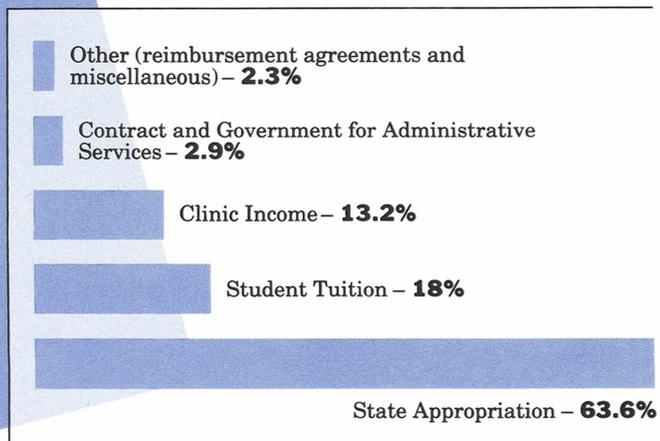
"We have re-engineered the school to promote patient access, reduce costs and administrative demands, and underscore the school's commitment in the areas of teaching, research, and service," says Mr. Finkel. "We must continue to look aggressively at ways to financially sustain the changes that are made."

As the school headed into the 1993-94 academic year, Mr. DeHayes worked with the school's Planning Committee to obtain in-depth strategic plans from the school administration and from each dental department. "We've got the game plan for next year," says Mr. Finkel. "This school-wide planning process helps to keep everyone focused on their goals—and I think the strategic plan lends a greater sense of ownership to people within the departments. We have collectively identified where we want to be a year from now. The economic model helps each of us examine and better understand funding mechanisms associated with all school activity so that we can continue to meet goals and offer services that are integral to IU's outstanding program in dental education." ■

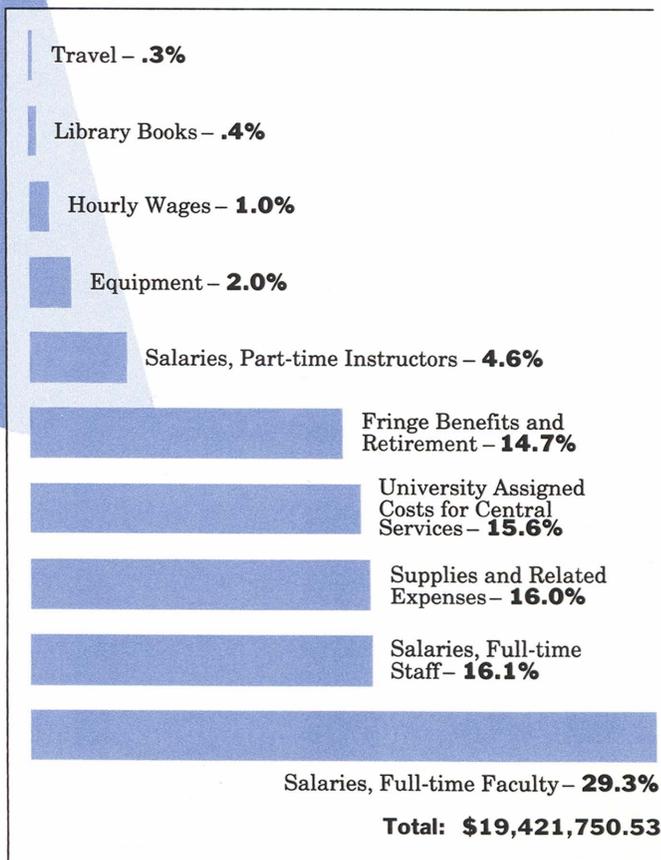
BUDGET

Indiana University School of Dentistry – July 1, 1992– June 30, 1993

Operating Income



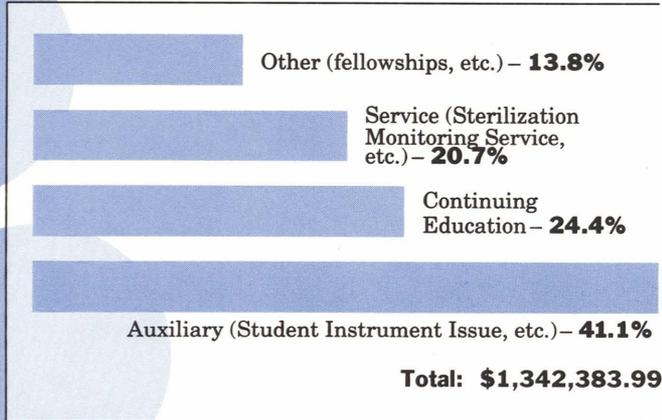
Operating Expenditures



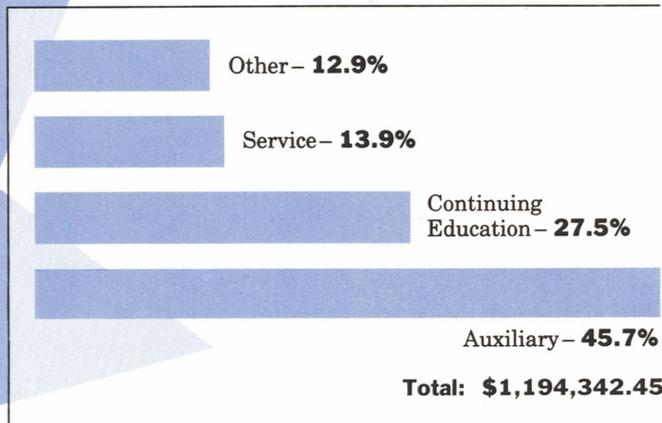
BUDGET (continued)

Miscellaneous Income

(excluding Research and Gifts to IU Foundation)



Miscellaneous Expenditures



Building New Departments

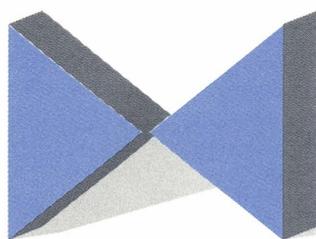
The most striking of all changes taking place at the Indiana University School of Dentistry is the restructuring of its departments. With the overriding goal of reducing the number of faculty hours spent on administrative tasks—and thereby increasing the number of hours devoted to teaching, research, and service—the school's 13 departments were reconfigured into six groups at the close of the fiscal year. National searches are under way to select six persons to

RESTORATIVE DENTISTRY

- endodontics
- dental materials
- operative dentistry
- prosthodontics

chair the new departments, which are being designed to support a communication network that will demand input—and accountability—from each of us.

The departments are described in the following pages, and three of the newly appointed chairpersons are introduced.



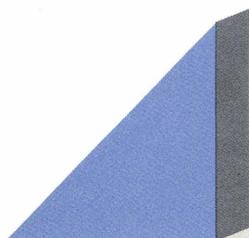
DIAGNOSTIC SCIENCES

- oral diagnosis
- oral medicine
- oral pathology
- oral radiology



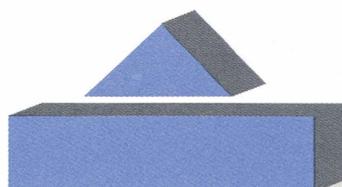
SURGERY AND HOSPITAL DENTISTRY

- oral and maxillofacial surgery
- hospital dentistry



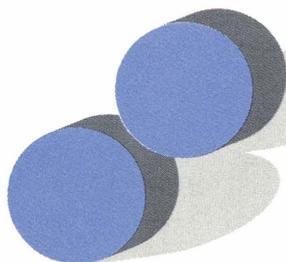
ORAL FACIAL DEVELOPMENT

- craniofacial anomalies
- oral facial genetics
- orthodontics
- pediatric dentistry



ORAL BIOLOGY

- oral microbiology
- preventive and community dentistry
- oral biochemistry



Periodontics and Allied Dental Programs

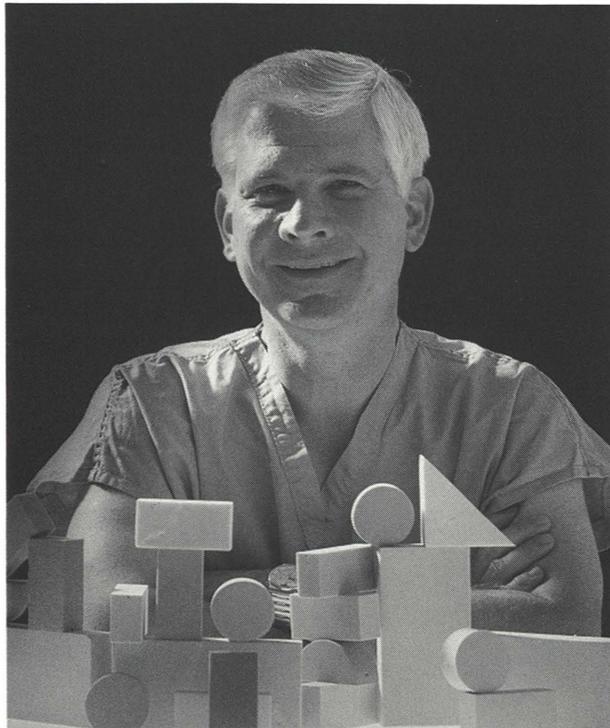
- dental assisting
- dental hygiene
- periodontics

Surgery and Hospital Dentistry

Providing a full range of dental services in the hospitals at the IU Medical Center and developing a curriculum in hospital dentistry for predoctoral students are the primary goals of the new Department of Surgery and Hospital Dentistry, which is chaired by Dr. Charles L. Nelson, an associate professor of oral and maxillofacial surgery who had chaired IU's former oral and maxillofacial surgery department for the past three years.

This department has undergone the least amount of structural change of the school's six new departments. Surgery and Hospital Dentistry is not a combination of several former departments. It is perhaps best described as the former department of oral and maxillofacial surgery that now encompasses a significantly expanded view of its mission on the campus.

Within the new scope of the department, Dr. Nelson envisions dentistry as an integral part of healthcare services in the hospitals.



Dr. Charles L. Nelson, chair of the Department of Surgery and Hospital Dentistry

“My goal is to make dentistry indispensable to the hospital setting,” he says. “Indiana University Hospital is a tertiary care facility and patients who seek care here often have complex medical problems, many of which have oral implications. There is a need to provide oral healthcare to a great many types of patients in addition to those requiring surgery—for persons undergoing transplants, for example, or those with infectious diseases who are in need of general dentistry. Oral disease can jeopardize the success of medical therapy and pose a significant risk of morbidity and mortality. We plan to incorporate all types of oral healthcare services into the hospital environment by means of a well-defined, highly organized program. This care will be managed by a full-time hospital dentist who makes daily rounds of the wards.”

Long-range plans call for the creation of a fellowship to provide training in hospital dentistry to a postdoctoral student.

Last year the dental school's oral and maxillofacial surgery hospital residency program moved from Long Hospital to the new Outpatient Center connected to University Hospital. The four-year program accepts two residents annually.

The department also oversees a hospital surgery program at Regenstrief Institute for Health Care, and maintains the records of all IU dentists who have hospital privileges in any of the healthcare facilities on the medical center.

The biggest physical change to the department in terms of the school's restructuring effort was the closing of surgery's predoctoral clinic on the second floor of the dental school. Predoctoral surgery is now accomplished in the former dental diagnostic sciences clinic on the first floor, where emergency services are now provided by the new diagnostic sciences department.

The undergraduate surgery curriculum has been streamlined in preparation for courses that will introduce students to hospital dentistry and better prepare them to meet the needs of the communities where they will practice. “Private practitioners are being asked more and more often to play a role in the care of hospitalized and medically compromised patients,” says Dr. Nelson, who is working with the department to create a curriculum that will expose predoctoral students to both inpatient and outpatient

Oral Facial Development

hospital dental care. The new courses are planned to be ready by fall semester '94.

Dr. Nelson holds two degrees from IU (AB'73, DDS'76) and is a 1979 graduate of Indiana's oral and maxillofacial surgery certificate program. He joined the faculty 11 years ago, after serving for three years as chief of oral and maxillofacial surgery at U.S. Air Force Regional Hospital, Carswell Air Force Base, Texas.

Dr. Nelson is jointly appointed as an associate professor of plastic surgery at the IU School of Medicine. He is assistant director of the IU Medical Center's Craniofacial Team.

Awarded diplomate status in the American Board of Oral and Maxillofacial Surgery in 1985, Dr. Nelson was president of the Indiana Society of Oral and Maxillofacial Surgeons in 1988-89.

Among his publications are textbook chapters for pediatric dentistry, oral and maxillofacial surgery, and plastic and reconstructive surgery. He has made numerous presentations of competitive scientific papers and posters throughout the country. He is a co-investigator on two major IUSD studies pertaining to endosseous implants.

Dr. Nelson reports that faculty member Dr. Mark E. Wohlford is leading the research arm of the new surgery department, conducting projects of his own as well as developing a departmental research initiative that involves graduate and undergraduate students and residents. One area of Dr. Wohlford's work is featured in a report beginning on page 42. ■

This new department is an umbrella organization for the dental school's former departments of oral facial genetics, orthodontics, and pediatric dentistry, and for a new division involved with the treatment of persons with craniofacial anomalies. Dr. W. Eugene Roberts, chair of IU's orthodontics department for the past five years, has been appointed to head the new Department of Oral Facial Development.

During this initial stage of the restructuring program, the department has completed an in-depth financial analysis involving all facets of the program. "We started from the ground up, looking at all costs related to teaching, research, and service for every graduate and undergraduate program in the new department," says Dr. Roberts. The goal is to identify strengths and weaknesses within the system so that the group can shape an extensive educational program that is as cost effective as possible.

"Each division will contribute to three academic products—predoctoral education, graduate specialty training, and research," says Dr. Roberts. "All service in the department will



Dr. W. Eugene Roberts, chair of the Department of Oral Facial Development

be directed toward support of one of the three products.”

Oral Facial Development, like every other new department that has been formed by the merging of several departments, comes equipped with its own unique problems and challenges. “Our department presents special administrative challenges because we have three large clinics that are very spread out,” says Dr. Roberts, referring to the orthodontic and undergraduate pediatric dentistry clinics, which are in different sections on the second floor, and graduate pediatric dentistry, which is housed across the street at the James Whitcomb Riley Hospital for Children.

For several months representatives from each group have been meeting together on Monday mornings to become familiar with one another’s routines and to better enable the department to stay focused on achieving mutual goals over the next three years.

Of primary importance to the department’s mission, says Dr. Roberts, are its commitments to 1) produce appropriately trained graduates that utilize critical scientific analysis, effective communication skills, and social sensitivity in providing excellent clinical treatment for a broad spectrum of oral facial development problems; and 2) nurture an attitude of life-long professional training (undergraduate, graduate, and continuing education) through mutual respect and intellectual challenge within a supportive environment.

The department is gearing up to advance oral facial health and well-being by way of a broad spectrum of scientific investigations. Although IU’s orthodontic department has been best known in recent years for the research it conducts for the National Aeronautics and Space Administration, there are many other programs under way including major studies involving dental implants. The latter are funded by the National Institute of Dental Research and private sources.

Dr. Roberts sees great opportunity in the future for research collaborations between faculty in orthodontics, prosthodontics, periodontics, and surgery. “We are interested in the use of dental

implants in the treatment of patients with a variety of dental deformities and acquired disorders,” he says. “Patients who have lost substantial numbers of teeth and perhaps have other problems such as a malignancy or a collapsed bite often require very complex treatment procedures, including implants, to restore them to normal function,” he says. “I see this as an increasingly important focus of our work.”

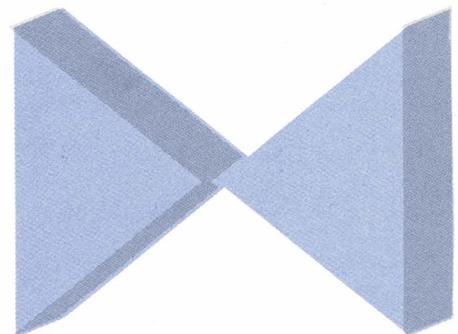
Dr. Roberts came to IU in 1988 from the University of the Pacific (UOP) School of Dentistry, San Francisco, where he was a long-time professor of orthodontics and anatomy, and director of the Pacific Bone Research Laboratory.

Dr. Roberts is a 1967 dental graduate of Creighton University, Omaha, Neb. He also holds a PhD degree in anatomy from the University of Utah (’69) and a certificate in orthodontics from the University of Connecticut (’74). He practiced part time for 14 years in California and has maintained a part-time faculty practice since coming to Indiana.

Dr. Roberts’ service in the U.S. Navy (1969-71) earned him a Commendation Medal as well as recognition for his assistance to Vietnamese civilians during a tour of Vietnam.

Dr. Roberts became a senior research associate for NASA while he was on the faculty at UOP, and he retained the position after moving here. A bone research laboratory established shortly after Dr. Roberts’ arrival has contributed to NASA’s Spacelab Life Sciences program, helping NASA gain a better understanding of the effects weightlessness in space has on bone formation. Projects prepared by the IU team flew aboard space shuttles in June 1991 and in April and October of 1993. The April mission is featured in a report beginning on page 38.

Dr. Roberts is widely published and has presented many continuing education programs worldwide. He is a diplomate of the American Board of Orthodontics. ■



Restorative Dentistry

Shortly before this annual report went to press, it was announced that Dr. Maxwell H. Anderson, assistant professor of restorative dentistry at the University of Washington and editor of the journal *Operative Dentistry*, has accepted the chair of the new Department of Restorative Dentistry, effective January 1994.

The department comprises the former departments of dental materials, endodontics, operative dentistry, and prosthodontics. Since last spring Dr. Philip C. Rake, assistant professor of prosthodontics, has led the restructuring effort as acting chair of restorative dentistry; he will continue to preside over the department until Dr. Anderson's arrival.

Formation of the restorative dentistry department has presented one of the biggest coordinating challenges of the school's entire restructuring program because it combines more departments and affects far more faculty and staff members than any of the other areas. The third floor (where all divisions except dental materials of the new restorative group are located) has largely been reassigned to activities associated with the Comprehensive Care Program, the clinical cluster system for predoctoral and dental auxiliary education students. To achieve the goal of assigning cluster directors to offices near their clinic areas, and thereby increasing their availability to students, the offices of several faculty members in restorative dentistry were relocated to other floors of the building. To make way for the Comprehensive Care Program, the former prosthodontic department has also had to relinquish rooms that were used for faculty research and graduate thesis preparation.

"We are tight on space," says Dr. Rake, "but a key objective of all the new departments is to support the clinic system. And now the school has a clinical floor that is equipped for students to provide as many services as possible for the comprehensive care of their patients."

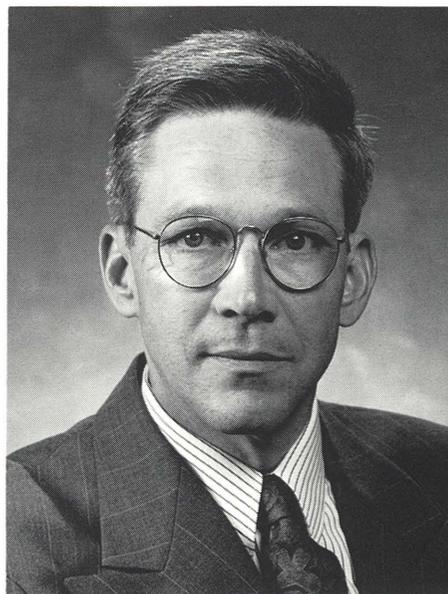
Although much work remains to be done in the creation of each new department, Dr. Rake, who graduated from the IU dental school 22 years ago, believes that the rebuilding of his alma mater will be worth all the energy that is being expended if the end product is a better

educational program for students. When he speaks of his ties to Indiana University, it is clear that he believes the school's future success will be deeply rooted in the best this school has had to offer in its past.

"We're teaching more than dentistry here," he says above the sounds of construction going on in offices near his. "This school is one of the last places where our generation has the opportunity to pass values along to the coming generation. We owe it to the students to take care of them while they are with us — faculty like Paul Lew and Ray Maesaka passed their values on to me when I was a student. I'd like to see more of those kinds of relationships develop between faculty and students."

Dr. Rake sees potential in the Comprehensive Care Program. "The program dismantles departmental lines, clinically," he says. "In the former program, prosthodontic teachers such as myself were limited to our responsibility of overseeing the prosthodontic care of patients. Today the department provides faculty as consultants to teach specific procedures in the clusters, but it is the mission of every faculty member to contribute to the overall care of the patient. We are now in positions where all of us must look beyond our own specialty, which should promote more consultations with faculty in other departments—and a better learning environment for our students. By trying to imitate a general practice in the clusters at the school, we can more effectively teach students to think about their patients in comprehensive terms when they become practitioners."

In the past half year restorative dentistry weathered the most difficult challenges in putting together a dramatically revised predoctoral curriculum, which is addressed in a report beginning on page 12.



Dr. Maxwell H. Anderson, chair of the Department of Restorative Dentistry

Diagnostic Sciences

The graduate program in maxillofacial prosthetics, which also falls under the umbrella of restorative dentistry, is being moved from the Regenstrief Institute for Health Care to the fourth floor of the dental school.

The School of Dentistry looks forward to the arrival of Dr. Anderson, who is a former Commander of the U.S. Navy Dental Corps. His distinguished naval career included stints as chair of operative dentistry at the Naval Dental School in Bethesda, and at the Naval Dental Clinic in San Diego. He served on the White House treatment team and was a specialty adviser for operative dentistry to the chief of the Navy's Bureau of Medicine and Surgery. He was the recipient of two Meritorious Service medals.

Dr. Anderson holds a dental degree from the University of Nebraska ('76), a master's of science degree from the University of Michigan ('83), and a master's of education degree from George Washington University ('88). He completed a one-year general practice residency at Portsmouth (Virginia) Naval Hospital in 1977.

Dr. Anderson received certification by the American Board of Operative Dentistry in 1988 and currently serves on its executive council. He is a member of numerous professional organizations, including the Academy of Operative Dentistry, for which he has just completed serving a two-year term as chair of the research committee; Omicron Kappa Upsilon honor society; and the Cariology Group of the American Association for Dental Research. He is a fellow of the American College of Dentists and the International College of Dentists.

Dr. Anderson maintained a part-time faculty practice during his tenure at Washington.

He has presented clinics and lectured extensively throughout North America and in Central America, Europe, and Asia. ■

The new Department of Diagnostic Sciences comprises the former departments of dental diagnostic sciences and oral pathology. Dr. Lawrence I. Goldblatt, professor of oral pathology, has been serving as acting chair of the department while a national search is under way for a new department head.

It is the general mission and obligation of the department to set and meet international standards of excellence in the oral diagnostic sciences, according to Dr. Goldblatt. This mission will be met through its educational, research, and service activities.

The educational goals will be achieved through a curriculum integrating all the diagnostic sciences, fully utilizing and synergizing the diverse strengths of the included disciplines and faculty to benefit the students. The centerpiece of the instructional effort will be the education of the general dentist of the future, with the predoctoral curriculum designed to interrelate in a logical manner the nature of disease, its diagnosis and management. The diagnostic sciences curriculum will epitomize the intimate interrelationship between medicine and dentistry and help lead the entire curriculum in the direction of the medical model. "After completing our curriculum, the student will fully understand how the oral diagnostic sciences function as the true hub interconnecting the basic, preventive, and therapeutic oral health sciences," says Dr. Goldblatt.

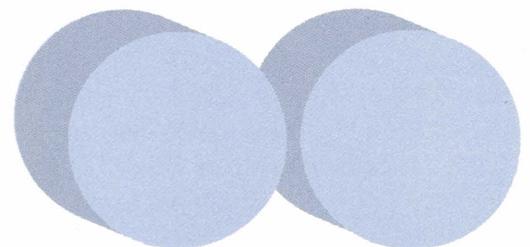
Enriching the predoctoral curriculum will be a strong program of postdoctoral education closely linked to funded research, combining the strengths of the existing programs where possible while

retaining their unique directions and missions. In addition, first-rate services will be maintained under the auspices of the department in the following areas: 1) surgical oral pathology; 2) clinical stomatology (non-neoplastic mucosal disease); 3) temporomandibular disease and oro-facial pain; and 4) oral and maxillofacial imaging. "These services will also be linked closely to the academic and research activities of the department to create a mutually supportive group of activities designed to fulfill our mission and that of the School of Dentistry," says Dr. Goldblatt.

An exercise designed by diagnostic sciences faculty to test clinical competency in diagnosis and treatment planning received praise from the ADA's accreditation site team during its visit to IU last October. Dr. Margot L. Van Dis described the 90-minute clinical and written examination to the faculty at large at a meeting in the winter.

The department anticipates the arrival in January 1994 of Mostafa Analoui, PhD, an engineer formerly at Ball State University who has been appointed to direct a new state-of-the-art imaging facility located on the dental school's second floor. The facility is expected to play a key role in the education of predoctoral students and serve as an important patient referral division for dentists and physicians throughout the state.

New faculty member Dr. Mark A. Saxen will be adding his knowledge of facial pain and expertise with temporomandibular disorders to the newly assembled group as director of the TMD clinic and will be expanding the department's clinical research program. ■



Periodontics and Allied Dental Programs

Teamwork in dentistry is the maxim of the new Department of Periodontics and Allied Dental Programs, which includes the former periodontics department as well as the dental assisting and dental hygiene training programs of the former division of dental auxiliary education.

Serving as acting chair while the national search for a department leader is under way is Dr. E. Brady Hancock, who chaired IU's former periodontics department from 1987 to 1993.

Under Dr. Hancock's guidance, the new group has devoted the first months of the restructuring effort to laying a foundation for the department that will retain the identities of periodontics, dental hygiene, and dental assisting while simultaneously achieving a level of integration among the three areas that is unprecedented in its scope.

The clinic clusters on the third floor will provide the ideal environment for students of dentistry, dental hygiene, and dental assisting to pool their resources as members of the oral healthcare team, says Dr. Hancock, who notes that until the clusters were created in 1992, dental hygiene students treated their patients exclusively in a fourth-floor clinic remote to the rest of the school's clinical education activities.

"Even after the dental hygiene students began to rotate through the clusters, there was still no team interaction in the true sense," says Dr. Hancock. "They were assigned their own patients, and it was merely coincidental that dental hygiene students worked in the same cluster at the same time with dental students."

In the new system first-year dental hygiene students continue to see patients in the fourth-floor clinic, but second-year students are now assigned to the clusters, where they provide care for many of the same patients who are being treated by dental students. Dental assisting students have also begun gaining experience in the clusters at an earlier point in their nine-month training program.

"Interaction among the students in

the clusters will enable dental hygiene and assisting students to learn to work in a setting that more realistically resembles a dental practice setting and will give dental students the experience of working effectively with dental auxiliary professionals," says Dr. Hancock. Productivity of dental hygiene students is expected to increase in the cluster environment, just as it did when predoctoral students entered the clusters and were given the freedom to schedule additional patients as they built up their speed as practitioners.

Dr. Hancock is hopeful that the team approach will eventually be applied to all facets of the departmental teaching program. "I'd like to see cross utilization of personnel, with dental hygiene faculty teaching instrumentation to dental students in the periodontics laboratory and nonsurgical periodontal procedures to dental students in the clusters."

The department has implemented numerous changes to the predoctoral curriculum that have deleted material duplicated in lectures taught in other departments, placed courses in a more appropriate sequence, and boosted didactic exposure to surgical concepts related to dental implants, regenerative procedures, and other topics of increasing interest to general practitioners.

With the goal of reducing the number of hours faculty devote to administrative duties, it is planned that the dental hygiene curriculum committee, formerly composed of all faculty teaching dental hygiene students, will be reconstituted to a five-member group, including a representative from the student affairs office and one cluster director.

Graduate students of periodontics continue to treat their patients in two fourth-floor clinics in the division of periodontics—an eastside clinic, where most surgical procedures are performed; and a clinic across the hall, where root planing and periodontal examinations are undertaken. (The dental units on the fourth-floor balcony that many alumni may remember as the graduate periodontic clinic were removed five years ago. Periodontic faculty offices remain on the balcony.) ■

Oral Biology

The former departments of oral microbiology and preventive and community dentistry have merged under the new Department of Oral Biology, which will also oversee a division of oral biochemistry and include representation from the Medical Center basic science disciplines of anatomy, histology, physiology, pharmacology, and pathology.

Dr. Chris H. Miller, who chaired the former oral microbiology department, has led the restructuring effort of this area as acting chair of the department. A national search for the chair continues as of this writing.

The recreated department brings faculty from different basic sciences under the same administrative jurisdiction for the first time. The regrouping also involves several faculty members who are dentists, including two of the school's six cluster directors—Dr. Christianne J. Guba and Dr. Larry D. Ryan.

"This blending of the clinical and basic science faculty offers us a unique opportunity to correlate clinical activities with the scientific aspects of dentistry," says Dr. Miller. "It is perhaps the biggest advantage we see in consolidating the former departments. When students are learning, for example, to prepare a restoration in the clinic, that is the ideal time to talk with the student about the etiology of that particular carious lesion and to discuss plaque, microorganism involvement, and biochemical aspects of the problem."

After introducing this method of teaching and reinforcing basic science information in their own clinical courses, the oral biology faculty plans eventually to expand the application of this practice throughout the predoctoral clinical curriculum.

Members of the oral biology department are united in spirit and mission, if not in location. Oral microbiology faculty and staff continue to be housed in the Oral Health Research Institute

Building a Dynamic Curriculum

across the street from the dental school, and preventive dentistry faculty and staff are still located in offices in the school's basement.

The campus's Nicotine Dependence Program, run primarily by oral biology faculty, is located on the dental school's second floor. A profile of one of the program's patients begins on page 44.

The oral microbiology division of the new department continues to serve as the hub of the school's infection control services, regulating and monitoring all aspects of infection control throughout the clinics and laboratories and providing services to maintain the health and occupational safety of patients, students, and employees.

In the next year the department plans to develop a microbiology diagnostic laboratory service that would offer microbial identification and antibiotic sensitivity testing to the dental community. ■

There still isn't a lot of time left over to stop and smell the roses, but first- and second-year dental students at Indiana University can at least stop and catch their breath as they make their way through a new curriculum that has cut credit and contact hours to help young scholars savor the rarest of rare commodities in dental school: a bit of time to oneself.

In 1992, as many as 37 hours of a first-year student's 40-hour week were appropriated by back-to-back lectures and laboratories that left virtually no prep and study time for students enrolled in a formidable 26.5 credit-hour spring semester.

Eight clock hours per week have now been shaved from that semester—and an overall 30 percent reduction of contact hours in the first- and second-year non-basic science courses has been achieved.

The major overhauling of the curriculum

required creativity, patience, coordination, and compromise from faculty members in the six new departments. The job was accomplished

primarily by re-sequencing existing courses, reducing the number of hours spent on some lesser-used techniques, and eliminating duplication of material taught in multiple courses.

"The departments were charged with a directive from the IUSD Planning Committee to clear out unnecessary duplication of material, make room for vital new material, and give students more time to digest what they are learning," says Dr. Donald R. Tharp, associate dean for clinical affairs.

The lion's share of this school-wide challenge fell to teachers in the new restorative department, representing

faculty in operative dentistry, prosthodontics, endodontics, and dental materials.

"Our responsibility was to reduce the number of contact hours spent in restorative dentistry courses so that students could have more time to study for *all* of the classes they take, including their basic science courses," says Dr. George P. Willis, director of the first-year operative dentistry technique course.

By combining tooth morphology, formerly a course of its own, with operative dentistry lectures and labs, a significant savings in clock hours was achieved. "Anatomy and restoration of single teeth are now presented in one course," says Dr. Willis. "The material is presented in better sequence, and the overlap of material from the two courses has been cut."

Changes also have led to less overlap in the teaching of casting techniques by operative dentistry and prosthodontic faculty. "Both groups have reduced the number and type of castings required of students," says Dr. Willis. "The idea is to

"In the past we may have given students so much material, it was difficult for them to determine relative importance. They may have grasped several concepts that weren't critical—and missed the most significant point."

concentrate more on tooth preparation and less on laboratory procedures."

Students will be doing fewer waxing projects and less work with gold foils, and the new curriculum allows more time for cosmetic dental restorations such as porcelain laminate veneers and a new assignment of preparing indirect resin inlays.

"I'd rather have students learn 10 techniques well than 20 not so well," says Dr. Philip C. Rake, who as acting chair of restorative dentistry supervised changes to the restorative curriculum. "In the past we may have given students so much material, it was difficult for them to determine relative importance. They

may have grasped several concepts that weren't critical—and missed the most significant point.” Dr. Rake credits Dr. Willis, Dr. Timothy J. Carlson, associate professor of operative dentistry, and Dr. Rose Marie Jones, associate professor of prosthodontics, with making the difficult choices that were necessary to meet the time reduction recommendation. “We couldn't have accomplished this prioritizing of future practitioners' needs without their support,” he says.

“It was a lot of work, but I enjoyed it,” says Dr. Willis. “It challenged our creativity to see what could be accomplished in our classes in a shorter amount of time without sacrificing the quality of the end product. In my own course, I'm pleased that even with all the cuts, we've been able to retain all aspects of the teaching of motor skills—basic operator skills—that are essential to good dentistry.”

And students who need to practice those skills will now have time to do so, notes Dr. Willis, who understands the deep distress some straight-A undergrads feel when they suddenly find themselves earning C's and D's after they enter dental school. “The free time will permit more practice of micro-motor skills for students who haven't yet developed precise hand-eye coordination,” he says.

Other students may wish to take advantage of the extra time to conduct a research project in IUSD's growing predoctoral research program, or to observe clinical cases undertaken by graduate students and faculty involving implants and other advanced technologies. “Or they may just want to devote more hours to preparing for a tough course such as human anatomy,” says Dr. Tharp, noting that anatomy and histology are the only classes dental students take with medical students, who by tradition have dealt with a much lighter semester load than have their dental classmates.

A Basic Science Committee also has been reactivated during the past fiscal year to ensure the best possible coordination between the basic and

Lightening the Load		
Restructured Curriculum for 1st- and 2nd-Year Dental Students		
	1992 (former curriculum)	1993 (new curriculum)
	<i>Fall Semester</i>	<i>Fall Semester</i>
1st Year:	23 credit hours 31.2 clock hours per week	19.5 credit hours 25.8 clock hours per week
2nd Year:	26.5 credit hours 37 clock hours	21 credit hours 29 clock hours
	<i>Spring Semester</i>	<i>Spring Semester</i>
1st Year:	24 credit hours 32 clock hours	20 credit hours 26 clock hours
2nd Year:	20 credit hours 32 clock hours	18 credit hours 29 clock hours
2-Year Totals:	93.5 credit hours 132.2 clock hours	78.5 credit hours 109.8 clock hours

clinical sciences. The group is composed of both medical and dental faculty and includes clinicians as well as basic science teachers.

The newly restructured departments have been a boost to the transition of the curriculum and will be a primary factor in maintaining the integrity of a continually evolving curriculum. “Because we're one big department now, it is much easier for us to all sit down together and discuss what each of us is doing,” says Dr. Willis.

A new IUSD Curriculum Committee composed of one representative from every department will work with a new set of guidelines to closely monitor curriculum changes in the future. Dean H. William Gilmore recently named Dr. William F. Hohlt, an assistant professor of orthodontics in oral facial development, to chair the group. His appointment is effective January 1, 1994. The committee must seek voting approval from the IUSD Faculty Council to implement any significant change to the dental program.

In other curriculum matters at the dental school, the Dental Hygiene Curriculum Committee voted to retain

the division's new required summer session clinic for second-year students, introduced in 1992, and to continue offering two didactic courses in the summer as well. Radiology and oral pathology were offered in summer '92; the committee voted to offer radiology and periodontics in summer '93. The committee also has been working toward the goal of transferring the required anatomy and physiology courses to the prerequisite category. Due to the shortage of available courses, however, the deadline for requiring these courses as prerequisites has been postponed until the fall of '95.

The Dental Assisting Curriculum Committee voted to place students into the comprehensive care clinic at a much earlier point in their program—just after midterm of fall semester. The change is expected to enhance the dental assisting students' experience in a “private practice” setting and to increase opportunities for dental students to learn to communicate effectively with dental auxiliaries. The dental assisting faculty will take advantage of the increased time in the clusters to gather clinical data of value to a number of research proposals. ■

Building From a Solid Foundation

IUSD responds to recommendations from the ADA's Commission on Dental Accreditation.

As reported in the summer '93 issue of the *Alumni Bulletin*, the enormous amount of work that faculty, staff, and students put into preparations for last year's site visit from the American Dental Association Commission on Dental Accreditation was well worth the effort. The Commission subsequently adopted resolutions to continue the "approval" status for eight of the dental school's programs.* The school's ninth program, advanced education in oral and maxillofacial surgery, was reviewed on a different time cycle nine months after the other programs were reviewed. Dr. Charles L. Nelson, chair of surgery and hospital dentistry, recently received word that the surgery program has also had its approval status continued by the Commission.

Dean H. William Gilmore was extremely pleased by the excellent evaluation and proud of the effort put forth by the many people who work and study at the dental school.

"No outside consultants were hired to undertake the tremendous tasks of preparing for the accreditation site visit and responding to the Commission's recommendations," Dean Gilmore emphasizes. "We conducted our own self-study prior to the Commission's arrival—and the findings of that study were very much in line with what the site visitors reported after their week here. Our faculty and staff responded quickly with comprehensive solutions to the Commission's recommendations, and we have already implemented most of the recommended changes."

The site team was composed of 16 dental professionals from universities throughout the country, and their week-long visit took place in October '92.

Perhaps the best way to illustrate how well Indiana's dental school did in

*The Commission also adopted a resolution to discontinue accreditation of the advanced education program in general dentistry. This action was taken at the request of the IU dental school administration because the 12-month postdoctoral program was already in the process of being phased out of the school's graduate curriculum.

the accreditation review process is to compare it to the results of another successful site visit—our own, from 10 years ago. The Commission submitted a total of 52 recommendations in 1983 compared to 23 recommendations this year.

A list of these 23 recommendations (12 for predoctoral dentistry, seven for dental auxiliary education, and four for graduate dentistry) and the school's responses to the recommendations are shared in the following pages.

Copies of the school's self-study report and the Commission's 1993 site-visit report are on permanent file in their entirety in the IU School of Dentistry library for anyone who would like to peruse them.

Predoctoral Dental Education Program

It is recommended...

1) that the principles of the scientific method be taught and appropriately applied in the curriculum.

and

2) that the curriculum give evidence of an opportunity for students to demonstrate problem solving, utilizing the scientific method in basic, behavioral and clinical sciences.

Response to 1 and 2: A special committee was appointed to develop a unit of instruction on the scientific method and problem solving. After numerous meetings, the committee recommended that principles of scientific method should be formally introduced to students through *D503, Practice Administration* (Behavioral Management), which is offered in the first semester of the first year of study.

It was noted by the committee that principles of the scientific method and problem solving are already being taught at IUSD in several courses, but are not specifically identified within the curriculum. The committee recommended that all course directors use examples of appropriate classic studies emphasizing the use of scientific method and problem solving in all classes. When basic or clinical case histories are presented, instructors will cite examples to illustrate how the use of the scientific method and problem solving relate to clinical practice.

Also to be emphasized are opportunities within selected courses for students to conduct reviews of research articles and to present "classic studies" and case histories.

3) that, if a student does not meet the didactic and/or clinical criteria as published and distributed, an individual evaluation is performed that leads to remediation and re-evaluation, dismissal or other appropriate action.

Response: A special half-day faculty meeting was held on January 28, 1993, to formalize policies on remediation and clinical competency. Following that meeting a faculty council meeting was held, during which the proposals from the previous meeting were amended and adopted as school-wide policy. Many of the didactic and clinical course directors do in fact offer a variety of opportunities for individual student remediation, both during the actual course and after it has been completed. Remediation takes various forms, including voluntary class review sessions, individual instruction, individually assigned papers, individual "make up" examinations, and entire courses remediated during summer session. Nevertheless, the IUSD faculty members understand and appreciate the recommendation that a formal policy be adopted and followed. Accordingly, a policy statement was approved by the IUSD Faculty Council.

4) that the school have an ongoing curriculum review and evaluation process which includes input from faculty, students, administration and other appropriate sources.

Response: As noted in the report of the Site Visit Committee, curriculum review and evaluation have been irregular in the past few years. Also noted is the fact that the Planning Committee recently has been engaged in an in-depth review of the curriculum that not only is as devoid of redundancy and as full of current material as possible, but also is structured in a way that frees more time for students to study and to engage in clinical activity and for faculty to engage in scholarly pursuits. In order to regulate this curriculum and to protect the principles upon which it is based, a new Curriculum Committee has been constituted through an amendment to the IUSD Faculty Bylaws. The nature and operating guidelines of this committee are described below in our response to Recommendation #5.

5) that, in order to provide the best opportunity for learning, a standing committee charged with curriculum oversight a) evaluates courses with respect to the goals and objectives of the school; b) coordinates and administers the curriculum; and c) ensures the minimiza-

tion of unwarranted material, appropriateness of emphasis and presentation mode and proper sequencing.

Response: The Curriculum Committee is a standing committee of the IUSD Faculty Council. It is composed of six members nominated and elected by the faculty and a chair appointed by the Dean. Each of the six members represents a separate academic department of the school. In addition, a student designated by the Student Affairs Council, the dean, and the associate deans for academic affairs, clinical affairs and student affairs serve as non-voting consultants to the Committee. The associate dean for academic affairs provides the administrative support for the Committee. The Curriculum Committee charged with oversight of the curriculum a) evaluates courses with respect to the goals and objectives of the school; b) coordinates and administers the curriculum; and c) ensures the minimization of unwarranted repetition, deletion of outdated and unnecessary material, appropriateness of emphasis and presentation mode and proper sequencing.

Once the New Curriculum is approved by the Faculty Council, the Curriculum Committee will use the following general guidelines to administer the curriculum:

- a) Any substantive change in the content of any course or any prerequisite course within the dental curriculum must be approved by the Committee.
- b) Any additions to or augmentation of a course must be approved by the Committee and accompanied by recommendations for deletion of at least an equal number of hours elsewhere in the curriculum associated with the same department and in the same semester.
- c) At the end of each semester, the Committee will review outcome assessment documents for each pre-doctoral course and department. These same outcome assessment documents should serve as a basis and support for any course changes proposed and approved by the Committee.
- d) The Committee will review the entire curriculum annually to ensure that it includes the most current material and concepts.
- e) The dental auxiliary curricula will be managed by appropriate subcommittees of the Curriculum Committee;

they will report to the Faculty Council through the Curriculum Committee.

6) that, in those instances in which instruction is provided by or shared with another component of the institution or other institutions, written agreements are in place to ensure that the dental school retains the primary responsibility for its curriculum.

Response: A strong relationship continues to exist with the Indiana University School of Medicine. A large portion of the basic science education is produced by School of Medicine faculty members, who meet on a regular schedule to coordinate instruction. The Dean of the School of Medicine, Dr. Walter Daly, signed a new agreement pledging this support and ensuring the School of Dentistry faculty that it retains the primary responsibility for its curriculum.

7) that, when basic science and other components of instruction are provided from outside of the dental school, it is clearly demonstrated that the instruction is responsive to the needs and objectives of the dental education program.

Response: A Basic Science Committee has been formed. It is composed of all basic science course directors in both the medical and dental schools, the dean, and associate dean for clinical affairs, the associate dean for graduate programs and academic affairs, and the chair of the Curriculum Committee. The group has met three times during the last six months and will meet at least four more times during the coming year. This committee is discussing:

- a) curriculum changes in the basic sciences
- b) introduction to problem solving by way of the use of the scientific method
- c) technological advances
- d) clinical correlations

This committee, which includes clinicians, plans to consult with more of the clinical science faculty to ensure correlation of basic science with clinical dentistry.

8) that the objectives of each basic science instructional unit be stated relative to the expected clinical competency prescribed by institutional goals and objectives.

Response: The accreditation report commented that the educational objectives

for the basic sciences, as stated in the self-report, were both consistent (in spirit and in kind) with the standard and supported the clinical objectives of the curriculum. However, the report noted that these objectives, as written, were not entirely consistent in regard to the clinical competency prescribed by the institutional goals and objectives. To clarify this point, the objectives of the basic science courses have been restated to reflect instructional goals and objectives in relation to clinical competency.

9) that the body of basic science knowledge be sufficient to facilitate communication between the health professions in areas of mutual concern and to allow for rational interpretation and application of research and technological advances.

Response: This recommendation can be satisfied by having each individual basic science course director provide current technological literature (e.g., information about molecular biology and other emerging areas) in their courses on a regular basis.

Each department will be on the agenda for the quarterly scheduled meetings of the Basic Science Committee each year. Common areas of research activities, instructional methods and clinical applications will be the focus of each meeting. The clinical department leadership will also be invited to participate.

10) that the institution establish its definition of competency for student performance in all essential areas.

Response: Since the accreditation site visit, the following steps have been taken to assure compliance with this standard.

- a) Each clinical department was sent a copy of the recommendation along with the definition of competency (as stated in the *Accreditation Standards for Dental Education Programs*) and examples of methods to assess clinical competency.
- b) Using the above information, each clinical department was instructed to draft a proposal for clinical competency assessment procedures to be used by the department.
- c) A half-day conference on "Remediation" and "Assessing Clinical Competency" was held on January 28, 1993. All members of the full-time faculty and six student representative were the invited participants. During the conference, representatives of three departments

discussed their competency assessment approaches, and their remarks were followed by general discussion by the entire group.

- d) Following the conference, each clinical department finalized its competency assessment statements and submitted them to the associate dean for clinical affairs. These statements represent our current approach to assessing clinical competency in all essential areas.
- e) To assure future compliance with this standard, the School of Dentistry Faculty Council adopted the following on March 5, 1993:

"It is the policy of Indiana University School of Dentistry to develop and utilize effective methods of assessing clinical competency in each clinical area. The clinical competency assessment methods must be described in writing, placed on file in the Office of Clinical Affairs and reviewed annually by each department's faculty."

11) that mechanisms be established for continuously monitoring compliance with clinical asepsis, infection and hazard control protocols within the institution and affiliated sites.

Background: While the visiting committee observed clear evidence that the students, staff and faculty were aware of and familiar with the *Infection Control Manual*, a mechanism for continuously monitoring compliance with its prescribed procedures was not in place. At the time of the site visit, the infection control monitoring system, as presented by the chair of the infection control committee and in supporting documentation, involved an annual compliance report for each department/clinic/program; reliance on observation by clinic support staff and faculty; and self-monitoring by students, faculty and staff. Unannounced official visits to the clinic and laboratory areas by members of the infection control committee were also conducted. Although the present infection control protocol was intended to support and foster compliance, it did not establish a mechanism for continual compliance monitoring.

Response: The following steps have been taken to assure constant continued compliance with infection control guidelines:

- a) The clinic transaction ticket has been revised to require assessment of compliance with infection control

guidelines during every patient treatment. Assessment is done by the supervising dentist, with input from clinical staff.

- b) Follow-up on non-compliance with infection control guidelines is accomplished in the following manner:

▶ The supervising faculty member discusses any infection control concerns with the student. Each time an unsatisfactory grade for infection control is recorded on a student's clinic ticket, the faculty member is required to complete and forward an "Infection Control Non-Compliance Form" to the school's infection control coordinator. The infection control coordinator monitors future compliance for that student. Repeated offenses result in appropriate penalties being imposed, including suspension from clinics, or discipline by the associate dean for clinical affairs.

▶ On a monthly basis, a computer report of all unsatisfactory infection control tickets is forwarded to the school's infection control coordinator to match against non-compliance forms received. If a form is missing, the appropriate faculty member is contacted for required follow-up.

12) that dental radiographs be included in the written radiographic exposure log.

Response: An audit of the Ionizing Radiation Log in the IUSD patient records was conducted in all areas of the school by dental diagnostics department faculty, who found that faculty and students were in compliance. The audit was conducted with the support of the associate dean for clinical affairs. To insure that compliance occurs, a policy is now in place which requires the faculty member who orders the radiographic survey to sign the radiation exposure log and progress notes prior to the dispensing of any films.

Dental Auxiliary Education Program

It is recommended...

1) that a completely equipped emergency kit for use in managing laboratory accidents be accessible for the dental assisting program.

Response: An emergency kit, identical to those in each of the clinical areas, has been placed in the laboratory used by the dental, dental hygiene and dental assisting students in Room SB05. In addition to the usual emergency materials, a first-aid kit for treating injuries has also been placed in SB05.

2) that the curriculum provide dental assisting students with knowledge and skill required to perform dental assisting functions competently.

Background: Dental assisting students were presented with background information related to the application of anticariogenic agents during the fall semester in the preventive dentistry and nutrition course, A141. In the clinical setting students were taught to fill fluoride trays for placement. Actual application of the anticariogenic agents was completed by the dentist. Although the Indiana Dental Practice Act prohibited the delegation of application of anticariogenic agents by dental assistants, the dental assisting accreditation standards, which are national in scope, require that this clinical supportive function be included in the curriculum.

Response: A decision on this matter has not been reached at the time of this report because application of fluoride is in violation of the Indiana Dental Practice Act. Additional information will be forwarded as soon as it is received. The ruling is currently being reviewed by the State Board of Dental Examiners.

3) that the curriculum provide dental assisting students with the knowledge and skill required to competently provide oral health instruction including plaque control programs and basic dietary counseling.

Response: Time has been made available in A141, *Preventive Dentistry and Nutrition* and in A171, *Clinical Science* to provide dental assisting students with the knowledge and skill required to perform these functions in the clinical setting.

4) that the curriculum provide dental assisting students with the knowledge and skill required to competently perform laboratory procedures associated with chairside assisting.

Response: Time has been made available in A121, *Microbiology and Asepsis Technique* to clean appliances, and in A131, *Dental Materials* to polish appliances.

5) that the quality and variety of experience gained by dental assisting students in each assignment be considered as well as the quantity of functions performed.

Background: During spring semester, students were assigned to rotations in the following clinics within the School of Dentistry: comprehensive care, oral surgery,

endodontics, periodontics, orthodontics, and pediatric dentistry. While these assignments provided the opportunity for diverse experiences, no system was in place to monitor an individual student's day-to-day activities. Thus the faculty could not ensure that all students received a broad variety of clinical experiences.

Response: A clinical record has been given to the students, which is turned in once a week. The records are monitored by the dental assisting faculty and maintained by the program.

6) that all functions dental hygiene students are taught to perform be taught to clinical competence.

Response: In *E351, Advanced Dental Materials for Dental Auxiliaries*, dental hygiene students were taught to place and carve amalgam restorations and to place and finish resin restorations. Instruction and practice were provided so that all students reached a level of laboratory competence; however, they did not practice these procedures in the clinic. Therefore, students did not attain clinical proficiency in providing these services. This deficiency was noted at the time of the last site visit.

Revisions have now been made in course *E351*. Specifically, the laboratory portion of the course has been redesigned to provide a demonstration on the use of dental materials including amalgams, resins, temporary restorative materials, alginate and gypsum materials. The major objective of this approach is to enable the students to identify the principles, techniques and procedures for the manipulation of dental materials in a laboratory setting.

Incorporated with this course is instruction in finishing and polishing amalgam restorations and in placing pit and fissure sealants. These procedures are taught to clinical proficiency and are evaluated as part of the student's clinical requirements.

7) that periodic analyses be done to support the validity of the criteria and procedures used in selecting successful dental hygiene students and that adjustments be made when indicated.

Response: Some members of the dental hygiene faculty studied the correlation of student entering and exit data for the past five graduating classes of dental hygiene. The dental hygiene admissions process will be further reviewed and revised using the data collected.

Advanced Dental Education Programs

It is recommended...

1) that there be direct faculty supervision when advanced periodontics students perform surgical procedures.

Background: In the dental school clinic, faculty were assigned for all sessions and were immediately available for consultation with students and patients and for direct supervision when students performed surgical procedures. However, because none of the periodontic faculty had appointments at Riley Children's Hospital (located approximately two blocks from the school), there was no direct faculty supervision of students performing surgical procedures at this facility.

Response: Measures were taken to correct the scheduling of advanced students in periodontics in the only area not completely covered. An adequate number of full-time faculty in periodontics have applied for privileges at Riley Children's Hospital in the Department of Dentistry.

2) that equipment and supplies for use in managing medical emergencies in the advanced combined prosthodontics and advanced maxillofacial prosthodontics programs be readily accessible.

Response: Signs have been placed throughout the clinical areas clearly identifying the location of all medical emergency kits. The oxygen units are placed in clearly marked and visible locations in each clinic area during clinic operation and are secured after hours.

3) that measurement of program outcomes in the advanced combined prosthodontics and advanced maxillofacial prosthodontics programs be ongoing and systematically documented.

Response: A formal procedure in the graduate prosthodontic program was developed and is currently being used.

4) that experience in orthodontics be provided in the advanced general dentistry program.

Response: A decision has been made to close the AEGD program, effective June 30, 1993. ■

Building a Name in Dental Research

External funding for research totaled just over \$4.8 million during the 1992-93 fiscal year, which was about seven percent less than the previous year.

However, research funding from the federal government increased significantly during the same period, from \$0.86 million to \$1.66 million. Coupled with internal funds provided by IU, total research support for 1992-93 was \$5,445,769. Details regarding the sources of these funds are provided in the accompanying charts and tables.

Most importantly, IUSD has maintained its strong commitment to research and to its goal of playing a leadership role in both laboratory and clinical dental research on the cutting edge of science and technology. During the past fiscal year IUSD faculty submitted a total of 88 grant applications to external agencies, requesting funds of \$11.3 million.

In addition, significant progress was made on the school's Five-Year Research Plan implemented in 1990-91. Key features of this plan are to: 1) upgrade/develop research facilities and instrumentation; 2) recruit established investigators with outstanding credentials; 3) increase the extent and quality of undergraduate and graduate student research programs; and 4) maintain a primary research focus in areas of investigator strengths—namely, cariology, bone research (biological and biomechanical), biomaterials/dental materials, microbial ecology/host-parasite relationships, and oral facial disorders (genetics, oral cancer).

Major achievements toward this research plan during 1992-93 included:

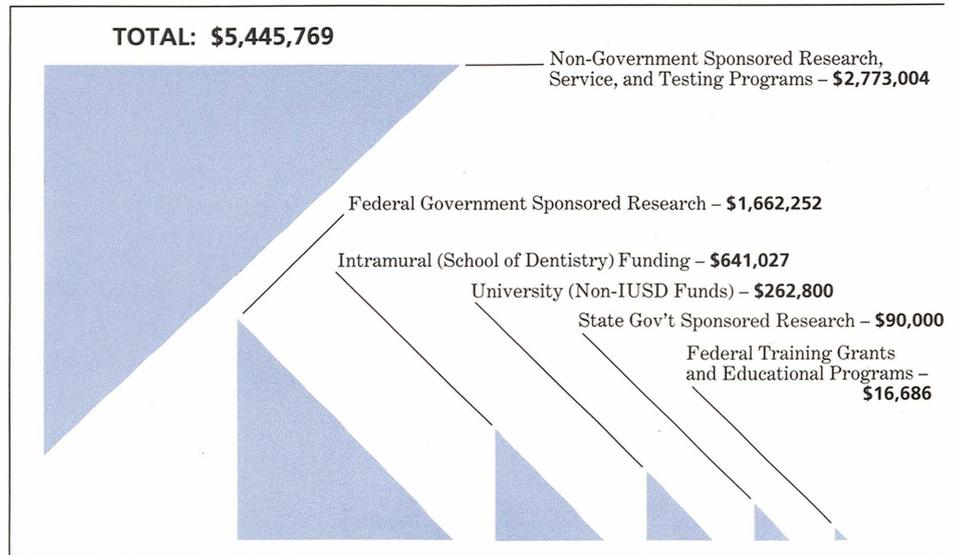
- 1) Construction of two molecular biology research laboratories and the acquisition of state-of-the-art instrumentation.
- 2) Recruitment of an established scientist (Dr. Janet Hock) with an ongoing bone research program, and a full-time molecular biologist

(Continued next page)

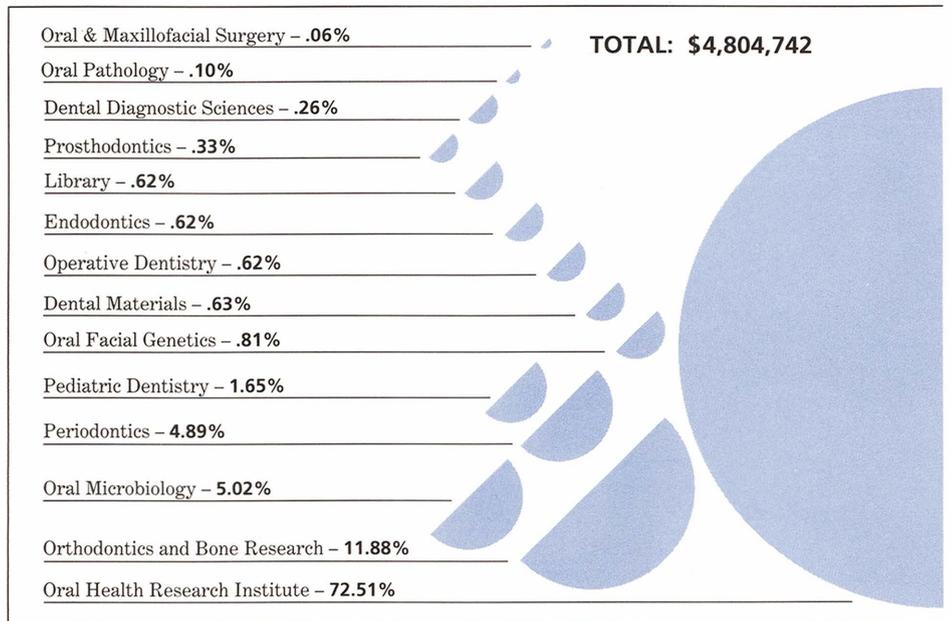
(Dr. Joseph Bidwell) to facilitate this research.

- 3) Acquisition, with partial support from Eli Lilly and Co., of a laser scanning confocal microscope, that was the first of its kind at any U.S. dental school.
- 4) Establishment of a seven-unit Clinical Research Facility and recruitment of an established clinical investigator (Dr. Bruce Matis) to direct the facility.
- 5) Completion of the construction of an Oral and Maxillofacial Imaging Research Facility and recruitment of an electrical engineer (Dr. Mostafa Analoui) to direct the facility. Dr. Analoui will join the faculty in January 1994.
- 6) Recruitment of two highly qualified scientists—Dr. James Hartsfield, to direct basic and clinical research in oral facial genetics; and Dr. Mark Saxen, to undertake research on pain control. Instrumentation needed for their studies has also been acquired.
- 7) Expansion of the predoctoral student research program through acquisition of three Student Research Fellowships from the American Association for Dental Research, plus continued support by the dental school and the National Institute of Dental Research. More than 20 student-faculty research mentor arrangements were developed.
- 8) Implementation of the first IUSD Research Day, which showcased nearly 100 student, staff, and faculty research projects.
- 9) Initiation of multidisciplinary research studies to develop externally-funded programs including a Clinical Cancer Research Center (with the School of Medicine) and a Clinical Core Center for Preventive and Operative Dentistry. ■

Research Funding



Research Funding by Division (excluding intramural funding)



Federal Training Grants and Educational Programs

Principal Investigator	Title	Budget
George Stookey	Short-term Research Training for Students in Professional Schools	\$16,686

State Government Sponsored Research

Principal Investigator	Title	Budget
Bradley Beiswanger	1991-92 Indiana Oral Health Survey	\$90,000



George K. Stookey
Associate Dean for Research

Federal Government Sponsored Research

Principal Investigators	Title	Budget	Principal Investigators	Title	Budget
Eugene Roberts	Shannon Award: Osseous Adaptation and Dental Implant Configuration	\$100,000	Janet Hock	Hormonal Regulation of Bone Growth In Vivo	15,769
Christopher Hughes	Cloning and Purification of a <i>Veillonella Adhesin</i>	75,962	Eugene Roberts Lawrence Garetto Charles Nelson	Bone Physiology of Endosseous Implants (Year 4)	157,558
George Stookey	Small Instrumentation Grant	5,000	Eugene Roberts Lawrence Garetto	Cell Kinetics and Histomorphometric Analysis in Microgravitational Osteopenia	134,472
Jack Schaaf John Valentine	Ryan White HIV/AIDS Dental Reimbursement Program	8,400	Eugene Roberts Lawrence Garetto	Cell Kinetics and Histomorphometric Analysis in Microgravitational Osteopenia	75,000
David Bixler	Oral Facial Genetics Training	39,922	Janet Hock	Hormonal Regulation of Bone Growth In Vivo (Year 9)	220,517
George Stookey Ann Dunipace Barry Katz Richard Jackson Yiming Li	Pharmacologic Effects of Fluoride (Year 2)	609,285	George Stookey	Expansion and Increased Efficiency of Animal Facility	220,367

Non-Government Sponsored Research, Service, and Testing Programs

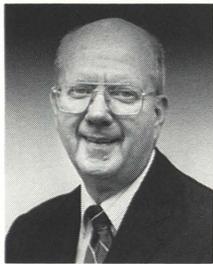
Principal Investigators	Title	Budget	Principal Investigators	Title	Budget
George Stookey	Purchase of Noran Odyssey Laser Scanning Confocal Microscope	\$50,000	Eugene Roberts Yoshiyasu Yoshikawa	Sustained Tooth Movement in Dogs	10,694
Bradley Beiswanger	Clinical Investigation to Determine the Efficacy of a New Treatment on Dental Plaque and Gingivitis	39,114	Kichuel Park Bruce Schemehorn	Bioavailability and Substantivity of Antiplaque Agents Using a Plaque Glycolysis and Re-growth Model	81,000
Richard Gregory	Regulation of Secretion of Immune Factors by Epithelial Cells	76,346	George Stookey Ann Dunipace	Effect of Calcium on Fluoride Uptake in Incipient Enamel Lesions	37,000
Bradley Beiswanger	Supplement: Clinical Methodology Validation Study	133,981	Michael Cochran	Clinical Effectiveness and Longevity of Gluma Primer and Two Oxalate Systems in Reducing Root Surface Hypersensitivity	30,168
Bradley Beiswanger	Supplement: Clinical Methodology Validation Study	25,497	Richard Gregory Lana Stoll	Characterization of the Immune Response to Fluoride Resistant <i>S. mutans</i> (student fellowship)	1,900
Donald Arens Joseph Legan	Randomized Double-Blind Multicenter Controlled Study of Apicoectomy: ND:YAG Laser Versus Conventional Techniques	30,360	Janet Hock Richard Simcox	Development of In Vitro Model of Anabolic Action of Parathyroid Hormone (student fellowship)	1,900
Bradley Beiswanger	Clinical Evaluation of the Cleaning Ability of a Ripple-Bristled Toothbrush	110,420	Janet Hock Robin Fuchs-Young Kevin Haddle	Transcription Regulation by Parathyroid Hormone in Cultured Osteoblast-Like Cells (student fellowship)	1,900
Chris Miller	Effect of Test Agents on the Cleaning and Sterilization of High-Speed Dental Handpiece	20,948	Bradley Beiswanger	Pilot Clinical Study Evaluating the Stain Reducing Ability of Two Marketed Dentifrice Formulations with Different Abrasivity Levels	88,728
Bradley Beiswanger	Measures to Reduce Dental Caries Incidence (Year 2 and supplemental funds)	756,959	Bradley Beiswanger	Screening and Selection of Subjects for Calculus Inhibition Studies	72,000
Nasser Paydar Yoshiki Oshida	Cooperative Research Center for Advanced Electronic Interconnects	31,128	Brian Sanders Nancy Dodge	Effect of Multi-Modality Oral Motor Therapy on Oral Function in Children Fed by Gastrostomy	5,000
Sara Hook	Ariel Document Transmission System for Schools of Dentistry, Medicine, and Law	8,100	George Stookey Ann Dunipace	Effect of Different Toothbrushing Systems on Fluoride Uptake in Incipient Enamel Lesions	30,835
Sara Hook	Cooperative Library Development for Marion County Libraries	22,500	Chris Miller	Ability of an Experimental Agent to Clean Dental Instruments and High-Speed Handpieces	16,021
Charles Goodacre David Brown Rose Marie Jones Carlos Munoz-Viveros	Procera Titanium Ceramic Restoration Survey	4,598	George Stookey	Preventing Calculus Formation in Dogs and Cats	187,053
Carlos Munoz-Viveros Keith Moore Charles Goodacre David Brown	In Vitro Wear Study of Ti-Ceram Porcelain	6,736	Chris Miller	Ultrasonic Cleaning of Dental Instruments in a Variety of Cassettes	24,733
Charles Goodacre David Brown Rose Marie Jones Carlos Munoz-Viveros	Effect of Tooth Preparation Form on Fit of Procera Crowns	4,990	Mark Wohlford	Use of Polymerase Chain Reaction to Identify Mutations in the p53 Gene	3,000
Chris Miller	Sterilization Efficacy of the High-Speed Dental Handpiece	34,599	Don-John Summerlin	Interactive Videodisc Project for Dental Student Education in Pathology	5,000
George Stookey Ann Dunipace	Effect of Chewing Sugar-Containing and Sugarless Gums on Mineral Changes in Incipient Enamel Lesions	9,767	Thomas Katona	Development of an Experimental Model of Fatigue Failure in Dental Implant Supporting Bone	2,350
Bradley Beiswanger	Clinical Pilot Study of Effect of Experimental Dentifrices on Plaque Formation	88,811	Numerous Investigators	CONTRACT TESTING	718,868

Faculty Transitions

Seven full-time professors of dentistry retired or resigned from Indiana University after devoting many years of outstanding service in their respective areas.

David Bixler, professor and chair, oral facial genetics (School of Dentistry) and professor of medical and molecular genetics (School of Medicine)—January '93

Indiana's dental students were first introduced to the frontiers of genetics by



David Bixler

Dr. David Bixler, who created IU's Department of Oral Facial Genetics in 1971 and served as its chair until this year. Considered by many of his postdoctoral students as the quintessential mentor, this witty, soft-spoken professor is best known by his nickname, "Dr. B."

The dental school's first "double doc," Dr. Bixler earned a PhD degree in zoology in 1956 and a DDS (with honors) in 1959 from IU. He also was a postdoctoral fellow with the U.S. Public Health Service in the late '50s and a recipient of the Service's Career Development Award from 1967 to 1972.

Much of the research undertaken in his department was made possible with four consecutive five-year Institutional Training Grants awarded to Dr. Bixler by the National Institute of Dental Research (NIDR).

As a faculty member in IU's Department of Medical Genetics, Dr. Bixler conducted genetic work-ups and counseled patients in the hospitals and then drew upon those experiences to build a teaching program for dentistry. Studies focusing on clefts of the lip and palate were the cornerstone of Dr. Bixler's research program. Data he recorded in the 1960s for geneticist Dr. Poul Fogh-Andersen during a year Dr. Bixler spent as a visiting professor at the Institute of Medical Genetics in Copenhagen, Denmark, led to a series of IU research papers advancing Dr. Fogh-Andersen's theory that a single gene was influencing the occurrence of clefts. The papers, written with then postdocs Dr. Michael Melnick (PhD'78) and Dr. Edward Shields (DDS'70, PhD'79), were

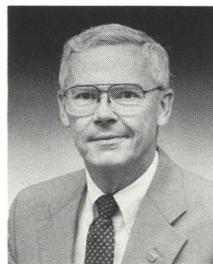
greeted at the time with skepticism by most scientists, who leaned toward a multifactorial hypothesis to explain the mode of inheritance for clefting. But as more data were collected over the years, the pendulum of thought eventually swung toward the single-gene theory. The IU researchers' work continues to hold up well today, and has been further advanced by Dr. Soraya Beiraghi, one of the last postdoctoral fellows to work with Dr. Bixler.

In the late '60s Dr. Bixler wrote about two sisters who exhibited an association of facial defects unique to the scientific literature at that time. Hypertelorism-microtia-clefting became known as HMC or Bixler syndrome. Only a few cases have since been reported in the world literature.

Dr. Bixler is the author or co-author of 170 scientific articles and 14 textbook chapters. He is a diplomate of the American Board of Medical Genetics, a member of Theta Theta Chapter of Omicron Kappa Upsilon (OKU) honor society, and a recipient of the IUSD Alumni Association's Distinguished Faculty Award for Research. For seven years he edited the section on oral diseases of the *Birth Defects Encyclopedia*. He was the first president of the Society of Craniofacial Genetics.

Ronald K. Harris, professor of operative dentistry—April '93

In 1991 Dr. Harris and former periodontics professor Dr. Robert L. Lockhart



Ronald Harris

pioneered the IU dental school's effort to restructure the clinical teaching program for undergraduate dental students. Dr. Harris skillfully directed the pilot Comprehensive Care Clinic from August to December of that year, drawing praise from student participants and setting the stage for an innovative clinical program that now places all upper level dental students in clusters where they provide treatment to most of their patients and manage their own clinical schedules.

A 1959 dental graduate of Marquette University, Dr. Harris was appointed to the IU faculty in 1981 after he retired from a dental career in the U.S. Navy with the rank of captain. He had been serving as chair of operative dentistry at the National

Naval Dental Center in Bethesda, Md. Dr. Harris holds an MSD degree in operative dentistry from IU (1973) and a certificate in general dentistry from Georgetown University/U.S. Naval Dental School (1969).

Dr. Harris is a fellow of the Academy of General Dentistry and the American College of Dentists (ACD), a charter member of the Academy of Operative Dentistry, and an honorary alumnus of Delta Sigma Delta fraternity. He received a Navy Commendation Medal in 1977. He was president of Theta Theta Chapter of OKU last year.

Dr. Harris has for several years led a seminar on direct gold technique for the American Academy of Gold Foil Operators, a popular course that routinely attracts participants from around the country and as far away as Germany. He was the academy's president in 1984.

In 1986 Dr. Harris represented IU as a visiting lecturer at King's College Dental School in London. He has served as an ADA site visitor for Advanced Education in General Dentistry programs throughout the U.S. He has made presentations in Italy, Mexico, England, Canada, Germany, and at numerous U.S. military sites.

Kenneth K. Kaneshiro, associate professor of periodontics—December '92

One of the school's most popular and talented clinical teachers, Dr. Kaneshiro was appointed to the IU faculty in 1978 after 22 years of service in the U.S. Navy Dental Corps.

Dr. Kaneshiro is a 1956 dental graduate of Marquette University. He completed



Kenneth Kaneshiro

certificate programs in general dentistry and in periodontics at the U.S. Naval Dental School, Bethesda, and in 1966 earned an MSD degree in periodontics from IU. Among his special assignments during his military career was an opportunity to provide treatment to then President Gerald Ford. For several years in the '70s he was a mentor in the postdoctoral fellowship program at the U.S. Naval Dental Clinic at Pearl Harbor.

Dr. Kaneshiro's professional memberships include OKU, the American Academy of Periodontology and the periodontic section

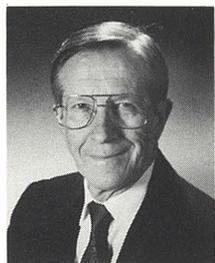
of the American Association of Dental Schools (AADS). He is a former president of the Tri-Service Dental Society, Okinawa, and the Indiana Society of Periodontists.

Dr. Kaneshiro was appointed director of IU's undergraduate periodontic program in 1988. When the school instituted a student facilitator program in the '80s, Dr. Kaneshiro's special skills as a counselor and student advocate made him an ideal candidate to serve as one of the 12 persons chosen to lead the program. He was named an assistant director of the school's newly created Comprehensive Care Clinic in 1990 and was active in the cluster system, which evolved from the clinic in 1991.

He also provided valuable input into the school's dental admissions, promotions, and curriculum committees during his tenure at IU.

Melvin R. Lund, *professor of operative dentistry—June '93*

Chair of IU's operative dentistry department from 1971 to 1988, Dr. Lund was described as "one of America's most distinguished teachers of operative dentistry" in a cover story that appeared in the *Journal of the Alabama Dental Association* a few years ago. His Hoosier colleagues are in full agreement with this assessment



Melvin Lund

of a talented man whose body of work has helped spread the name of Indiana University School of Dentistry to many parts of the world.

Dr. Lund received a dental degree (1946) from the University of Oregon and a master's degree (1969) in restorative dentistry from the University of Michigan. He chaired the restorative dentistry department at Loma Linda University for 13 years before coming to IU.

Among Dr. Lund's numerous publications are two notable textbooks for which he served as a co-author—*Operative Dentistry*, written with H. William Gilmore, David J. Bales, and James P. Vernetti; and *Textbook of Operative Dentistry*, written with Lloyd Baum and Ralph W. Phillips. He has presented about 150 courses and lectures throughout the U.S. and in 10 other nations.

Dr. Lund is a fellow of the ACD and a

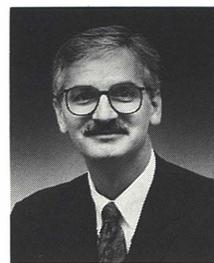
former president of the American Academy of Gold Foil Operators and Theta Theta Chapter of OKU. He is a founding member of the American Board of Operative Dentistry and a former chair of the operative sections of the AADS and the ADA. He served on the National Board Operative Test Construction Committee for three years.

Loma Linda University School of Dentistry bestowed the Founders Award upon Dr. Lund in 1977. He became an honorary alumnus of IUSD in 1980 and received the Academy of Operative Dentistry's Award of Excellence in 1991.

During his career at Indiana Dr. Lund was known for establishing long-lasting ties with his graduate students, many of whom paid him a surprise visit when they returned to IU (from Mexico, Iceland, and around the U.S.) to honor him the year he stepped down from the chairmanship. Last year, Dr. Lund's former graduate students at Intercontinental University, Mexico City, saluted their teacher, friend, and mentor by creating an annual lecture series named in his honor. He was invited to Mexico to present the first lecture.

Carl W. Newton, *professor and chair, endodontics—June '93*

Dr. Carl Newton's impressive record of achievement as a dental student and graduate student propelled him to a leadership position in dentistry early in his career.



Carl Newton

Less than a decade after graduating from dental school, Dr. Newton was appointed to chair IU's Department of Endodontics in 1983.

Dr. Newton's three degrees (BS'72, DDS'75, MSD'77) were all earned at IU. A popular lecturer and course presenter throughout the nation, Dr. Newton has also addressed professional organizations in Japan, Canada, and France. Dr. Newton is especially noted for his interest in establishing ties with the dental professionals in his own state—he has devoted a great deal of his energies to traveling around the state, lecturing to small groups of dentists attending a variety of professional meetings.

Dr. Newton has continued to teach some graduate endodontic courses as a volunteer

since his resignation. Having maintained a part-time private practice during his years on the faculty, Dr. Newton now practices full time.

Dr. Newton is a fellow of the ACD and the Pierre Fauchard Academy; a diplomate of the American Board of Endodontics; and a past president of the Indiana Association of Endodontists, Theta Theta Chapter of OKU, the Harry J. Healey Study Club, and the Hamilton Study Club. He is a former chair of the endodontic section of the AADS and director of District IV for the American Association of Endodontists (AAE). Dr. Newton directed the endodontic residency program at the Veterans Administration Hospital, Indianapolis, for 10 years. His publications include frequent contributions to the *Journal of Endodontics*, for which he serves on the scientific advisory panel.

Dr. Newton is a recipient of the AAE's certificate of merit and was recently recognized by IU's DDS Class of '93 for his outstanding lectures.

John R. Risch, *associate professor of prosthodontics—June '93*

Meticulous and comprehensive in his approach to clinical teaching, Dr. Risch was



John Risch

also a patient and enthusiastic student supporter in his role as one of the school's counselors. His unrushed, caring method of interacting with students and colleagues became a hallmark of IU's complete denture program, in which Dr. Risch participated for 33 years.

Dr. Risch served in the enlisted ranks of the U.S. Army in the mid-'40s, and was a major with the 625th U.S. Air Force Reserve Hospital from 1957 until 1962.

After graduating from IUSD in 1951, Dr. Risch practiced full time in Indianapolis for 22 years, joining the former complete denture department as a part-time instructor in 1960. He was appointed to the full-time faculty in 1973. A decade later he served a one-year term as acting chair of complete denture. He continued to practice part time until 1978.

Like Dr. Kaneshiro, Dr. Risch was among the teachers chosen to direct the new facilitator program. He also was named an assistant director of a

Comprehensive Care cluster.

In 1982 Dr. Risch received the Award of Excellence for Teaching from the Dean's Council for the Pursuit of Excellence. The Alpha Omega Dental Fraternity named him Teacher of the Year in 1990. He is a member of OKU.

Peter T. Zonakis, dean of the School of Health Sciences and director of dental education, Indiana University-Purdue University Fort Wayne—July '93

A 1961 dental graduate of IU, Dr. Zonakis brought 16 years of private practice



Peter Zonakis

experience in Hagerstown to his role as the Fort Wayne campus's director of dental auxiliary education when he accepted the position in 1977. Fort Wayne's outstanding dental education program strongly emphasized clinical experience for dental assisting and dental hygiene students under Dr. Zonakis' leadership. The Fort Wayne campus administers Indiana University's only associate's degree program for dental laboratory technologists.

Fort Wayne's dental education program flourished under Dr. Zonakis' guidance. His dynamic relationship with students and faculty on the Fort Wayne campus was both impressive and unique. Dr. Zonakis was especially supportive of the faculty who chair the three dental programs.

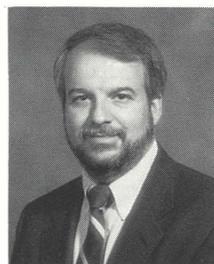
After a reorganization of schools and departments at IPFW, the School of Health Sciences was created, aligning the three dental auxiliary departments with human services, health information technology, medical technology, nursing, radiography, and transfer programs in allied health. Dr. Zonakis was named first dean of health sciences in 1988.

Dr. Zonakis is a former president of the Eastern Indiana and Richmond dental societies, trustee of the Indiana Dental Association, and IUSD Alumni Association board member; and a former consultant for several public health dentistry organizations. ■

Eight new full-time dental faculty members accepted positions at Indiana University at the close of the fiscal year, or shortly thereafter:

James E. Jones, dean of the School of Health Sciences, professor of dentistry, and director of dental education, Indiana University-Purdue University Fort Wayne

IU alumnus and former faculty member James E. Jones returns to Indiana after chairing the pediatric dentistry department



James Jones

at the University of Tennessee for the past four years. He replaces Dr. Peter Zonakis, who retired in July. Dr. Jones holds BS ('73) and MS ('77) degrees from the University of Kentucky, a DMD ('78) from the University of Louisville, a certificate ('80) and MSD ('83) in pediatric dentistry from IU, and an EdD degree ('93) from IU.

Dr. Jones was in private practice in Jeffersonville from 1980 until he joined the full-time IU pediatric dentistry faculty in 1983. He completed a United Cerebral Palsy Clinical Dental Fellowship in 1984, a Dental Faculty Fellowship sponsored by the American Fund for Dental Health in 1987, and a Robert Wood Johnson Dental Research Scholar certificate program at Harvard University School of Dental Medicine in 1989. In the mid-'80s he was promoted to associate professor of pediatric dentistry (School of Dentistry) and of surgery, plastic surgery section (School of Medicine).

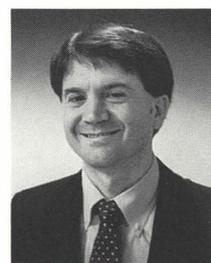
During his tenure at Tennessee he directed the dental college's extramural programs and the university's Craniofacial Anomalies Team.

Dr. Jones is widely published in the dental, medical, and education literature and has lectured throughout the U.S. and the Middle East. He has obtained more than \$850,000 in a variety of grants.

Joseph P. Bidwell, assistant professor of anatomy, Department of Anatomy (School of Medicine), and assistant professor of periodontics, Department of

Periodontics and Allied Dental Programs (School of Dentistry)

Dr. Bidwell devoted the past three years to a position as postdoctoral associate and



Joseph Bidwell

instructor in cell biology at the University of Massachusetts Medical Center, in Worcester. He holds a BS degree ('75) from Bowling Green State University and a PhD degree ('83) in physical chemistry from Case Western Reserve University. He was inducted into Kappa Mu Epsilon Mathematics Honor Society at Bowling Green and was a B.F. Goodrich Fellow for a year at Case Western.

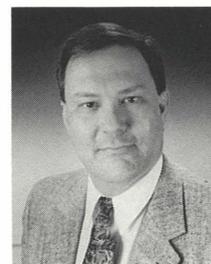
In the mid-'80s Dr. Bidwell was a researcher in marine biology at Columbia University, New York, and at the Woods Hole Oceanographic Institution in Woods Hole, Mass. His numerous publications include a book that he co-authored about the formulation of artificial sea waters used in research and the pet industry.

From 1988 to 1990 Dr. Bidwell was a research associate in the Endocrine Research Unit at the Mayo Graduate School in Rochester, Minn. He also taught briefly in the Department of Biochemistry and Molecular Biology there.

Dr. Bidwell's current research interest is in studying the role of the nuclear matrix in the transcriptional regulation of osteocalcin expression in osteoblasts. At IU he will be working with Dr. Janet M. Hock, a scientist in skeletal diseases research at Eli Lilly and Co., and an adjunct professor of periodontics, in one of the dental school's new molecular biology laboratories.

Steven E. Dixon, assistant professor of operative dentistry, Department of Restorative Dentistry

Dr. Dixon brings 19 years of private practice experience to his position as one of



Steven Dixon

the dental school's six directors of the predoctoral clinical clusters. After earning BS ('69) and DDS ('73) degrees from Indiana University, he set up his practice in Evansville. He is a former president of

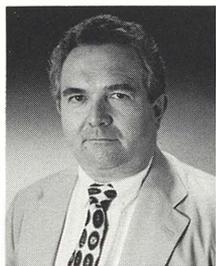
the First District Dental Society.

During the past year Dr. Dixon taught operative dentistry part time at IU while pursuing the University's PhD degree in preventive dentistry. He will continue to work toward the degree in his new position.

Dr. Dixon is a former adjunct faculty member in allied health at Indiana State University, Evansville.

Jonathan L. Gray, *clinical assistant professor of periodontics, Department of Periodontics and Allied Dental Programs*

Dr. Gray comes to IU from his most recent position as director of the U.S. Naval



Jonathan Gray

Dental Clinic at Rota, Spain. He recently retired as a captain in the Navy after serving for 21 years.

Dr. Gray earned BS ('68) and DDS ('72) degrees from the University of Illinois. He also

completed a postdoctoral fellowship in periodontics at the Naval Dental Clinic, Great Lakes, Ill. ('77) and a residency in periodontics at the Naval Dental School, Bethesda ('79).

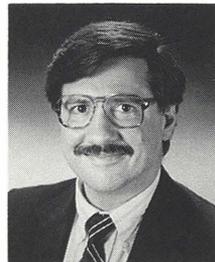
Dr. Gray was an associate professor of periodontics at the Naval Dental School from 1985 to 1990. He is a diplomate of the American Board of Periodontology and the American Board of Oral Medicine, and a fellow of the International College of Dentists (ICD). He has been a frequent contributor to the *Journal of Periodontology*.

Other naval assignments held by Dr. Gray include three-year stints as head of periodontics at the Branch Dental Clinic, Marine Corps Base, Quantico, Va., and as head of the dental department aboard the USS Saratoga. His military decorations include the Defense Meritorious Service Medal and two Navy Commendation medals.

Dr. Gray is licensed by Borland International and Microsoft, Inc., to write and distribute applications in dBase IV and Foxpro 2.0, respectively. His research interests include the development of software for dental research and practice.

James K. Hartsfield, Jr., *associate professor of oral facial genetics, Department of Oral Facial Development (School of Dentistry), and associate professor, Department of Medical and Molecular Genetics (School of Medicine)*

One of David Bixler's former students in medical genetics has returned to the IU



James Hartsfield

Medical Center to accept a faculty position here. Dr. James Hartsfield was an assistant professor in the Division of Medical Genetics, Department of Pediatrics, at the University of South Florida College of Medicine, Tampa. He also directed the Teratogen Information Service and was a clinical geneticist for the Regional Genetics Program, Cleft Lip/Palate and Craniofacial Anomalies Teams.

Dr. Hartsfield's extensive training record includes a BS degree (cum laude '77) from the University of South Carolina; a DMD ('81) from the Medical University of South Carolina; an MS ('83) in medical genetics from the IU School of Medicine; an MMSc ('87) in medical sciences from Harvard University; and a PhD ('93) in medical sciences from the University of South Florida. As the recipient of a Physician-Scientist Award (1989-93) from the National Institutes of Health, he was the principal investigator for a study of oral clefting that was funded for more than \$380,000.

Dr. Hartsfield has held fellowship positions in medical genetics at IU; in orthodontic research at Forsyth Dental Center, Harvard School of Dental Medicine; in pediatric research in the Embryology-Teratology Unit, Children's Service, Massachusetts General Hospital, Boston; and in medical genetics at the University of South Florida. He holds a certificate in orthodontics from Harvard and is eligible for the American Board of Orthodontics. Dr. Hartsfield is also certified in clinical genetics by the American Board of Medical Genetics.

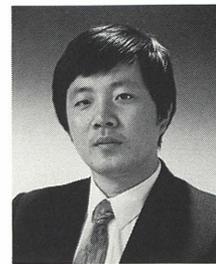
Dr. Hartsfield served as president of the Society of Craniofacial Genetics from 1988 to 1990. This year he was accepted as a founding fellow in the American College of Medical Genetics. He is a reviewer for the following refereed journals: *Dysmorphology and Clinical Genetics*, *Journal of*

Craniofacial Genetics and Developmental Biology, and *Teratology, Journal of Abnormal Development*. This year he succeeded Dr. Bixler as an editor for the *Birth Defects Encyclopedia*.

Dr. Hartsfield's work has been published in a wide variety of medical genetics publications and other journals. His primary mission at IU will be to study the genetic basis for oral diseases and craniofacial anomalies.

Jian Huang, *research associate, orthodontics, Department of Oral Facial Development*

Before accepting an appointment at the dental school Dr. Huang had been a



Jian Huang

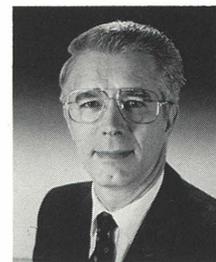
research associate in the Department of Electrical Engineering on the IUPUI campus. He is a graduate of Harbin Marine Engineering Institute, Harbin, China (BS'82); and of Zhejiang University, Hangzhou, China (MS'85 and PhD'87). He is a two-time recipient of Zhejiang University's best graduate student award.

Dr. Huang was briefly a visiting scholar at Rensselaer Polytechnic Institute, Troy, N.Y. in 1992. For the preceding three years he headed a computer laboratory at Aihua Electronics Research in Shenzhen, China, where he received the company's best researcher award.

Dr. Huang's primary role at the dental school will be to perform computer analysis and experiment on the mechanical behavior of dental bone/implant systems.

Bruce A. Matis, *associate professor of operative dentistry, Department of Restorative Dentistry*

To launch its new Clinical Research Facility (see page 49—ed.), the IU dental



Bruce Matis

school welcomes back former operative dentistry graduate student Bruce A. Matis, who has been appointed to direct the facility. Dr. Matis recently retired from the U.S. Air Force with

the rank of colonel.

Dr. Matis holds a BS degree ('67) from Brigham Young University; a DDS ('71) from Case Western Reserve University; and an MSD ('83) in operative dentistry and certificate ('84) in preventive dentistry from IU. He is a fellow of both the ACD and ICD.

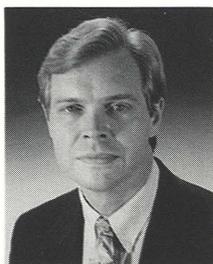
For the past year Dr. Matis chaired the restorative dentistry division at Lowry Air Force Base, Colo. Other key Air Force assignments he has held include that of Base Dental Surgeon at Kwang Ju Air Base, Korea, and Deputy Director of Dental Services and chair of restorative dentistry at Wiesbaden Medical Center, Germany. He served for four years as a consultant to the Surgeon General of the Air Force.

Among the honors bestowed upon Dr. Matis are two Air Force Commendation medals and three Air Force Meritorious Service medals.

Dr. Matis has written for numerous publications, including the *Journal of the American Dental Association*, and has contributed chapters to several books. He has lectured on preventive dentistry and infection control throughout the U.S. and in Korea, the Philippines, Guam, and Germany.

Mark A. Saxen, *assistant professor of dental diagnostic sciences, Department of Diagnostic Sciences*

A 1989 recipient of a Dentist-Scientist Award from the NIDR, Dr. Saxen earned a



Mark Saxen

PhD degree in pharmacology and toxicology and a certificate of residency in dental anesthesiology in 1993. He received his training at the Medical College of Virginia, where he also served as an instructor in the department of oral and maxillofacial surgery.

Dr. Saxen received BS and DDS degrees upon his graduation from Case Western Reserve University School of Dentistry in 1978. He completed most of his baccalaureate training at the University of Notre Dame.

Dr. Saxen conducted a private practice in general dentistry in Springfield, Ill., for 11 years before entering the Dentist-Scientist program. As a consulting dentist he provided hospital and on-site care to

patients at Bethesda Lutheran Home, Aid to Retarded Citizens, Hope School for the Blind, and the Franciscan Order Convalescent Home, all in Springfield, Ill. He was a long-time staff dentist at St. John's Hospital and Memorial Medical Center in Springfield, and chaired the Center's dental division for a year.

During most of his years in private practice Dr. Saxen served as consulting editor for *Dental Management*, interviewing several leading authorities in dentistry for profiles appearing in that magazine.

Dr. Saxen is a fellow of the American Dental Society of Anesthesiology and will soon be receiving fellowship in the Academy of General Dentistry.

His research emphasis includes the pharmacological treatment of facial pain disorders and the neurochemical mechanisms of inflammatory pain. His primary role on the IU faculty will be to direct facial pain and TMD studies and to continue his research in the mechanisms of pain and neurogenic inflammation. ■

● The School welcomed the following persons to the part-time faculty:

Diagnostic Sciences

Amy J. Viano, instructor in dental diagnostic sciences

Periodontics and Allied Dental Programs

Lorinda L. Coan, Maria I. Gerstbauer, Judith K. Scher, and Tracy Ann West, instructors in dental hygiene

Carl Lerner and Gregory E. Phillips, assistant professors of periodontics

Restorative Dentistry

Janet M. Kooistra and Matthew S. Wittrig, instructors in operative dentistry

Eugene A. Margiotti and John R. Phelps III, assistant professors of prosthodontics

Bart L. Poer, instructor in prosthodontics

Surgery and Hospital Programs

J. Jeffrey Hockema and Michael J. Stronczek, assistant professors of oral and maxillofacial surgery

Oral Facial Development

Soraya M. Beiraghi, associate professor of pediatric dentistry

● The IU Trustees approved promotions for four dental faculty members and tenure for one, effective July 1, 1993:

Oral Health Research Institute:

Ann J. Dunipace, promoted to associate scientist

Yiming Li, promoted to associate scientist

Diagnostic Sciences:

Thomas F. Razmus, promoted to associate professor of dental diagnostic sciences (Dr. Razmus has since resigned.)

John B. Valentine, promoted to clinical assistant professor of dental diagnostic sciences

Periodontics and Allied Dental Programs:

E. Brady Hancock, professor of periodontics, tenured.

● Also during the 1992-93 fiscal year, the IUSD Faculty Affairs Committee accomplished several major projects, including those outlined here.

The group:

- 1) Developed a proposal for a Basic Life Support policy for IUSD. The proposal was subsequently approved by the Faculty Council.
- 2) Refined a bylaws amendment providing a new definition and charge for the Curriculum Committee. The proposal was subsequently approved by the Faculty Council.
- 3) Finalized, under the leadership of Dr. George P. Willis,

associate professor of operative dentistry, a student/course evaluation form for use in clinical courses.

- 4) Sponsored two faculty development courses: Learning Style Theory, presented in the fall by Dr. Gerald Preusz, associate professor of education and of dentistry; and Biostatistics, presented in the spring by Dr. Barry Katz, associate professor of medicine and of preventive and community dentistry, and staff. ■



Lawrence I. Goldblatt
Associate Dean for Academic
Affairs and for Graduate
and Postgraduate Education

DDS Applicant Pool Trends

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Indiana University Applicants:	488	439	391	346	397	348	398	469	563	728
All U.S. Dental Schools:	35,413	32,195	29,060	26,418	24,171	22,501	23,099	26,599	32,851	figure not yet available
Percent increase/decrease from previous year										
IU:		-11%	-12%	-13%	+15%	-14%	+14%	+18%	+20%	+29%
Nationally:		-10%	-11%	-10%	-9%	-7%	+3%	+15%	+24%	figure not yet available

The largest applicant pool in the history of the IU dental school consisted of 978 persons applying for the incoming Class of 1974. The smallest applicant pool, for the incoming Class of 1987, included 346 persons. Numbers of applicants to IU's program have been rising substantially since 1990.

For the 1992-93 academic year, 15,980 students were enrolled in 54 dental schools in the U.S. Women made up 36% of the national dental student population last year (compared to 33% at IUSD).

Since the mid-'80s there has been a rise from 53 to 60 dentists per 100,000 people in the U.S. It is predicted that this ratio will peak at 61 to 62 per 100,000 in 1994. Assuming the continuation of current trends, a gradual decline in the dentist/patient ratio is expected after the year 2000. By 2020, the ratio may be as low as 44 dentists per 100,000 people.



Hala Z. Henderson
Associate Dean for
Student Affairs

Incoming Class Profiles

First-year students, from left:
 Patricia M. Snodgrass,
 dental hygiene; Michelle Stroup,
 dental assisting; Russell McCabe,
 dentistry; and Dr. Huei-Hsien
 Liu, graduate program in
 diagnostic sciences.



Incoming Class Profiles 1993-94 Academic Year

	Dentistry DDS'97	Dental Hygiene ASDH'95	Dental Assisting Certificate '94	Postdoctoral Education (11 master's, PhD, and certificate programs)
Applicants	728	149	46	564
Indiana Residents	133	147	46	not tallied in central office
Non-residents	595	1	0	not tallied in central office
Men	507	1	1	not tallied in central office
Women	221	148	45	not tallied in central office
Minority Applicants	84	6	2	not tallied in central office
Matriculating Students	85	50	20	37
Students				
Indiana Residents	74	50	20	10
Indiana Counties Represented	27	23	11	6
U.S. Residents (excluding Indiana)	9	0	0	11
Students from Other Countries	2*	0	0	16**
Men	52	0	0	24
Women	33	50	20	13
Minority Students	4	1	0	7
Average GPA: Overall - 3.22 Science - 3.11		2.99	2.50	not tallied in central office
Tuition (excluding ancillary fees): In-state - \$7,650 Out-of-state - \$15,875		\$2,670.65 N/A	\$2,756.80 N/A	\$7,650 \$15,875
Percent of Tuition Increase from Previous Year	11%	7%	7%	11%
Total Enrollment	327 (4 classes)	96 (2 classes)	20 (1 class)	11 programs: 104 (full time) 13 (part time) 20 (off campus researchers)

*Mexico and Canada

**Brazil, Colombia, Egypt, Greece, Iceland, Italy, Korea, Mexico, Syria, Taiwan, Thailand, Venezuela

Building Dentistry's Future

CLASSES OF 1993

CERTIFICATES IN DENTAL ASSISTING

FORT WAYNE

Jennifer D. Carter
Elethia O. Davenport
Marcia L. Gerardot
Linda K. Higgins
Heather M. Kennell
Julie A. Langdon
Kristie L. Liddy
Sabie A. Munoz
Rhonda L. Northup
Diane G. Post
Amey L. Rothgeb
Deanna D. Schroeder
Kristine L. Welty
Amy J. Williams

INDIANAPOLIS

Tiffany Baker
Leslie Barnhill
Elizabeth Beall
Stacey Boles
Tracey Cotton
Christina Coveleskie
Leigh Ann Dennemann
Michelle Dishon
Donna Egan-Hines
Wendy Harker
Dana Harrison
Laura Holtzleiter
Michelle Ireland
Jennifer Kirby
Tricia Linville
Jennifer Loveless
Jacqueline Lowry
Melody Moon
Gina Norman
Tracey Phillips
Jennifer Roberts
Jennifer Rothgerber
Jennifer Shepard
Lisa Wright

NORTHWEST

Paula A. Baim
Jayme Davis
Carol Leskiw
Leanne M. McClintic
Judy K. Milde
Dianne J. Russell
Laura Siegel

SOUTH BEND

Stacey Anderson
Kari Bellman
Amy Cenova
Christy Gholson
Nancy Harrington
Marsca Landuit

Sara Lane
Shari Milzarek
Angela Mitchell
Kimberly Nowacki
Melissa O'Keefe
Carol Reese
Kimberly Salwin
Kimberly Tyler
Janine Vergonet
Donna Weaver
Nichole White

ASSOCIATE OF SCIENCE DEGREES IN DENTAL LABORATORY TECHNOLOGY

FORT WAYNE

Jessica Bauer
Michelle Elcock
Sherri Henkle
Amy Hiscutt
Charmaine Hopson
LaTonya Johnson
Roya Karami
Gregory Mauk
Linda Nanchoff
Lynelle Ranly
Crystal Roberts
Betsy Rowe
Peggy Smith

ASSOCIATE OF SCIENCE DEGREES IN DENTAL HYGIENE

FORT WAYNE

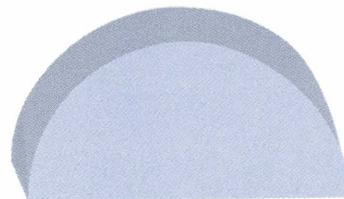
Rebecca S. Arnold
Danielle M. Bickel
Julie L. Bowman
Kimberly K. Campbell
Christine R. Daugherty
Kelly J. Eberly
Lori L. Eichelman
Anna M. Ellenburg
Jodi S. Hardwick
Emma J. Henderson
Ann E. Howard
Robin L. Kerkstra
Joan R. Lawrence
Angela R. Ojeda
Denise R. Reas
Susan L. Schlegel
Mary K. Shrader
Janell A. Smith
Aimee M. Wilkins

INDIANAPOLIS

Lenora K. Anderson
Sue E. Arnold
Loran K. Atkinson
Stephanie L. Billings
Teresa L. Brown
Cristy L. Bryant
Melinda R. Burkhart
Kori L. Curnutt
Angela K. Dane
Kathrine L. Dougherty
Jill R. Drake
Cynthia R. DuBose
Deana R. Evans
Laura K. Fanning
DeAnne E. Ferguson
Jantis G. Findley
Shannan S. Fisher
Teresa A. Fox
Tena A. Frisch
Julie A. Greene
Nicole L. Harrison
Nicole R. Hicks
Tracy L. Hobbs
Carissa L. Hook
Samantha C. Jones
Mary E. Kent
Belinda D. Kirby
Jennifer S. Lane
Angela S. Lundstrom
Rajesh Markand
Joy A. Miller
Judy M. Neuman
Judy A. Nuetzel
Inessa Ostrovsky
Sharon A. Otto
Michelle A. Pfundstein
Alicia R. Pillow
Dawn M. Polson
Kristina M. Reckley
Jamie L. Sites
Ronni Smith
Cynthia L. Spyker
Stephanie A. Stafford
Valerie R. Weakman
Sherry L. Weese
Tammy T. White

NORTHWEST

Stephanie C. Batcha
Heather A. Bernth
Brenda M. Bielak
Beth A. Bolen
Julieann Dudash
Tamara M. Duvall
Victoria L. Dye



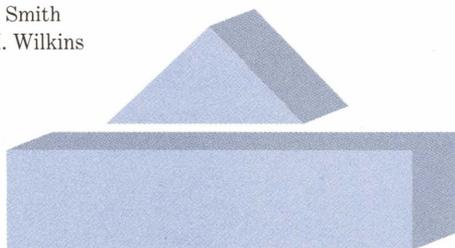
Jodi Gudino
Patricia A. Heslin
Julie A. Higgins
Linda M. Hoolehan
Nancy L. Johnson
Ann M. Koves
Patricia J. Lucido
Kristen K. Mills
Carol A. Rosindo
Lisa M. Segally
Tricia L. Torrez
Dana J. Verplank
Helena Vraniskoski
Lori J. Wilson
Katrina L. Winfred

SOUTH BEND

Terri Abbott
Jean Abrams
Rulan Asdell
Caryn Cranford
Mindy Powell-Crutchfield
Mindy Deeds
Tera Heidorn
Michelle Hrga
Mary Hucksted
Sharon Jennings
Myra Klawinski
Stephanie Medaris
Jeannine Olson
Rene' Seese
Rhonda Smith
Susan Swartout
Joanna Ulery
Lori Vollrath

DOCTOR OF DENTAL SURGERY DEGREES

Rafik A. Abdelsayed
Andrew J. Alexander
Gregory G. Applegate
Brian E. Blough
Jane E. Boeschenstein
Michael J. Buczolicz, Jr.
Daniel A. Burns
Melisa A. Carnegie
Jenifer L. Chlebek
John S. Clauss
Susan M. Cocquyt
Todd J. Cole
Dagmar E. Colon
David C. Compton
W. Brian Coulter
Delia Driscoll
Matthew F. Eckert
Elizabeth A. Elliott
Laura G. Fletes
Julie A. Gaydos
Timothy D. Gibson
Herbert A. Harris



(DDS Class continued)

Beverly S. Harrison
Steven L. Herr
Heather J. Hicks
Richard B. Higgs
Dionne J. Hladin
Steven C. Hollar
Jill C. Houston
Katrina L. Huizing
Bret M. Jerger
Steven A. Johnson
Richard E. Jones, II
Darin K. Kajioka
Su T. Kang
Scott A. Kapers
Thomas E. Lantz
William J. Lee
Chad R. Leighty
Marisa A. Ley
Carlo C. Lo
Manuel Lopez, Jr.
Joseph Majka, Jr.
Olga Y. Maldonado-Schneider
B. Lynn Malone
Margaret A. March
Kurt F. Martin
Ronald E. Mendenhall
Ronald L. Miller
John M. Neeb
David A. Niemiec
David G. Ogle
Matthew D. Pate
John G. Pawlus
Timothy A. Pliske
Bart L. Poer
Melissa M. Puckett
Michael E. Reeves
Candace J. Rich
Veronica A. Ricker
Doran J. Riehl
Rodney D. Runyon
Angela M. Scheele
John J. Shank
R. Daron Sheline
George L. Sinnis
Dean A. Stratman
Kevin Sugiki
Gregg S. Svoma
Theresa A. Trapp
Quynh-Dung Thi Vo
Lorrie A. Webb
Darren W. Wellenretter
James T. Wolfe

POSTDOCTORAL PROGRAMS

ADVANCED EDUCATION IN GENERAL DENTISTRY (Certificates)

Janet M. Dombrowski
James P. Edwards
Lena J. Salha
Tanya L. Woody

ENDODONTICS (MSD degrees)

Joseph V. Baldassano
Autoradiographic evaluation of EBA alumina cement and modified EBA alumina cement as root-end fillings

Phil P. Guba
Xeroradiographic interpretation of experimental lesions

Jeffery P. Hreha
Autoradiographic investigation of root-end filling materials

Beverly J. Leddy
Interpretation of endodontic file length adjustments using RadioVisioGraphy

Alastair MacDonald
In vitro evaluation of self-setting apatite cement as a root-end filling material

Paul J. Robbins
Evaluation of canned milk products as media for the preservation of periodontal ligament cell vitality

Eric T. Yokota
Interpretation of periapical lesions utilizing RadioVisioGraphy

OPERATIVE DENTISTRY (MSD degrees)

Juan A. Agosto
Margin quality and microleakage of an indirect composite inlay: in vitro study

Angela G. Gonzalez
Comparison of four microleakage tests

Luis E. Ortega
Comparative study of specific gravity and hardness of two powdered cohesive direct gold restorative materials

ORAL AND MAXILLOFACIAL SURGERY (Certificates)

David L. Hayhurst
Steven F. Rodgers

ORTHODONTICS (MSD degrees)

Christopher G. Bruch
Histological and mechanical analysis of bone/implant interface in female retired-breeder rabbits

Richard D. Burns, Jr.
Evaluation of the tensile bond strength of orthodontic bracket bases using glass ionomer cement as an adhesive

David B. Clark
Manpower study of orthodontic specialists for the state of Indiana

J. Kevin Coghlan
Clinical study evaluating a mandibular repositioning appliance to treat obstructive sleep apnea

Jose W. Cordero
Quantification of pain thresholds in orthodontic patients using strain gage techniques

J. Todd Hunt
Analysis of bone remodeling in the mandibular condyle of female retired-breeder rabbits following altered loading

W. Ray Sprayberry
Evaluation of tensile bond strength of glass ionomer cements for orthodontic bonding

Shelley R. Tardy
Time course of osseous healing at endosseous implant interfaces

PEDIATRIC DENTISTRY (MSD degrees)

Paul Todd Rose
Comparison of IgA antibody levels in caries-resistant and caries-susceptible children

Leslie K. Tanimura
Effects of primary alveolar bone grafting on maxillary growth and development

PERIODONTICS (MSD degrees)

Mark E. Buchman
Dimensional accuracy of reformatted CT imaging in the mandible

Sherrie L. Crossen
Comparative effectiveness of root planing with the application of a scaling gel and root planing with a placebo gel for the removal of subgingival plaque and calculus

Gay M. Derderian
*In vitro study of the co-cultivation of *Actinobacillus actinomycescomitans* and oral amoebae*

Daniel F. Gabrek
Influence of gingival inflammation, alveolar bone level, and attachment loss on tooth mobility

Carl Lerner
Characterization of naturally occurring periodontal disease in adult beagle dogs using multidimensional analysis

Kathleen M. McCombs
Effects of a pretreatment chlorhexidine rinse on bacteremia

Stephen McGregor Cottrell
Characterization of ligature-induced periodontal disease in adult beagle dogs using a multi-dimensional analysis

Gregory E. Phillips
Comparative study on the influence of three polypeptide growth factors on the cellular kinetics of human periodontal ligament fibroblasts and human gingival fibroblasts in vitro

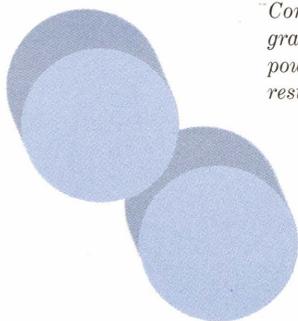
PREVENTIVE AND COMMUNITY DENTISTRY (PhD degrees)

Shing-Zeng Dung
Degradation of organic matrix components of human root dentin

Gregory Pfau
*Analysis of *Streptococcus salivarius* inhibitory mechanisms against the periodontal disease pathogen *Porphyromonas gingivalis**

PROSTHODONTICS (MSD degree)

Larry Michael Over
Development of an intrinsic shade guide for facial prostheses using a colorimeter with an RTV silicone



Building Support From Alumni and Other Friends

IUSD Development Committee

Chair

Richard D. Ellsworth
(DDS'73)
Lafayette

Members

Maynard K. Hine
IUPUI chancellor
emeritus
Indianapolis

James D. Frey
(DDS'62)
Fort Wayne

Lloyd J. Phillips
(DDS'54)
Indianapolis

Bruce D. Raibley
(DDS'73)
Evansville

Pamela A. Steed
(DDS'83, MSD'90)
Indianapolis

H. William Gilmore
(DDS'58, MSD'61)
Indianapolis

Peter H. Leonard
(DDS'63)
Columbus

Paul Brakke, executive director of the Indiana Dental Association, serves as consultant to the committee. IUSD staff liaisons are Barry Smith, director of development, and Lynn K. Finkel, director of administrative and financial affairs.

The fiscal year was very successful for the school's development efforts, with \$443,940 being contributed by 1,500 donors. These totals are similar to our 1991-92 figures of 1,469 donors, and \$458,000 contributed.

The tremendous loyalty of alumni and friends of the IU School of Dentistry is clearly demonstrated by the significant contributions they invest in our school annually. The figures for 1992-93 position us as a leader at Indiana University, indeed nationwide among dental schools, in terms of philanthropic dollars donated in support of our mission.

I was pleased to join IUSD as director of development on December 1, 1992. I came to the school from the IU Alumni Association's Indianapolis office, where I had been serving as associate director. My background in university development includes a former position as development associate with the IU Foundation's *Campaign for Indiana*.

One of the great highlights of my first year at the dental school was a major gift made by Paul H. Asher (DDS'27), Greenwood. Dr. Asher's gift of \$50,000, made through the IU Foundation, will play a key role in the dental school's communication system. The school will match Dr. Asher's gift to secure the equipment needed to link the dentistry building to virtually any electronic source of information. This technological infrastructure will provide on-line access to the latest research, library resources, patient records and billings, and other essential technologies.

For his long-time commitment to the school and the profession of dentistry, Dr. Asher was honored in the spring at the fifth annual Spirit of Philanthropy luncheon, at which the IUPUI campus recognizes corporations, foundations, and individuals who make important differences in IUPUI's academic programs through their gifts and voluntary services.

A major step was taken this year with the creation of the IUSD Development Committee. This committee, made up of significant supporters of the school, is providing much needed input to the school's development program, reviewing past performance and helping set future direction in our fundraising endeavors.

The Development Committee has already recommended two major initiatives, both of which will be implemented in the fall of 1993.

The first initiative is the creation of three new donor societies to recognize significant annual gifts to the school. The DEAN'S ASSOCIATES is a society of the most significant donors to IUSD; it will recognize donors of \$5,000 (Platinum Society), \$2,500 (Gold Society), and \$1,000 (Silver Society). The DEAN'S ASSOCIATES is expected to tremendously enhance our ability to support the students and faculty at the school. It is hoped that many of our Century II Fellows will join the DEAN'S ASSOCIATES and continue to be leaders in support of the school. Information on the DEAN'S ASSOCIATES will be mailed to all alumni in the fall.

The second major initiative recommended by the Development Committee is to put forth a major fundraising effort to create an Indiana Dental Association Chair at IU School of Dentistry.

Since 1980, the loyal and dedicated members of the IDA have invested more than \$500,000 in the IDA/IUSD Pursuit of Excellence Fund. During this time, the funds have provided faculty awards, laboratory equipment, and support for research conducted by the faculty.

Each year, the IDA Endowment Committee has provided funding for faculty support at the school. Meanwhile, the funds have been invested with the IU Foundation, and the market value of the fund has grown to more than \$700,000. Our goal is to raise enough money to endow a chair at the school. This means that our minimum goal will be \$1 million.

The Indiana Dental Association membership will represent the first state dental association in the country to endow a chair at its state dental school.

Our efforts continue with the endowment of the Ralph W. Phillips Professorship, with more than \$168,000 committed toward the \$300,000 goal.

As you can see, major gifts, the IUSD Development Committee, and tremendous support of alumni and friends of the school made 1992-93 a banner year in terms of development. The aggressive agenda for the future will help ensure that the IU School of Dentistry continues to be a leader in higher education and health-care. This is an agenda that could not be set without the demonstrated generosity of thousands of our supporters. ■



Barry F. Smith
Director of Development

Indiana University School of Dentistry's List of Donors

Photographs are of guests at the 1993 Century Club Celebration, held at the Hyatt Regency Hotel in Indianapolis on April 29.

— Mike Halloran, photographer

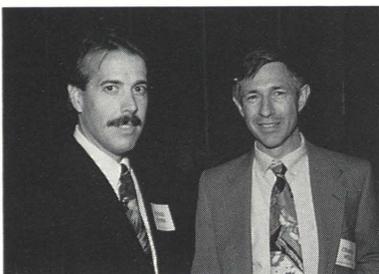
1992 Century Club II (gifts of \$500 or more)

Dr. Jack L. Alterkruse
American College of Dentists,
Indiana Section
Dr. Carl J. Andres
Dr. Gordon R. Arbuckle
Dr. Kamal Asgar
Dr. Paul H. Asher
Dr. David R. Avery



Charles Hollar (DDS'64), Chuck Hassel (DDS'67), and Dr. Hollar's spouse, Jacquie

Dr. and Mrs. Steven C. Beering
Ben Hur Dental Society
Dr. Richard S. Bloomer, Jr.
Dr. Robert L. Bogan
Dr. David G. Bojrab
Dr. Harry E. Bopp
Dr. Wilber C. Boren, III
Dr. M. John Borkowski
Dr. and Mrs. Steven L. Bricker
Dr. Cecil E. Brown, Jr.
Dr. David A. Bussard
Dr. Jeffrey D. Buttrum
Dr. and Mrs. Timothy J. Carlson
Dr. Thomas P. Cavanaugh
Centrix, Incorporated
Dr. Norman E. Chamberlain



Michael Knepper (DDS'77) and Charles Moll (DDS'67)

Dr. Yu-Ging Chang
Dr. Yung Neng Cheng
Dr. Harvey C. Cong, Sr.
Dr. and Mrs. Arden G. Christen
Dr. Kevin R. Christiansen
Dr. David B. Coates
Dr. Michael A. Cochran
Core-Vent Corporation
Dr. Charlie Cox, Jr.
Dr. Thomas P. Croll
Dr. Steven L. Davis
Dr. Peter E. Dawson
Dr. and Mrs. Richard L. Day
Dr. and Mrs. Jeffrey A. Dean
Dr. Toshio Deguchi
Dr. Eugene L. Dellinger
Dr. Lloyd A. Delman
Dentsply International Foundation
Dr. Frank W. Denzinger
Dr. Lloyd L. Drager
Eastman Kodak Company
Eli Lilly and Company
Dr. Virgil H. Eaton
Dr. Sigfus T. Eliasson
Dr. and Mrs. Richard D. Ellsworth
Dr. and Mrs. Jack L. Engleman
Exchange Club of Indianapolis
Dr. Kent Fischvogt
Dr. and Mrs. James W. Fisher
Dr. Thomas P.D. Fitzgibbon
Mrs. Evelyn H. Frenz
Dr. and Mrs. James D. Frey
Dr. Kenji Fujikawa
Dr. Takao Fusayama
Dr. and Mrs. Stephen K.
Gabrielsen
Dr. Sofia Espinosa Garcia
Dr. Donald E. Gardner
Dr. and Mrs. Lawrence Garetto
Dr. LaForrest D. Garner
Dr. Brent T. Garrison
Dr. H. William Gilmore
Dr. Lawrence I. Goldblatt
Dr. Edward F. Gonsky, Jr.
Dr. and Mrs. Charles J. Goodacre
Dr. Laura Graham
Dr. Steven Graham
Dr. Alvin J. Grayson
Dr. and Mrs. Charles D. Hall
Dr. John Robert Hall
Dr. E. Brady Hancock
Dr. Ronald K. Harris
Mrs. Jane C. Edds Hart
Dr. and Mrs. Joseph F. Heidelman
Dr. Hala Z. Henderson
Dr. and Mrs. David K. Hennon
Dr. Patrick J. Henry
Dr. Richard W. Henry
Thomas P. Hinman
Dental Meeting
Dr. Sumiya Hobo
Dr. and Mrs. Richard R. Hori

Dr. Burton A. Horwitz
Dr. Donna R. Huggins
The Hygienic Corporation
Indiana Academy of
General Dentistry
Indiana Orthodontic
Alumni Association
Indiana Society Oral and
Maxillofacial Surgeons



Edward Molenda (DDS'57) and Theresa Swenson

Dr. Koichi Ito
IU Alumni Association
(Indianapolis)
Ivoclar North America, Inc.
Dr. Mark K. Jackson
Jospeh R. Jarabak Trust
Dr. Malcolm D. Jendresen
Dr. Donald W. Johnson
Dr. Thomas S. Kaminski
Dr. Edward S. Kaminsky
Dr. Curtis N. Kamisugi
Dr. and Mrs. Kenneth K.
Kaneshiro
Dr. Thomas D. Katona
Dr. Ben T. Kawasaki
Dr. and Mrs. David C. Kem
Mrs. Janice B. Kem
Kerr Manufacturing Company



Charles Redish (DDS'51) and Cynthia Molenda (DDS'79)

Dr. Peter C. Kesling
Dr. and Mrs. Arthur Klein
Dr. Rupert W. Knierim
Dr. Robert J. Kuhn
Dr. Leo N. Lampros
Dr. Jeffry E. Landrum
Dr. Brian D. Lee
Dr. Ronald S. Lehman

Dr. and Mrs. Peter H. Leonard
Lilly Endowment Inc.
Dr. Daniel R. Lindborg
Dr. and Mrs. Norris Lovan
Dr. James V. Macri
Dr. Raymond M. Maddox
Dr. Ray K. Maesaka
Dr. Mark Magura
Dr. David B. Mahler
Dr. James Malooley, Jr.
Dr. and Mrs. Marshall Manne
Dr. Miles R. Markley
Dr. Donnell C. Marlin
Dr. David N. Matthews
Dr. and Mrs. Ralph E. McDonald
Dr. Cynthia S. Merrick
Miles, Inc.
Dr. and Mrs. Kenneth O. Miller
Dr. Lloyd L. Miller
Dr. Richard J. Miller
Mrs. Shonne Miller
Dr. Michael J. Mintz
Dr. and Mrs. John E. Moenning
Dr. and Mrs. John E.
Moenning, Jr.
Dr. Howard H. Mohler
Dr. M. Charles Moll
Dr. Jack P. Mollenkopf
Dr. Carlos A. Munoz
Dr. Roger L. Murphy
Dr. and Mrs. Charles L. Nabers
Dr. Robert Neiman
Dr. Charles L. Nelson
Dr. Eugene H. Nelson
Mr. and Mrs. Donald H. Newell
Dr. Philip L. Nicholson
Dr. Dennis Nishimine
Dr. Allan R. Nowakowski
Dr. and Mrs. Monte E. O'Conner
Dr. and Mrs. Patrick S. O'Hara
Dr. Yoshihito Ochiai
Dr. Masayoshi Ohashi
Dr. Michael A. Olivotto
Dr. Gregory J. Oppenhuizen
Dr. Rajapas S. Panichuttra
Dr. and Mrs. Phillip R. Pate
Parkell Products, Inc.
Dr. Kevin L. Payton
Dr. James R. Platt
Dr. Paul K. Pogue
Pond Foundation, Inc.
Dr. and Mrs. William R. Priestler
Dr. Charles E. Pritchett
Procter & Gamble Company
Dr. Peter B. Raetzke
Dr. Robert L. Reames
Dr. Douglas F. Reed
Dr. Arob W. Ridge
Dr. Carl E. Rieder
Dr. and Mrs. W. Eugene Roberts
Dr. Nelson W. Rupp
Dr. Ernest A. Sakamoto
Dr. Kerry A. Schamerloh
Dr. Ernest W. Scheerer, Jr.
Dr. Ralph G. Schimmele
Dr. Michael J. Schmoekler

Dr. Richard J. Schnell
 Dr. William F. Schultz
 Dr. Robert E. Sexton
 Dr. Timothy J. Shambaugh
 Dr. Stein R. Sheldon
 Dr. Masaya Shibehara
 Dr. and Mrs. George Simpson
 Dr. David M. Sinar
 Dr. R. Slavicek
 Dr. Dennis C. Smith
 Dr. Gary E. Staadt
 Dr. and Mrs. S. Miles Standish
 Dr. Harold N. Stanley
 Dr. Pamela A. Steed
 Dr. R. Sheldon Stein
 Dr. John S. Stone
 Dr. and Mrs. George K. Stookey
 Prof. Marjorie L. Swartz
 Dr. and Mrs. Henry M. Swenson
 Dr. and Mrs. Ronald A. Thompson
 Dr. David V. Tillmanns
 Dr. and Mrs. Charles E. Tomich



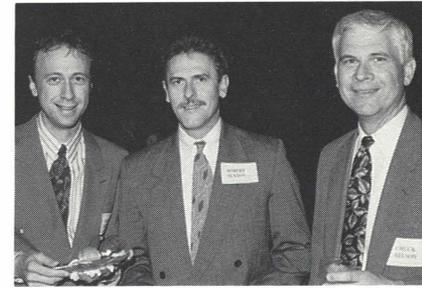
Duane Compton (MSD '66) with John Zapp, ADA executive director

Mr. and Mrs. Howard S. Wilcox, Sr.
 Dr. James E. Williams
 Dr. and Mrs. Keith E. Yoder
 Mr. Qais A.M. Zawawi

1992 Century Club I
(gifts from \$100 to \$499)

Dr. Kamal A. Abdel-Wahab
 Dr. Robert J. Achterberg
 Dr. Elliott R. Adams
 Dr. Thomas W. Adams
 Mrs. Jennifer S. Ahonen
 Dr. and Mrs. William Aitken, Jr.
 Dr. Charles C. Alling
 Dr. William R. Altstadt
 Dr. and Mrs. C. Richard Altenhof
 American College of Dentists,
 New England Section
 Dr. William C. Amos
 Dr. A. Scott Anderson, III
 Dr. Joel S. Andre
 Anonymous
 Anonymous
 Dr. Rafael Aponte, Jr.
 Dr. William J. Armstrong
 Dr. Sanford S. Asahina
 Dr. Bernard J. Asdell
 Dr. Edwin U. Austin
 Australasian Academy
 of Dentistry
 Dr. S. Kingdon Avery
 Dr. Edward L. Backes
 Dr. and Mrs. Daniel M. Bade
 Dr. Diane D. Bagnoli
 Dr. Michael L. Bagnoli
 Dr. and Mrs. L. Rush Bailey
 Dr. Stephen K. Bailie
 Dr. James J. Baldwin
 Dr. David J. Bales
 Dr. John R. Barbour
 Dr. James T. Barenie
 Dr. Robert E. Barker
 Dr. Larry L. Barlow
 Dr. E. Byrd Barr
 Dr. Brent J. Barta
 Dr. Douglas C. Bateman
 Mr. Lloyd Baum
 Dr. and Mrs. James W. Bayley

Dr. Stephen C. Bayne
 Dr. Larry L. Beachy
 Dr. Robert H. Beaumont
 Dr. Norman Becker
 Dr. Robert B. Beckett, Jr.
 Dr. Stephen D. Beeker
 Dr. Donald L. Beeler
 Dr. Bradley B. Beiswanger
 Dr. Richard D. Beitelshoes
 Dr. Fabio Beltran
 Dr. Dale A. Benefiel
 Dr. Joseph G. Benham
 Mrs. Collette M. Bent
 Dr. Donald E. Bentley
 Dr. Richard Benveniste
 Mr. and Mrs. Gerald L. Bepko
 Dr. Evelyn K. Berger
 Dr. Gregory A. Berger
 Mr. and Mrs. Daniel Berman
 Dr. Marvin Bernstein
 Dr. David T. Beverly
 Dr. Richard P. Bianco
 Dr. Roy C. Blake, III
 Dr. Paul K. Blaser
 Dr. and Mrs. John G. Blazic
 Dr. David A. Bleeke
 Dr. Dennis A. Block
 Dr. Robert E. Blu



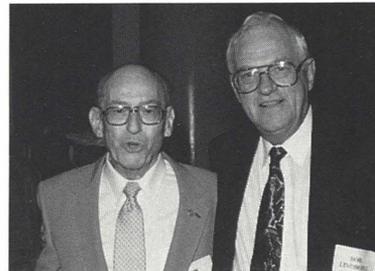
Jeffrey Buttrum (DDS'82), Robert Sexton (DDS'72), and Chuck Nelson (DDS'76)

Dr. Reinhard L. Bubenzer
 Dr. Richard Buchanan
 Dr. Richard S. Buchanan
 Mr. A. Buchner
 Dr. Stephen K. Buckingham
 Dr. Robert R. Buckley
 Dr. David L. Burns
 Dr. Donald L. Burns
 Dr. John C. Bush
 Dr. Steven J. Butler
 Dr. Alice M. Butterworth
 Dr. James J. Buzalski
 Dr. Albert L. Cabage
 Dr. Bruce M. Cable
 Dr. Glenn E. Callaway
 Dr. Joe H. Camp
 Dr. Kevin T. Campbell
 Dr. James R. Campi
 Dr. Fernando Campuzano
 Ms. Judith Ann Carichoff
 Dr. David L. Carr
 Dr. Guthrie E. Carr
 Dr. James B. Carr
 Dr. Stanley Carr
 Dr. William B. Carr
 Dr. and Mrs. John B. Challman
 Mr. R. Chancellor
 Dr. Gerald T. Charbeneau
 Dr. David G. Charlton
 Dr. Chong Lin Chew
 Dr. G. Thomas Childes
 Dr. Walter W.Y. Ching
 Dr. Frank Chinn, Jr.
 Dr. and Mrs. Wallace F. Chong, Jr.
 Dr. Gordon J. Christensen
 Dr. Alvin H. Chung
 Dr. R.A. Clappison



Jean and Bob Shirey (DDS'54), Marion Garrison, and Barbara Phillips, spouse of Lloyd Phillips (DDS'54)

Dr. Stephen H. Troyer
 Dr. Yu-Hui Tsai
 Dr. John L. Turchi
 Dr. Johnnie E. Turner
 Dr. Margot L. Van Dis
 Dr. Charles D. VanDyck, II
 Dr. James A. Weddell
 Dr. Bernadette Wells
 Dr. Herman B. Wells
 Dr. James Wells
 Mrs. Elizabeth C. White



John Reuthe (DDS'37) and Bob Lindborg (DDS'43)

Dr. Thomas M. Boardman
 Dr. James J. Bohlin
 Dr. Harold W. Bohnke
 Dr. and Mrs. Dayn C. Boitet
 Dr. Glenn R. Bollinger
 Dr. John D. Bond
 Dr. Joseph S. Bondi
 Dr. Howard P. Bonnett
 Dr. Malcolm E. Boone
 Dr. James C. Booth
 Dr. and Mrs. John V. Borden
 Dr. Richard P. Bowling
 Dr. Jack H. Boyd
 Dr. Russell C. Boyd, II
 Dr. Donald F. Boziec
 Dr. Robert E. Bradley
 Dr. Stephen R. Branam
 Dr. and Mrs. Arnold H. Braun
 Dr. Carol J. Braun
 Dr. Kenneth Braun
 Dr. Gary A. Breslauer
 Dr. June A. Brose
 Dr. and Mrs. David T. Brown
 Dr. James M. Brown
 Dr. Michael J. Brugos



Bob (DDS'69) and Angel Sells Perry and Kelley Carr (DDS'55)



Clay Stuckey (DDS'75), Lawrence Goldblatt (MSD'74), and Richard Buchanan (DDS'62)



Mark Stetzel (DDS'84), Sybil Niemann (DDS'66), and Steve Butler (DDS'84)

Dr. David B. Clark
 Dr. Patricia H. Clark
 Dr. Jeanne McDonald Clemence
 Dr. Roy D. Clinthorne
 Dr. Charles D. Coburn
 Dr. Elaine Hrisomalos Coghlan
 Dr. J. Kevin Coghlan
 Dr. Michael Colwell
 Dr. and Mrs. Duane E. Compton
 Dr. and Mrs. George P. Compton
 Dr. William I. Conrad
 Dr. Stephen A. Cook
 Dr. James H. Cooper
 Dr. Alan E. Corns
 Dr. Patrick F. Craven
 Dr. Virginia L. Crose
 Dr. Kevin D. Cross
 Dr. James B. Crossen
 Dr. Christine L. Culp
 Dr. Peter R. Cunningham
 Dr. Terry L. Cunningham
 Dr. and Mrs. William C. Current
 Dr. and Mrs. Willard H. Damm
 Dr. Donald P. Darbro
 Dr. Jerry W. Daubenspeck
 Dr. Robert C. Davies
 Dr. James R. Davis
 Dr. James R. Davis, II
 Dr. Jerry R. Davis
 Dr. Leslie I. Davis
 Dr. Matthew L. Davis
 Dr. W. Bailey Davis
 Dr. Walter R. Davis, Jr.
 Dr. William H. Davis
 Dr. Paul T. Dawson



Standing: Jean Lang, spouse of Larry Lang (DDS'47); Lois and Lloyd (DDS'47) Nevel. Seated: Dr. Lang; Bonnie and Bill (DDS'47) Lawrance

DC Dental Specialties
 Dr. Rolando A. DeCastro
 Dental Seminars, Inc.
 Denton A. Cooley Foundation
 Dr. Edgar K. DeJean
 Dr. Kevin J. Deakyne
 Dr. Kevin A. Deloria
 Dr. Raymond L. Dennany, III
 Dr. John H. Deppen, III
 Dr. Robert J. Detamore
 Mrs. Sylvia A. Detchon
 Dr. Floyd E. Dewhirst
 Dr. Kenneth H. Dilger
 Dr. James B. Dippel
 Dr. James H. Dirlam
 Dr. Roland R. Ditto
 Dr. John E. Dodes
 Dr. Thomas V. Doty
 Dr. Donald H. Downs
 Dr. Charlene Drakos
 Dr. Gary L. Drury
 Dr. Arthur A. Dugoni
 Dr. James E. Dumas
 Dr. and Mrs. Clifton O. Dummett
 Dr. Robert C. Dunning
 Dr. Clayton E. Dunton
 Dr. Phil J. Dupler
 Dr. Al Dupont
 Dr. Roland W. Dykema



Classmates Tony Grasso and Chuck Byer (DDS'64)

Dr. and Mrs. W.B. Eames
 Dr. M. Gilbert Eberhart
 Dr. Robert B. Edesess
 Dr. Eugene S. Eggers
 Dr. Ronald A. Eichel
 Dr. Eugene E. Ellis
 Dr. Janice L. Engstrom
 Dr. and Mrs. David W. Epstein
 Dr. Gerald S. Epstein
 Dr. Richard H. Ernsting
 Dr. Frank K. Etter
 Dr. Sammy J. Euler
 Dr. James A. Evans
 Dr. Robert L. Ewbank
 Dr. Nels O. Ewoldsen
 Dr. Salomon Fainsilber
 Dr. Danny E. Faulk
 Dr. J. Allen Feeley
 Dr. Stephen L. Fehrman
 Dr. Henry B. Feinberg
 Dr. Francis Feldman



Classmates Doug Reed and Timothy Turner (DDS'74)

Capt. and Mrs. George W. Ferguson
 Dr. Peter P. Ferrini
 Dr. Max E. Fetters
 Dr. Thomas M. Fiedler
 Dr. Donald Findlay
 Dr. Francis M. Fischer
 Dr. T.E. Fischer
 Dr. Ben J. Fisher
 Dr. and Mrs. Edward A. Fisher
 Dr. George A. Fisher
 Dr. Donald C. Fitz-Roy
 Dr. James L. Fleck
 Dr. Joseph A. Fleck
 Dr. Irving F. Folkening
 Dr. George S. Foster
 Dr. Joseph L. Fox
 Mr. and Mrs. James A. Foxworthy
 Dr. Harry G. Frank
 Dr. Gertraute Franz
 Dr. John R. Frazier
 Dr. Donald B. Fread
 Dr. M.J. Freeman
 Dr. Gerald E. French
 Dr. Mark J. Friedman
 Dr. James J. Fritts
 Dr. Edward L. Fritz
 Dr. D.J. Frounfelter
 Dr. Janice C. Fryar
 Dr. Royce Y. Fujimoto
 Dr. Masayoshi Fukushima
 Dr. William M. Fye
 Dr. Robert D. Gannon, Jr.
 Dr. Leonard Garceau
 Dr. Michael J. Garry
 Dr. Michael B. Gasko
 Dr. Robert P. Gebfert, Jr.
 Mrs. Wilhelmina L. Gelston
 Dr. W. Arthur George
 Ms. Gloria H. Gernstein
 Dr. Eugene L. Geyer
 Dr. Thomas W. Gibbs



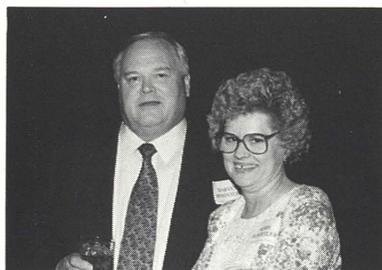
Jerry Hickman (DDS'65) and David Lehman (DDS'53)

Dr. Robert M. Gibson
 Dr. and Mrs. Ralph E. Gieringer
 Dr. Lesley K. Gilbert
 Dr. and Mrs. William Gillette
 Dr. Paul W. Gilmore
 Dr. David M. Giltner
 Dr. William A. Gitlin
 Prof. Per-Olof Glantz
 Dr. Harold N. Glasser
 Dr. William Glazer
 Dr. and Mrs. William M. Goebel
 Dr. Donald C. Goeckel
 Dr. Eric M. Goldberg
 Dr. and Mrs. Marvin C. Goldstein
 Dr. and Mrs. Ronald E. Goldstein
 Dr. Wesley C. Good
 Dr. Phil Goodman
 Dr. J. Courtney Gorman
 Dr. Karl W. Gossweiler
 Dr. and Mrs. Gary L. Gotsch
 Dr. Brent R. Grafe
 Dr. John Graffeo
 Dr. Larry L. Graham
 Dr. Wendell H. Grassmyer
 Dr. James H. Greeley
 Dr. Steven M. Green
 Dr. Joseph R. Greenberg
 Dr. Evan H. Greener
 Dr. Donald A. Greiner
 Dr. and Mrs. Michael J. Gross
 Mr. and Mrs. William B. Gross, III
 Dr. and Mrs. Richard M. Grossman
 Dr. Michael V. Gull
 Dr. James Guttuso
 Guyer Family Trust
 Dr. and Mrs. Lloyd J. Hagedorn
 Dr. and Mrs. James J. Hall
 Dr. Gary M. Haller
 Dr. Harold E. Hamburg
 Dr. and Mrs. Charles P. Hamer
 Dr. David W. Hamula
 Dr. Mark A. Haring
 Dr. John D. Harker
 Dr. Gary Harmatz
 Dr. David J. Harris
 Dr. Richard C. Harris
 Dr. Charles E. Hassel
 Dr. and Mrs. Steven P. Haug
 Dr. Ronald L. Hauswald
 Dr. Michael J. Hayduk
 Dr. Charles O. Hazelrigg, Jr.
 Dr. Jo Ann Hearn
 Dr. Gene F. Hedrick
 Dr. Sam W. Heltzel
 Dr. James E. Hendricks
 Dr. and Mrs. James C. Hennigar, Jr.
 Mrs. Edna R. Hensey
 Mr. Richard M. Herd
 Dr. and Mrs. S. Craig Herman
 Dr. and Mrs. Stanley C. Herman
 Dr. Wayne W. Herman
 Dr. Charles B. Hermesch
 Dr. James D. Hernly
 Dr. James M. Herrick
 Dr. Jane L. Heyde
 Dr. Gary G. Hickman
 Dr. Thomas R. Hickman



Glenn Smith (DDS'72) with DDS'65 classmates Bob Griffin, Joe Shoemaker, and Ben Asdell

Dr. and Mrs. Jerry R. Hickman
 Dr. E. William Hicks
 Dr. Larry J. Hicks
 Prof. Roberta M. Hilderbrand
 Dr. Paul D. Hillis
 Dr. Craig L. Hills
 Dr. Maynard K. Hine
 Dr. and Mrs. Ko Hinoura



Harvey (DDS'71) and Mary Hostetler

Dr. Gary J. Hinz
 Dr. Stanley A. Hirsch
 Dr. Robert B. Hirschman
 Dr. James O. Hix, III
 Dr. Keith W. Hodgkin
 Dr. John W. Hohe
 Dr. William F. Hohlt
 Dr. and Mrs. James L. Holder
 Dr. Carlos R. Holguin
 Dr. and Mrs. Jess L. Holler
 Dr. Leonard D. Hollingsworth



J. Courtney Gorman (DDS'87) and Rebecca Van Winkle, spouse of Kurt Van Winkle (DDS'87)

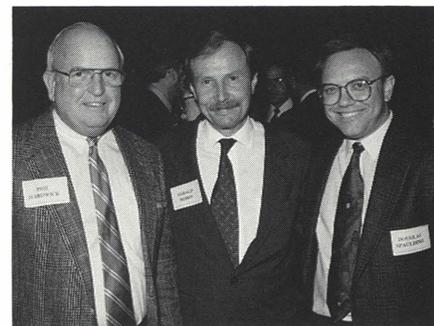
Dr. David R. Holwager
 Dr. Richard L. Hoover
 Dr. James H. Hornberger
 Dr. Robert H. Hornbrook
 Dr. Harvey L. Hostetler
 Dr. Suteera T. Hovijitra
 Dr. David J. Howell
 Mrs. James W. Huckelberry
 Dr. Roger W. Huff
 Dr. Daniel P. Hughes
 Dr. James R. Hull
 Dr. Theodore R. Hunley
 Dr. and Mrs. Ronald K. Hunter
 Dr. and Mrs. James D. Hurst
 Dr. Charles E. Hutton
 Mrs. Gloria H. Huxoll
 Dr. Michael Iczkovitz
 Dr. Rex Ingraham
 Dr. and Mrs. Jon B. Inman
 Institute for Advanced
 Dental Research
 Dr. and Mrs. Glenn W. Irwin, Jr.
 Dr. Roger L. Isaacs
 Dr. Stuart L. Isler
 Dr. Scott G. Jacklin
 Dr. Earl W. Jackson
 Ms. Judith Jacobs
 Dr. George W. James
 Dr. Dennis J. Jenkins
 Dr. and Mrs. James E. Jerger
 Dr. Ronald L. Johnston
 Dr. Samuel T. Judd
 Dr. Stephen B. Kabisch
 Dr. Abdel-Hady Kafrawy
 Dr. John F. Kalinowski
 Dr. Arthur T. Kamisugi
 Dr. Gregory G. Kamp
 Dr. Yoshiroh Katoh
 Dr. Gerry L. Kaufman
 Dr. Wilfrid M. Keaton
 Dr. Michael P. Keenan
 Dr. Hudson G. Kelley
 Dr. Stuart G. Kelly
 Dr. and Mrs. John W. Kendrick, Jr.
 Dr. Martin F. Kennedy
 Dr. B. Charles Kerkhove, Jr.
 Dr. James C. Kessler
 Dr. Lori L. Kessler
 Mrs. Judith Kight
 Dr. William D. Kimbriel
 Dr. James F. King
 Dr. David A. Kirchoff
 Dr. Noritaka Kitajima
 Dr. Randolph L. Kixmiller
 Dr. and Mrs. Joseph L. Kleinman
 Dr. Kevin L. Klinedinst
 Dr. Judson Klooster
 Dr. James C. Klug
 Dr. Joni D. Kluth
 Dr. Michael K. Kluth
 Dr. John F. Knapp
 Dr. Stephen C. Koehler
 Dr. Leonard G. Koerber
 Dr. Peter N. Kondon
 Dr. and Mrs. Michael J. Koufos



Jean and John (DDS'54) Szakaly

Dr. and Mrs. Thomas A. Kroczek
 Dr. Ray S. Krug
 Dr. John T. Krull
 Dr. Joseph Krushinski
 Dr. Leroy H. Kulis
 Dr. William A. Kunkel, III
 Dr. John J. Kusssmaul, Jr.
 Mr. F. Robert Kutka
 Dr. Frank A. Kyle
 Dr. D. Paul LaCount
 Dr. Arlen D. Lackey
 Dr. Don E. Lahrman
 Dr. Howard M. Landesman
 Dr. Lawrence A. Lang
 Dr. Robert G. Larson
 Dr. and Mrs. Daniel Laskin
 Dr. David M. Latz
 Dr. David T. Lawless
 Dr. and Mrs. William I.
 Lawrence
 Dr. James S. Lawrence
 Dr. Edward A. Lawton
 Dr. and Mrs. Harrison Lawyer
 Dr. Thomas Layman
 Dr. Lisa Nonweiler Lear
 Dr. Byungmoo Lee
 Dr. Michael B. Lee
 Dr. Nancy Lee
 Dr. Jerry H. Leer
 Dr. Henry H. Leff
 Dr. Joseph J. Legan
 Dr. John B. Lehman, Jr.
 Dr. Jaime O. Lemna
 Dr. Jack Lemons
 Dr. and Mrs. R. Dale Lentz
 Dr. Jerry O. Lentz
 Dr. Wayne S.H. Leong
 Dr. and Mrs. Carl Lerner
 Dr. Walter A. Leuenberger, Jr.
 Mr. Steven N. Levinson
 Dr. Tom K. Ley
 Dr. W. David Leyda
 Dr. W. Richard Leyda
 Dr. John C. Libke
 Dr. Larry L. Lindenschmidt
 Mr. and Mrs. Thomas T.
 Lindsey
 Dr. Robert D. Lindsey
 Dr. and Mrs. John A. Little
 Dr. Stephanie M. Litz
 Dr. Poey-Ling Loh
 Dr. Evan G. Long
 Dr. Lael E. Long
 Dr. W. Randall Long
 Dr. Joseph H. Lovasko
 Dr. Jacob W. Ludwick

Dr. Melvin R. Lund
 Dr. J. Keith Lungren
 Dr. James D. Lytle
 Dr. Ronald B. Mack
 Dr. Pierre G. Mackay
 Mrs. Roberta J. Maddock
 Dr. Charles W. Magnuson
 Dr. Marcus W. Malczewski, II
 Dr. and Mrs. Mark E. Mallatt
 Dr. Inger L. Malwin
 Dr. Robert K. Mann
 Dr. William Marchi
 Dr. Michael R. Marcotte
 Dr. William H. Marshall
 Dr. Paul W. Martin
 Dr. Richard L. Martin, Jr.
 Dr. Robert A. Martin
 Dr. Vernon D. Martin, Jr.
 Dr. John R. Mast
 Dr. Susan J. Halt Mauk
 Dr. and Mrs. John A. McAleer
 Dr. H. Harrison McAllister
 Dr. Jeffrey S. McBride
 Dr. Charles A. McCallum
 Dr. James R. McCormick
 Dr. Lawrence E. McCulley
 Dr. Douglas E. McDaniel
 Dr. James L. McDonald, Jr.
 Dr. Scott W. McDonald
 Dr. Robert J. McDonough



Phil Hardwick, of the IU Foundation; Gerald Bepko, chancellor of IUPUI; and Douglas Spaulding (DDS'83)

Dr. William H. McHorris
 Dr. Thomas W. McKean
 Dr. Earl O. McKinley
 Ms. Geraldine McLaughlin
 Dr. John W. McLean
 Dr. Charles McNeill
 Dr. Rita Mehra
 Dr. Ronald G. Melser
 Dr. Phillip W. Merrell
 Dr. Gene E. Meyer
 Dr. Dale A. Miles
 Dr. and Mrs. Chris H. Miller
 Dr. and Mrs. Galen R. Miller
 Dr. Dennis M. Miller
 Dr. Duane L. Miller
 Dr. Mark F. Miller



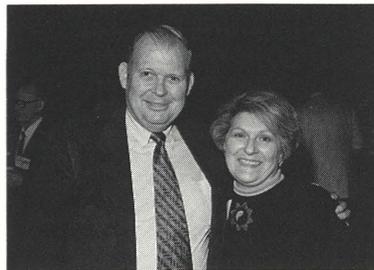
Kathleen O'Leary, Brady (MSD'74) and Caryl Hancock, Don and Sue Newell

- Dr. Phillip H. Miller
- Dr. and Mrs. Roger A. Miller
- Dr. Sam J. Miller
- Mrs. Sylvia A. Mills
- Dr. John R. Mink
- Dr. Ted E. Mioduski, Jr.
- Dr. John W. Miskuf
- Dr. John C. Mitchem
- Dr. Myles C. Miyasato
- Dr. and Mrs. Robert N. Modlin
- Dr. Robert M. Modrowski
- Dr. Cynthia L. Molenda
- Dr. Edward J. Molenda
- Dr. Gergory C. Moo
- Dr. B. Keith Moore
- Dr. Dudley S. Moore
- Dr. Assad Mora
- Dr. Robert D. Morris
- Dr. Scott W. Morrison
- Dr. James E. Morse
- Dr. Thomas H. Morse
- Dr. Donald W. Mosley
- Dr. and Mrs. John H. Mosteller
- Dr. Graham J. Mount
- Dr. William S. Mull
- Dr. Thomas P. Mullaney
- Dr. Lawrence D. Mund
- Dr. Robert E. Murer
- Dr. Thomas M. Murray
- Dr. George A. Myers
- Dr. James M. Myers
- Dr. Richard N. Myers



Caroline Robbins, spouse of Fred Robbins (DDS'64); Gerry French (DDS'57); Bill Gilmore (DDS'58); Jackie French (ASDH'57); and Dr. Robbins

- Dr. W. Patrick Naylor
- Dr. Rocco P. Nazzaro
- Dr. and Mrs. James L. Neafus
- Dr. and Mrs. Lloyd N. Nevel
- Dr. John E. Neville
- Dr. J. Cameron Newby
- Dr. John E. Newlin
- Dr. Carl W. Newton
- Dr. Richard T. Newton, II
- Dr. Jack E. Nicwander
- Dr. Steven L. Nicholson
- Dr. Richard D. Nickels
- Dr. Sybil S. Niemann
- Dr. Linda C. Niessen
- Dr. Gary A. Nondorf
- Dr. Thomas R. Northcott
- Northwest Indiana
Dental Society Inc.
- Dr. and Mrs. Norman Novak
- Dr. Brian E. Nunley
- Dr. Ernest B. Nuttall
- Mrs. Kathleen A. O'Leary
- Dr. Anthony K. Oexman
- Prof. Evelyn R. Oldsen
- Dr. and Mrs. Dale W. Oliver
- Dr. Byron L. Olson
- Dr. Radamee Orlandi-Alvarez
- Dr. Travis H. Osborne, Jr.



Chet and Sonia Swimley

- Dr. Stephen F. Paige
- Dr. Larry W. Pampel
- Dr. Leo J. Pancoska
- Dr. Joe L. Parson
- Dr. John I. Parsons
- Dr. and Mrs. Samuel S. Patterson
- Dr. William E. Paul
- Dr. Ben W. Pavone
- Dr. Michael D. Payer
- Dr. David L. Pearson
- Dr. Roger S. Pecina
- Dr. William E. Peet
- Dr. F. Wesley Peik
- Dr. Thomas R. Peters
- Dr. Larry J. Peterson
- Dr. and Mrs. John C. Pfefferle
- Dr. Gary Pflieger
- Dr. and Mrs. David M. Phillips
- Dr. Gary R. Pippenger
- Dr. and Mrs. Hubert C. Pirkle
- Dr. James L. Pittman
- Dr. Paul H. Pokorny



Pennie Thomas, spouse of Harvey Thomas (DDS'52), and James Shupe (DDS'62)

- Dr. Charles Poland
- Dr. Scott H. Polizotto
- Dr. Charles F. Pope, Jr.
- Dr. James C. Potts
- Dr. Raymond R. Price
- Dr. Donald W. Pulver
- Dr. Charles A. Puntillo
- Dr. Robert B. Purdy
- Dr. Thomas E. Quill, II
- Dr. and Mrs. David M. Radovich
- Dr. John A. Rahe
- Dr. and Mrs. Parvin R.

Raibley

- Dr. and Mrs. Robert Raughley
- Dr. Barry W. Ray
- Dr. Eileen Robrock Raywood
- Dr. Charles H. Redish
- Dr. John E. Regan
- Dr. Robert J. Relle
- Restorative Designs
- Dr. John J. Reuthe
- Dr. Marjorie M. Reuthe
- Dr. Gilbert Rhine
- Mr. and Mrs. Robert Rhodes
- Mr. Claude T. Rich
- Dr. Robert E. Riddle
- Dr. O.H. Rigsbee, III
- Dr. Robert F. Rimstidt
- Dr. Joe R. Rinard
- Dr. Thomas K. Ringenberg
- Dr. Wayne H. Risinger
- Mrs. Evelyn R. Ritter
- Dr. John M. Ritter, Jr.
- Dr. and Mrs. Fredrick Robbins
- Dr. Gregory A. Robbins
- Dr. Donald C. Roberts
- Dr. J. Keith Roberts
- Dr. Edwin S. Robertson
- Dr. Sidney E. Robertson
- Dr. Joseph A. Rocco
- Dr. James R. Roche
- Dr. Michael R. Roda
- Dr. Robert J. Roetker
- Dr. Lonnie L. Rooksby
- Dr. Stephen F. Rosenstiel
- Miss Heather Rae Roth
- Dr. Nathan G. Roth
- Dr. Jeffrey A. Rouse
- Dr. Ralph T. Rucinski
- Dr. Irving R. Rutkin
- Dr. Thomas G. Rykovich
- Dr. James A. Saddoris
- Dr. Charles M. Sage
- Dr. Kevin K. Saito
- Dr. Mark D. Sakurai

- Dr. Fadi S. Saloum
- Dr. Carlos C. Sanchez
- Dr. David H. Sawyer
- Dr. Joe W. Scales
- Col. George W. Schad
- Dr. Alan B. Schafer
- Dr. Ronald P. Scheele
- Dr. Gary A. Scheumann
- Dr. Gary A. Schinbeckler
- Dr. Ronald R. Schlimmer
- Dr. Dean D. Schloyer
- Dr. Norbert J. Schneider
- Dr. Sandra Paraiso Schwann
- Dr. Jerome Schweitzer
- Dr. Robert B. Scircle
- Dr. G.K. Scott
- Dr. Leonard S. Scott
- Dr. Don G. Scroggins
- Dr. Jordon L. Scull
- Dr. and Mrs. Richard E. Seib
- Dr. Andrew J. Serafin
- Dr. Paul A. Sergio
- Dr. Louis R. Sertich
- Dr. John G. Shank
- Dr. Robert E. Sharp



Neal Richter (DDS'81), Lynn and Bill (DDS'81) Shonk, and Jess Holler (DDS'81)

- Dr. Cherilyn G. Sheets
- Dr. David J. Shelsy
- Dr. Robert C. Shirey
- Dr. Joseph W. Shoemaker
- Dr. Joseph W. Shoemaker, Jr.
- Dr. William K. Shonk
- Sigma Phi Alpha, Theta Chapter
- Dr. Jerome J. Siegel
- Dr. Louis C. Siegel
- Dr. Stuart B. Siegel



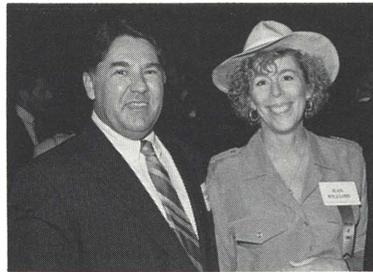
Jane Tweedle, spouse of Ed Tweedle (DDS'60), and Lillie Damm, spouse of Willard Damm (DDS'41)



Chuck Gish (DDS'49) with DDS'61 classmates Chuck Smith and Don Greiner

Dr. Kenneth W. Siegesmund
 Dr. and Mrs. Stephen M. Silston
 Dr. Manuel A. Silva
 Dr. Farrell L. Simmerman
 Dr. Frederick Simmons, Jr.
 Dr. James L. Sims, Jr.
 Dr. Edward M. Sisk
 Ms. Rosemond L. Skinner
 Dr. John H. Slavens
 Dr. John V. Smedley
 Dr. Burton G. Smith
 Dr. Charles E. Smith
 Ms. Elizabeth Brown Smith
 Dr. Glenn M. Smith
 Dr. Gregg W. Smith
 Dr. J. Harold Smith, II
 Dr. Maurice G. Smith
 Dr. Randle D. Smith
 Dr. Raymond T. Snapp
 Dr. Bryan E. Snook
 Dr. Susan E. Snyder
 Somer Dental Ceramics
 Dr. Brent D. Sonner
 Dr. James M. Souers
 Dr. and Mrs. Douglas G. Spaulding
 Dr. Donald E. Spees
 Dr. Donn H. Spilman
 Dr. and Mrs. Kenneth J. Spolnik
 Dr. Harry E. Sponseller
 Dr. Robert E. Sriver
 Dr. Mary Welch Staadt
 Mrs. Joyce E. Stafford
 Dr. Gerald J. Stahl
 Dr. Douglas A. Stanley
 Dr. Paul E. Starkey
 Dr. Steven A. Staton
 Dr. Charlie Stebner
 Dr. Thomas J. Steckbeck
 Dr. Charles L. Steffel
 Dr. and Mrs. Robert M. Stetzel
 Dr. Mark Stetzel
 Dr. and Mrs. Ray E. Stevens
 Dr. Howard E. Stevenson
 Mrs. David N. Stiefler
 Dr. Arthur I. Stine
 Miss Cara N. Stoll
 Dr. Arthur Stone
 Dr. Eldred W. Stout
 Dr. Steven D. Stradley
 Dr. Richard D. Strait
 Dr. John J. Stropko
 Dr. Donald E. Stroud

Dr. Clay W. Stuckey
 Dr. Clifford M. Sturdevant
 Dr. Gene A. Stutsman
 Dr. Roger H. Sullivan
 Dr. Martin L. Supowitz
 Dr. George W. Surguy
 Dr. Henry A. Sutro
 Dr. and Mrs. Dwight C. Swimley
 Dr. John S. Szakaly
 Dr. Leslie K. Tanimura
 Dr. George J. Tarquinio
 Dr. and Mrs. Gary V. Taylor
 Dr. William C. Tellman
 Dr. Michael J. Ternisky
 Dr. and Mrs. Donald R. Tharp
 Dr. Rhett W. Tharp
 Dr. Harvey G. Thomas
 Dr. John B. Thompson
 Dr. Van Thompson
 Dr. George A. Tiffany
 Dr. Jackson D. Todd
 Dr. William M. Todd
 Dr. and Mrs. Kevin P. Tolliver
 Dr. Frank L. Traster
 Dr. Lionel Traubman, II
 Dr. Patrick A. Tromley
 Dr. William H. Truax, II
 Dr. Marvin A. Tuckman



Perry Perea and Jean Williams (DDS'69)

Dr. Timothy L. Turner
 Dr. Lester E. Tweedle
 Dr. R. Brian Ullmann
 Universidad Intercontinental
 Dr. James C. VanDeventer
 Dr. Jeffrey R. VanDeventer
 Dr. Donald J. VanGilder
 Dr. Robert L. VanHouse
 Dr. Francis J. Vander Wall
 Dr. and Mrs. Ned B. Van Roekel
 Dr. Kurt D. Van Winkle
 Dr. and Mrs. David A. Varner
 Mrs. Gretchen Vasquez



Miles Standish (DDS'45) and Gib Eberhart (DDS'59)



Jim Frey (DDS'72) with Cheryl (ASDH'78) and Dan (DDS'78) Bade

Dr. Darlene S. Vaughan
 Dr. James J. Vaughan
 Dr. James P. Vernetti
 Dr. Charles C. Vieck
 Dr. William E. Virtue
 Dr. Jack M. Vorhies
 Mrs. Nancy K. Waggoner
 Dr. and Mrs. A. George Wagner
 Dr. Thomas H. Walker
 Mr. Walter E. Walker
 Dr. Robert C. Walls
 Dr. David P. Walters
 Dr. Marion E. Warpenburg
 Dr. Richard M. Waterstrait
 Dr. H. William Watts, Jr.
 Dr. David W. Wearly
 Dr. and Mrs. Faustin N. Weber
 Dr. Gary E. Weber
 Dr. Dianne C. Weidner
 Dr. and Mrs. Harvey Weingarten
 Mr. and Mrs. Sherman Weinstein
 Mr. and Mrs. David F. Welch
 Mrs. George A. Welch
 Dr. Clarence E. Wentz
 Dr. R.J. Werner
 Dr. Albert J. Wesley
 Dr. J. Harry Whetstone
 Dr. Philip M. Whisler
 Dr. Howard W. Wiesjahn, II
 Dr. Donald B. Wiesler
 Dr. Steve E. Wilhite
 Dr. Jon S. Wilkins
 Dr. Annette J. Williamson
 Prof. Gail F. Williamson
 Dr. and Mrs. George P. Willis
 Dr. James D. Wilson
 Dr. Neal K. Wilsted

Dr. Bruce A. Winter
 Ms. Ruth C. Wirtz
 Dr. Stefan H. Wittner
 Mr. and Mrs. Jon R. Witty
 Dr. Nelson L. Wolfe
 Dr. Roger E. Wood
 Dr. Gerald Z. Wright
 Mr. and Mrs. Harry Yamaguchi
 Dr. Carolyn S. Yamaoka
 Dr. Randall D.J. Yee
 Dr. Owen J. Yule
 Dr. Dennis Zent
 Dr. J.E. Ziegler
 Dr. Thomas B. Zimmerman
 Ms. Carolyn B. Ziner
 Dr. Richard E. Zollinger
 Dr. Susan L. Zunt



Barbara and Donald VanGilder (DDS'35)

**Indiana Dental Association/
 Indiana University
 School of Dentistry
 Pursuit of Excellence
 Endowment Program**

**Dean's Council
 (Pledge of \$5,000, or \$1,000
 per year for 5 years)**

Dr. Gerald L. Ackerman
 Dr. Wayne Alley
 Dr. Gordon R. Arbuckle
 Dr. and Mrs. Donald E. Arens
 Dr. Harry Bailie
 Dr. Carl D. Bell
 Dr. Rollie A. Bennett



Dale Lentz (DDS'67) with Jackie and Jack (DDS'58) Engleman



Dr. Brad Korn (DDS'75), Dr. John Buhler Jr. (DDS'70), and Dr. Susan Mauk (DDS'81)

- Dr. Richard S. Bloomer, Jr.
- Dr. David G. Bojrab
- Dr. M. John Borkowski
- Dr. Edward A. Bromm
- Dr. and Mrs. Gary K. Brown
- Dr. George K. Bruner
- Dr. and Mrs. John E. Buhler, Jr.
- Dr. W. Kelley Carr
- Dr. and Mrs. Varoujan Chalian
- Dr. and Mrs. R. Joseph Clark
- Dr. and Mrs. G. Thomas Cloyd
- Dr. and Mrs. Richard E. Cowan
- Dr. Willard H. Damm
- Dr. and Mrs. Watson E. Deakyne
- Dr. and Mrs. Eugene L. Dellinger
- Dr. and Mrs. David A. Dickey
- Dr. Roland R. Ditto
- Dr. and Mrs. Bernard B. Dreiman
- Dr. James E. Dumas
- Dr. H. William Gilmore
- Dr. Karl W. Glander
- Dr. and Mrs. Richard L. Gore
- Dr. John C. Gorman
- Dr. Karl W. Gossweiler
- Dr. Joseph A. Grider
- Dr. Lloyd J. Hagedorn
- Dr. and Mrs. David J. Harris
- Dr. K. Michael Hayes
- Dr. Hala Z. Henderson
- Dr. Richard W. Henry
- Dr. Maynard K. Hine
- Dr. Leonard D. Hollingsworth
- Dr. James W. Huckelberry
- Dr. James R. Hudson
- Dr. Kenneth R. Hyde



Lois and Edmund (DDS'61) Laskowski with Bob Stetzel (DDS'53)

- Indiana Academy
of General Dentistry
- Indiana Society of Orthodontists
- Dr. Jon D. Ingleman
- Johns Dental Laboratory
- Dr. Michael G. Kelley
- Dr. Aaron Kimche
- Dr. and Mrs. C. Michael Knepper
- Dr. and Mrs. Jerry E. Lambert
- Dr. Richard L. Lasbury
- Dr. David G. Lehman
- Dr. and Mrs. Peter H. Leonard
- Dr. and Mrs. David C. Lind
- Dr. John T. Lindquist
- Dr. and Mrs. Ralph E. Llewellyn
- Dr. Raymond M. Maddox
- Dr. and Mrs. Ralph E. McDonald
- Dr. Thomas A. Moryl
- Dr. and Mrs. Phillip
O'Shaughnessy
- Dr. and Mrs. Samuel S. Patterson
- Dr. and Mrs. William E. Paul
- Dr. Ben B. Pence
- Dr. Robert D. Perry
- Dr. and Mrs. Lloyd J. Phillips
- Dr. and Mrs. James R. Platt
- Dr. Charles H. Redish
- Dr. and Mrs. Everett L.
Ringenberg



Elaine and Norris (ASDLT'80) Lovan

- Dr. and Mrs. W. Eugene Roberts
- Dr. Larry D. Roberts
- Dr. John A. Roshel, Jr.
- Mr. Harvey Sarner
- Dr. and Mrs. Charles M. Simons
- Dr. J. Harold Smith
- Dr. and Mrs. Maurice G. Smith
- South Central Dental Society
- Dr. Frederick L. Sputh
- Dr. Delynn W. Stults
- Dr. Robert E. Tarplee
- Dr. Harvey G. Thomas
- Dr. and Mrs. George Vail
- Dr. and Mrs. George A. Welch
- Dr. John L. Wells
- West Central Dental Society
- Dr. James E. Williams

Patron Members

**(Pledge of \$2,500-\$4,999,
or \$500-999.80 per year for
5 years)**

- Dr. David R. Avery
- Dr. Stephen K. Bailie
- Dr. Jerry A. Bechtel
- Dr. William H. Begeman
- Dr. and Mrs. Robert L. Bogan
- Dr. Robert R. Carter
- Dr. Duane E. Compton
- Dr. George P. Compton
- Mr. and Mrs. Gale E. Coons
- Dr. Donald P. Darbro
- Dr. Daniel W. Fridh
- Dr. Robert P. Gebfert
- Dr. and Mrs. Charles W. Gish
- Dr. James W. Gordon, III
- Dr. Steven M. Green
- Dr. and Mrs. Russell L. Heyde
- Dr. Charles A. Hollar
- Dr. Scott G. Jacklin
- Dr. George W. James
- Dr. David P. Jarrell
- Dr. Michael B. Lee
- Dr. Michael L. Leavitt
- Dr. D.R. Lindborg
- Dr. W. Randall Long
- Dr. Norris H. Lovan
- Dr. and Mrs. Kenneth O. Miller
- Dr. Roger L. Murphy
- Dr. Philip L. Nicholson
- Dr. George J. Parker
- Dr. F. Wesley Peik
- Dr. Charles E. Pritchett
- Dr. John D. Rodkey
- Dr. and Mrs. John W. Sawin
- Dr. James A. Shupe
- Dr. Roger L. Trueblood
- Dr. John L. Turchi
- Dr. C. Richard Walker
- Dr. William J. Walsh
- Dr. James A. Weddell
- Dr. Walter C. Wilson
- Dr. William C. Witherspoon

Supporting Members

**Pursuit of Excellence
(No minimum gift)**

- Dr. Nolan W. Allen
- Dr. and Mrs. Wade Anshutz, Jr.
- Dr. Harold D. Atkinson
- Dr. and Mrs. Charles F. Aton



Maureen and Stephen Lehman (DDS'73) with Mike Gasko (DDS'75)

- Dr. James W. Bayley
- Mr. Carl G. Beatty
- Dr. Thomas H. Beavers
- Dr. David A. Bleeke
- Dr. Harold W. Bohnke
- Dr. Ronald K. Bowman
- Dr. Robert R. Canida
- Dr. Guthrie P. Carr
- Dr. Paul J. Challgren
- Dr. and Mrs. Larry J. Clemons
- Dr. James R. Davis
- Dr. Gwendolyn M. Edmondson
- Dr. and Mrs. John P. Farmer
- Dr. Bruce C. Fields
- Dr. Joe E. Forgey
- Dr. Gerald E. French
- Dr. Robert L. Gayle
- Dr. Richard L. Gore
- Dr. Thomas H. Graffis, Jr.
- Dr. Anthony M. Grasso
- Dr. Michael J. Hayduk
- Dr. Jo Ann Hearn
- Dr. James M. Herrick
- Dr. Joseph W. Jacobi
- Dr. Ronald L. Johnston
- Dr. Gerry L. Kaufman
- Dr. and Mrs. Charles E. Kem
- Dr. B. Charles Kerkhove
- Dr. Edmund E. Laskowski
- Dr. Robert L. Mattern
- Dr. Steven M. Patterson
- Dr. and Mrs. Lloyd J. Phillips
- Dr. Bryon K. Poindexter
- Dr. Jack L. Portzline
- Dr. John A. Rahe
- Dr. John R. Risch
- Dr. John R. Roberts
- Dr. Edwin S. Robertson
- Dr. Janet L. Rucker
- Dr. Jack E. Schaaf
- Dr. and Mrs. Robert E.
Shellenberger
- Dr. Kenneth W. Siegesmund
- Dr. and Mrs. Charles M. Simons
- Dr. Glenn M. Smith
- Dr. and Mrs. Robert M. Stetzel
- Dr. Charles E. Tomich
- Dr. Marion E. Warpenburg

- The IUSD Development Office has made every attempt to provide an accurate, up-to-date roster of the names of individuals and organizations contributing to three important funds of the School. Any omissions or errors should be reported to Joyce E. Stafford by writing to her at the dental school address or by calling 317/274-3246.

Changes to Clinical Program Include Off-site Treatment for the City's Homeless

Several significant changes were made in the predoctoral clinical operation last year to improve student mentoring and to continue progress toward establishing a more patient-centered system.

The Comprehensive Care clusters have been redesigned to improve their efficiency and strengthen the management and mentoring roles of the cluster directors.

The 96 dental units on the third floor, which were originally divided into nine clusters for the Comprehensive Care system, have been divided into six clusters for the 1993-94 school year.

Six cluster directors have been appointed to give full-time attention to the cluster program. They are Dr. Timothy J. Carlson, associate professor of operative dentistry; Dr. Steven E. Dixon, assistant professor of operative dentistry; Dr. Christianne J. Guba, assistant professor of preventive and community dentistry; Dr. Donnell C. Marlin, assistant professor of dental diagnostic sciences; Dr. Larry D. Ryan, associate

professor of preventive and community dentistry; and Dr. Jack E. Schaaf, associate professor of dental diagnostic sciences.

The primary responsibilities of the directors are to mentor their cluster students, facilitate patient treatment, and manage cluster activity. Since clinical instruction continues to be provided by the clinical departments, the students now have the dual advantage of much greater mentoring support coupled with instruction by the school's outstanding clinical specialists.

Another important change, also directed toward improving patient service, was the moving of the predoctoral oral and maxillofacial surgery clinic from the second floor to the first floor emergency clinic. This step has consolidated patient emergency services into one full-time emergency cluster, which is under the direction of Dr. Rafik A. Abdelsayed.

Beginning with the 1993-94 academic year, the dental school is sending fourth-year dental students to People's Health Center where they will treat homeless patients primarily under the supervision of Dr. Matthew C. Moeller, part-time instructor in operative dentistry and director of the new program.

Through the People's Health Center's Homeless Initiative Program, persons in need will receive a variety of dental care provided at the eastside clinic. The program has been made possible in part with the Center's Health Care for the Homeless grant, which provides comprehensive healthcare to homeless men, women, and children in Marion County. Dr. Jennifer R. Kugar, part-time volunteer instructor in operative dentistry, directs the People's Health Center division of dentistry.

The collaborative project with People's Health Center represents a significant community outreach effort on the part of the school that is designed to expand the students' clinical experiences and social awareness.

These latest changes represent progress toward the general goal of making the dental school predoctoral clinical operation more patient centered, and thus more reflective of the private practice environment. ■

Dental School Patients

- 13,429 – patients currently seek dental treatment from the IU School of Dentistry.
- 85,952 – patient appointments were made in 1992-93 — 4% more than the past fiscal year.
- 71 – Indiana counties (as well as 18 other states) are represented in the patient pool.
- 54% – of the patients are female.
- 31 – is the mean age of patients.

Dental services were paid for accordingly:

- 54% payment by patient
- 25% Medicaid
- 11% insurance
- 10% other third parties

In 1992-93, the first full academic year under the new cluster system, clinic income was almost \$2.6 million — a 13% increase over the previous year.



Donald R. Tharp
Associate Dean for Clinical Affairs

Hitching a Ride Into Space

Shuttle Discovery enables dental school faculty to retrieve more bone research data from space while Shuttle Columbia prepares to launch phase 2 of NASA's Spacelab for Life Sciences.

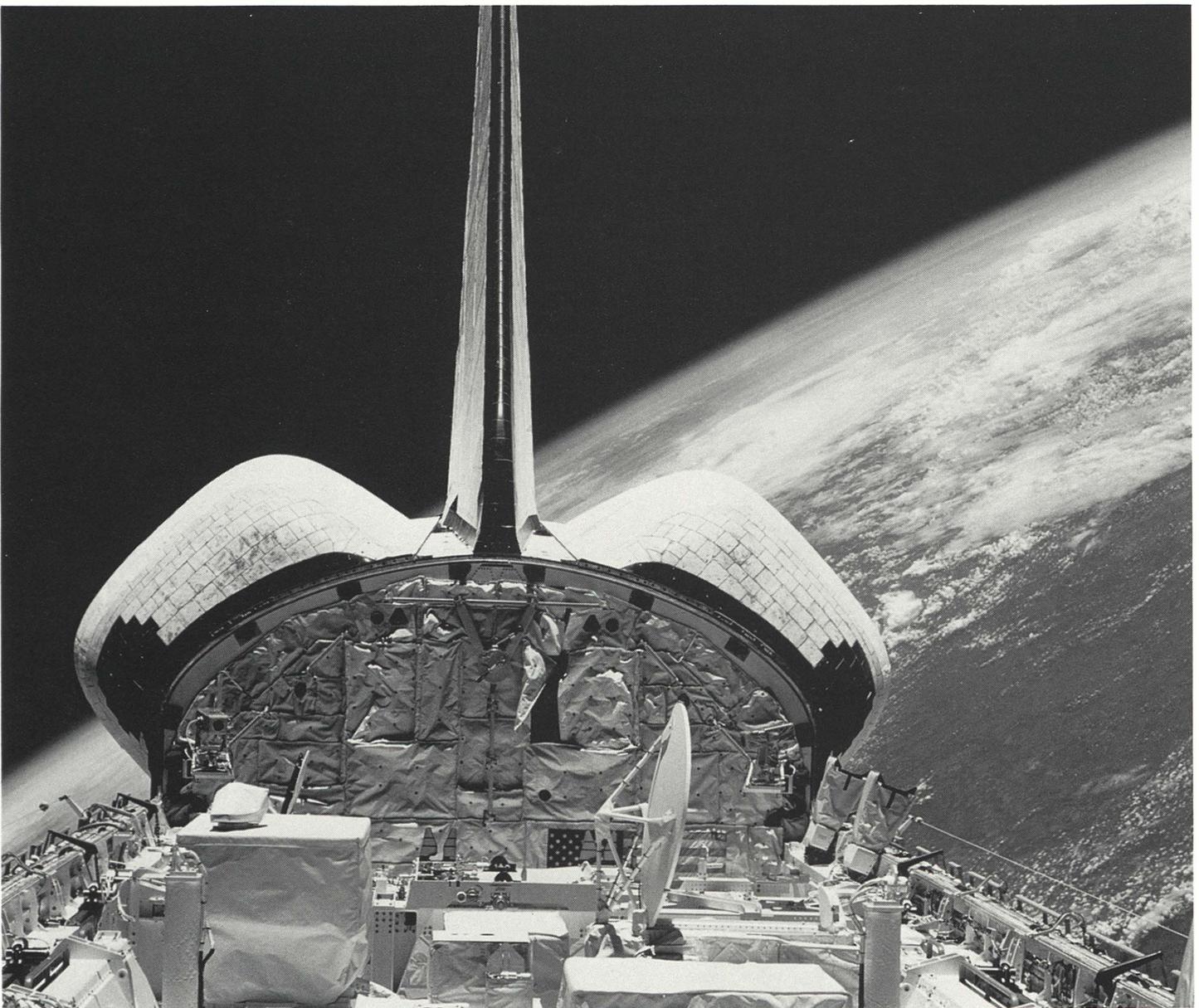
Five NASA astronauts used a four-ton laboratory aboard shuttle Discovery to study the Earth's ozone layer during a spaceflight between April 8 and 17.

While the astronauts pursued this primary flight mission, unrelated studies by Indiana

University School of Dentistry and the National Aeronautics and Space Administration hitched a ride in a small mid-deck compartment of the shuttle. Sixteen rodents took part in the flight as part of ongoing bone research studies under investigation by Dr. W. Eugene Roberts, chair of oral facial development, and Dr. Lawrence P. Garetto, director of IUSD's Bone Research Laboratory.

The project was done in tandem with one belonging to Dr. Emily Morey-Holton, of the Life Sciences Division of NASA Ames Research Center at Moffett Field, Calif.

The two experiments—known collectively as the Physiological and Anatomical Rodent



An onboard view of the cargo bay of Space Shuttle Discovery, backdropped against clouds. (IU's research project traveled in a small compartment in the shuttle's mid-deck section.)
Photo - NASA

Experiment—are part of a series of NASA experiments that focuses on physiological and developmental adaptation to microgravity.

Drs. Roberts and Garetto are looking at the influence of gravity on the development and function of bone-forming cells called osteoblasts. Their specific task is to assess the effects of microgravity on the production of osteoblasts in the rodents immediately after their flight and after their first few days back on Earth. The researchers hypothesize that osteoblast production is blocked during spaceflight but rapidly recovers when the rodents are returned to Earth.

For this study Drs. Roberts and Garetto used a specific marker for DNA synthesis to examine preosteoblast cell proliferation—a stage of growth that occurs before the cells have been identified by the organism as bone formers. This procedure had never been done following spaceflight so the researchers have collected unique data on this aspect of bone formation.

Dr. Garetto worked at the Kennedy Space Center launch site in Florida for about three weeks. Since key data depended upon the researchers' ability to collect it immediately after Discovery touched down, Dr. Roberts traveled to the backup recovery site at Edwards Air Force Base in California so that post-recovery procedures could be initiated if weather conditions caused a change in landing site plans. (Discovery came down as planned in Florida.)

The specimens from the flight have been processed for histology and are currently being sectioned for analysis in Dr. Garetto's Bone Research Laboratory. Preliminary results are expected by the first of the year.

While the usual routine calls for IU's researchers to travel to sites run by NASA, during the past fiscal year NASA paid a visit to IU.

Indianapolis was chosen as one of six American cities in which NASA held a "town meeting" last November with the goal of bringing NASA officials face-to-face with average citizens.

NASA's top administrator Daniel Goldin addressed a standing-room-only crowd of 600 persons at the Walker Theatre, located a few blocks from the dental school, and he specifically praised the efforts of the research team at IUSD. During the program many Hoosiers asked questions and expressed their own opinions about the United States' role in the future of space travel.

Earlier in the day the dental school's Bone Research Laboratory had been among the stops on the NASA group's tour of the city. Drs. Garetto and Roberts fielded questions about their work from the visitors, including astronaut Charles Bolden.

IUSD has been active in bone research for NASA since Dr. Roberts joined the IU faculty in 1988. He was named a senior research associate for NASA in 1982.

A two-week flight dedicated to biomedical research is scheduled in October '93 as a follow up to NASA's Spacelab Life Sciences first mission (SLS-1) in 1991. Drs. Roberts and Garetto participated in SLS-1 and will be studying 12 rodents on board shuttle Columbia for the SLS-2 mission. The seven crew members will include Dr. David Wolf, a 1983 graduate of the IU School of Medicine and the first native of Indianapolis in space. (*Columbia was successfully launched—on the third attempt—Oct. 18. The 14-day mission was the longest shuttle flight in NASA's history.—ed.*)

The SLS missions are designed to find answers to a variety of questions involving weightlessness that must be answered before human beings can be assigned to long-term travel in space. ■



Dr. Millie Hughes-Fulford of the Department of Veterans Affairs Medical Center, San Francisco, presented a seminar on physiology in space to IU's orthodontic staff and students in April. She was a payload specialist aboard NASA's 1991 life sciences mission, which included an IUSD bone study.

A Room With a View

To shed more light on a variety of investigations, IUSD researchers move into the dark.

In a room in the dental school's Cell Culture Laboratory that is not much bigger than a walk-in closet, research technologist Timothy W. Noblitt operates the new laser scanning confocal microscope with only the dim light of two computer screens illuminating his surroundings.

But you'll hear no complaints about the cramped quarters or the lack of overhead lighting. Gazing at one extraordinary image after another on the \$150,000 system, Mr. Noblitt feels as if he has a front-row seat to the best show in town.

The scope was added in the fall of '92 to the fourth floor dental school laboratory as another component of the IUPUI Biomechanics and Biomaterials Research Center. Use of the instrument, purchased in part with funds from Eli Lilly and Co., is under the direction and coordination of Dr. Yiming Li, director of the Cell Culture Laboratory, and it is being used by numerous investigators from the IU schools of dentistry and medicine as well as from Eli Lilly. The confocal microscope is more accurately described as several instruments that work together to form one dynamic system:

- ▶ A high resolution laser microscope manufactured by NORAN Instruments gives researchers the option of viewing living specimens by staining them with nontoxic chemicals. The scope is also used for more conventional work with preserved specimens. In many instances specimens can be readied for the scope within a few minutes, compared to specimen prep time for scanning electron microscopes, which can take anywhere from many hours to several days.
- ▶ A powerful DOS-based computer allows the operator to manipulate



PhD candidates Drs. Margherita R. Fontana and Carlos Gonzalez-Cabezas (seated), with confocal microscope operator Timothy W. Noblitt, a research technologist in the Cell Culture Laboratory

illuminated specimens and theoretically "section" them without actually cutting into or destroying them. The focal plane can be moved throughout a translucent specimen, permitting a series of optical sections to be collected below the surface structures.

- ▶ A color video printer collects hard copies of the images seen on the monitor and stores them on computer disks. An unusual feature of this system is that it records moving images in real time, so VCR cassettes can be used to document an event, such as the physical reaction of a cell when it is exposed to fluoride, as it is actually occurring. Data can also be saved as black and white or color photographs, as overhead transparencies, or in different computer formats for use in other software programs.

- ▶ A high-powered, fast-thinking, UNIX-based graphics computer manufactured by Silicon Graphics, Inc., is the system's most exciting feature: It offers virtually unlimited options for viewing specimens. Using a software program that transfers images into a 3-dimensional mode, researchers can easily and quickly rotate objects to look at them from every possible angle. Best of all, the graphics system can filter out extraneous data if they get in the way of a particular view needed by the researcher.

Several projects currently under way are designed as preliminary studies that researchers will use to attract grants. "With these projects we are learning precisely what the confocal microscope is capable of doing," says Mr. Noblitt, who uses the system on one of Dr. Li's projects designed to study fluoride-resistant cells. "These cells, which were created in this

lab, exhibit characteristics that are different from those of a normal cell. We're examining the cells' calcium distribution to see if there is a change from what is seen in nonresistant cells. The confocal scope gives us the advantage of looking at cells while they are still living.

"Fluoride has been studied for many years," Mr. Noblitt continues, "but not many researchers have looked at the migration of fluoride across the cell membrane. We believe that cells have the ability to exclude fluoride, but this idea runs counter to the commonly held belief that fluoride enters a cell passively. We think the scope can help us determine what is actually happening."

In addition to conducting research with Dr. Li, Mr. Noblitt assists

other researchers in obtaining data for their projects.

Two researchers Mr. Noblitt has worked closely with during the past year are a husband-and-wife team, Dr. Carlos Gonzalez-Cabezas and Dr. Margherita R. Fontana, from Central University of Venezuela, Caracas. As PhD candidates at the IU dental school they share a research interest in secondary caries, although they have chosen to pursue the topic from different perspectives.

While she focuses her attention on demineralization—the secondary caries "landscape," he's concentrating on bacteria—the "populations" that make themselves at home at these sites.

The researchers' studies are gauged to generate new information about the etiology of secondary caries, a common dental problem that is difficult to diagnose, often confused with residual caries, and perhaps the chief reason why dentists in the U.S. spend more than 60 percent of their time replacing old restorations.

Dr. Fontana works on her project with Dr. Ann Dunipace and Dr. George Stookey, of the Oral Health Research Institute. She is attempting to create an in vitro model for secondary caries to complement an in vivo model being designed by Drs. Dunipace and Stookey. After placing unetched resin restorations in cavities made in healthy extracted human teeth, Dr. Fontana exposes the lab-created restorations containing bacteria from human carious lesions to a sugar solution for 30 minutes three times a day. An artificial saliva bathes the teeth during the remaining 22 1/2 hours of the daily cycle. The teeth are then labeled (i.e., stained) to reveal demineralization, and viewed with the confocal microscope.

"If we are able to create secondary lesions with microorganisms, we will have a model that can be used by other researchers to test many things, such as dental materials or the cariogenicity of different kinds of bacteria," Dr. Fontana explains.

"One of the goals of my project is to be in a position to test Margherita's model," says Dr. Gonzalez-Cabezas, who is working under direction of Drs. Li and Stookey to examine extracted human teeth that have clinically identified rather than experimentally induced secondary caries. He is labeling three bacteria considered the most likely culprits causing secondary caries so that they can be scrutinized under the confocal microscope.

"We think that bacteria exist in these areas," says Dr. Gonzalez-Cabezas, "but we don't know precisely how many types there are, what the distribution and inter-relationships of bacteria are, where the most flagrant growth is taking place, or whether different bacteria are involved in composite and amalgam restorations. We also don't know if the bacteria found at secondary caries sites are the same as those found in primary caries, so we will need to make data comparisons."

As they progress in their work Drs. Fontana and Gonzalez-Cabezas are in awe of the capabilities and precision of the confocal microscope, an instrument that is not yet widely available to researchers in

dental schools.

"If the scope could fit in my suitcase, I'd take it back to Venezuela with me," jokes Dr. Fontana, who will join her university's cariology research group along with her husband when they return home.

The scope greatly reduces the amount of time researchers spend in preparation of their projects. "There are other very good techniques used to study carious lesions," says Dr. Fontana, "but they are complicated, time consuming, and labor intensive. With the confocal, the researcher doesn't have to be an expert in cutting the type of ultra-thin specimen sections (100 microns or thinner) needed for light microscopy or microradiography. I simply cut the tooth in half with an ordinary microtome and place it under the confocal microscope. The area that has been labeled to fluoresce represents the lesion, and the scope provides us with a great variety of objective measurements—there is no subjective manipulation of the specimen at all."

Dr. Gonzalez-Cabezas's study would not be possible without confocal microscopy. "With conventional research methods we'd have to cut into, and therefore contaminate, the samples," he explains. "Since the confocal permits theoretical sections to be taken, we can analyze many layers and delve deeply into the specimen without actually touching it. We'll also benefit from the three-dimensional view this system gives us. But the biggest advantage by far is that we can observe three types of bacteria simultaneously—regular microscopes allow a view of only one fluorescent at a time."

With dental caries a common problem in the couple's homeland as well as in many other underdeveloped countries, Drs. Fontana and Gonzalez-Cabezas are hopeful that the work they are doing toward fulfillment of their PhD degrees will help researchers better understand the causes of secondary caries so that meaningful steps can be taken toward prevention of the disease. ■

Teaming Up Against Oral Cancer

Researchers employ a trio of techniques in their search for a way to detect oral cancer before it is clinically evident.

Teamwork is essential to the IU dental school's research effort. But good teams don't necessarily stick together.

To co-research their project, Drs. Don-John Summerlin, Susan Zunt, and Mark Wohlford have spread out about as much as you can at the dental school (with Don-John working in the school's basement, Susan on the fourth floor, and Mark in one of the newly established molecular biology laboratories on the second floor).

Perhaps the only thing more diverse than their locations are their research techniques: immunohistochemistry, confocal microscopy, and polymerase chain reaction.

Those techniques—and a rich archive of thousands of histologic specimens originated in the 1950s by Distinguished Professor Emeritus William G. Shafer—are the essence of a series of pilot studies the trio has undertaken in the hope of finding a new way to combat

oral cancer.

Oral malignancies account for only two to four percent of all human cancers, but half the people with oral cancer die within five years of their diagnosis. Seventy-five percent of oral cancer is linked to lifestyle choices, with smokers and alcohol users over 40 years old considered those at highest risk.

"We'd like to be able to evaluate persons at high risk for oral cancer

before there is any clinical evidence of the disease," explains Dr. Summerlin, an oral pathology assistant professor in diagnostic sciences. "If we can devise a clinical test that can indicate a person is predisposed to cancer, or that can detect irreversible changes occurring to cells at a much earlier stage, then it would be possible—because there would still be time—to employ disease intervention techniques such as behavior modification,

increased surveillance of tissue changes, and perhaps chemotherapeutic modalities. But we have to find a way to diagnose oral cancer sooner if we're going to get a head start on beating the disease."

The group believes that data gleaned from the current laboratory stud-

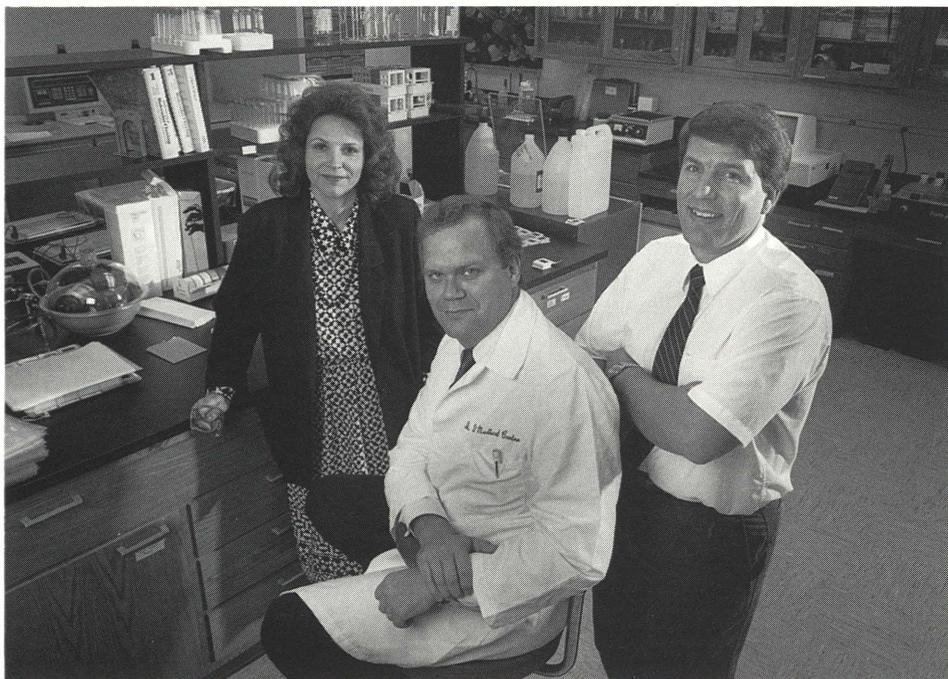
"The p53 gene has been intensely studied by other researchers," says Dr. Wohlford. "What we are doing is trying to bring this knowledge to the clinical environment where we can use it in the diagnosis and prognosis of patients."

ies will help pave the way toward use of exfoliative cytology, a clinical procedure that could eventually be used to screen high-risk persons quickly, painlessly, inexpensively—and conveniently in the dentist's office.

The simple five-minute procedure involves collecting a small sample of cells by gently scraping the inside of the mouth with a non-invasive instrument. "It's essentially the oral equivalent of a Pap smear, but without discomfort," says Dr. Summerlin. "This clinical test might be able to help us detect oral malignancies as well as predict their behavior. And it's a technique that could easily be used in a dentist's office."

To conduct his portion of the project, Dr. Summerlin is using immunohistochemistry to study cancer and normal tissues taken from the dental school's large permanent library of histologic slides collected for several decades by the school's biopsy service. He's using antibodies specific to the p53 gene to explore the nuclei of cells for increased amounts of protein produced by p53 when it is in an altered state.

It is the altered gene itself that interests Dr. Mark Wohlford, an assistant professor of oral and maxillofacial surgery in the surgery and hospital dentistry department. Gene p53 is a well-known tumor suppresser that scientists have already cloned and sequenced; Dr. Wohlford is trying to isolate fragments of



The research team, shown in one of the new molecular biology labs, is composed of Dr. Don-John Summerlin (right), Dr. Mark E. Wohlford, and Dr. Susan L. Zunt. Dr. Summerlin spent much of the summer of '93 in a special research training program at the University of Washington's Clinical Research Institute, Seattle.

p53 that may represent one or more sites where mutations occur, producing cancer. The sequencing code for p53 is made available to researchers around the country through an international data bank.

"It is already known that any change in p53's sequencing can lead to the development of cancers of the breast, lung, and gastrointestinal tract," says Dr. Wohlford. "I'm extracting the DNA from the dental school's histologic oral tissue samples and looking at it for changes."

Polymerase chain reaction (PCR) is the technique that allows Dr. Wohlford to pinpoint the section of the gene that has undergone an alteration—a change which in turn has allowed the cell to undergo malignant transformation. PCR then makes millions of copies of the section, rendering it easily visible with specialized equipment. The results can be stored on computer disk, viewed on videocassette, and printed on thermal paper.

"The p53 gene has been intensely studied by other researchers," says Dr. Wohlford. "What we are doing is trying to bring this knowledge to the clinical environment where we can use it in the diagnosis and prognosis of patients."

Yet another perspective of the research is being accomplished by Dr. Susan Zunt, an associate professor of oral pathology who is using the cell culture laboratory's new confocal microscope with technologist Timothy Noblitt to study morphologic and volumetric changes to cells that have been harvested from the school's tissue samples.

"We know what the size of a nucleus is supposed to be in normal cells," Dr. Zunt says. "Based on image cytometric analysis, we predict that the malignant and premalignant cells from these tissue samples will have nuclei of greater volume and that they will contain more nuclear material than normal cells."

The new confocal microscope is an extraordinary research tool in that it can reveal the internal structures of cells with extremely high resolution and provide a three-dimensional view of specimens, thereby enabling Dr. Zunt to arrive at a much more accurate representation of the

true quantitative volume of cell nuclei.

Dr. Zunt is hopeful that information she is seeking from the confocal microscope will eventually aid in the prognosis of actual patients.

She explains: "Take, for example, a patient who comes to us with a pre-neoplastic lesion—completely benign leukoplakia at this point. We'd like to be able to take a sample from that person, look at it with the scope to determine how much DNA is present, and then accurately predict what the prognosis would be."

To learn the current health status of the people whose tissue samples are being studied now, the research team will contact the dentists and physicians who sent the samples to IU's biopsy service. Most samples being evaluated are from patients referred in the past five years.

"If we find that a certain clone of p53 shows up in many of the samples, and the referring doctors' records show that the patients from whom these samples were taken died of metastatic disease

(Continued next page)

IUSD Opens Two Molecular Biology Laboratories

Depending on which side of Michigan Street he happens to be working, Mark Wohlford is known at various times throughout the day as a teacher of oral and maxillofacial residents (at the University Hospital & Outpatient Center), and as a benchtop molecular biology researcher (at the dental school).

Add to that his role as a private practitioner and Dr. Wohlford says he's found at IU what he's been preparing for since his dental school days at the University of Iowa: a place where he can teach, conduct research, and treat patients.

Since joining the IU faculty last year, Dr. Wohlford has drawn on his residency training in oral and maxillofacial surgery and his Doctor of Philosophy degree in pathology, both acquired at The Ohio State University, to fill a unique niche at the IU Medical Center.

Recently moved into one of the dental school's newly established molecular biology laboratories, Dr. Wohlford shares the research space with new faculty member Dr. James K. Hartsfield, Jr., a genetics professor at the dental and medical schools.

Located on the second floor across the hall from the pediatric dentistry clinic, the spacious, fully equipped laboratory seats 10 and will be used by predoctoral students as well as faculty and graduate students.

The lab did not require acquisition of a lot of expensive equipment to get up and running. "Molecular biologists accomplish most of their work with small things—like test tubes that hold half a millimeter of something," Dr. Wohlford says with a smile.

The largest pieces of equipment purchased for the lab are a thermocycler, where polymerase chain reaction is done, and two centrifuges (one normal high speed machine and one ultracentrifuge that purifies RNA and DNA at 30,000 rpm's).

The other new laboratory, also on the second floor, is across the hall from the Bone Research Laboratory. It houses the work of Dr. Janet M. Hock, a senior scientist in Skeletal Diseases Research at the Lilly Research Laboratories of Eli Lilly and Co., and an adjunct professor of periodontics at IUSD. (Dr. Hock was introduced to the alumni in the Spring '93 issue of the *Alumni Bulletin*.) Beginning with the 1993-94 school year, new full-time faculty member Dr. Joseph P. Bidwell joined Dr. Hock's research team in this lab. He is jointly appointed as an anatomy professor in the medical school and a periodontics professor at the dental school.

Learning to Part With Her Parliaments

within five years of diagnosis, we'd know that these cells behave much more aggressively," says Dr. Summerlin.

"Then, when someone's diagnostic test shows the same type of changes occurring in the cells, we would be able to identify that person long before there are clinical signs of the disease, and an aggressive intervention or treatment plan could be initiated."

The group's long-term goal is to see exfoliative cytology used routinely by dentists across the nation. "The dentist's test slides could be sent to any qualified pathology service for a baseline reading, and for annual or semi-annual readings for dental patients in the high risk category," says Dr. Summerlin.

The researchers have advanced far enough into their laboratory work to begin a clinical portion of the study. They have applied for a grant through the Indiana University Cancer Research Center.

"One of the most frustrating things for an oral surgeon is when you do a biopsy and it comes back with a diagnosis of dysplasia, which means it's not normal—but it's not cancer, either," says Dr. Wohlford. "When the diagnosis is cancer, you cut the cancer out with a wide margin. When the diagnosis is normal, you send the patient home. But what do you do when there's been an unidentified change in the patient's tissue? You can't tell the patient that the condition won't progress to cancer. But it's difficult to recommend aggressive therapy for something that may stay the way it is for the rest of the patient's life. We hope this technique we are working on will give us predictors for which conditions are going to become real problems and which ones we can ignore. Our dream is that in a few years every smoker over 40 will be tested for oral cancer annually." ■

One patient describes her experience in IU's new Nicotine Dependence Program.

Homesick, depressed, and a long way from her roots in Toledo, a young New York City resident found a bit of comfort in a corner drugstore on a lonesome Sunday afternoon in the Big Apple.

"I had found a job in journalism in New York after graduating from college but I missed my family terribly," Caren Z. Jakovleski recalls. "As I wandered aimlessly around that drugstore I noticed a pack of Parliament 100s on the cigarette rack and bought it, even though I'd been smoking Marlboros since I was a teenager. Both my mother and father smoked Parliaments. I think I reached for my parents' brand that day as a way to be closer to them, and I continued smoking Parliaments until I went into IU's smoking cessation program about two decades later."



Caren Jakovleski has managed the Omni North Hotel in Indianapolis for four years.

In October '92, Caren was one of the first persons to be accepted into the newly established Nicotine Dependence Program, a collaborative effort between the IU School of Dentistry and the IU Department of Respiratory Care that provides smokers who want to quit with counseling, education, and technology to help them succeed.

The program is housed in the dental school and is directed by Dr. Arden G. Christen, a professor in the oral biology department and director of the school's outreach program.

Like millions of other Americans, Caren Jakovleski took up smoking during an era when lighting up didn't cause society to light into you. "There wasn't much out there 27 years ago to tell you that it wasn't O.K. to smoke," she remembers. Although Caren sneaked her first smoke behind the garage—and her dad's back—at the age of 16, a year later he was on to her. Did he hit the roof? No, he asked to borrow a cigarette from her. "That was my signal it was O.K. Smoking made me feel grown up."

Finding smoking a purely pleasurable activity, encountering no health problems, and counting Parliament 100s among her "best friends," Caren had no inclination to stop. She returned to the Midwest and entered the stress-laden (and smoker-friendly) atmosphere of the hotel business. Today she manages the Omni North Hotel in Indianapolis. "I didn't feel hooked on cigarettes," she says. "They were simply a part of my life."

Cigarettes were a part of her life, all right, but Caren realized there was nothing simple about their presence when she finally decided to give them up at age 35.

Caren's first unsuccessful attempt at quitting was the cold-turkey approach. She took a week's vacation and shut herself up at home. "I slept, I cried," says Caren with a

shudder. "But I didn't stop smoking."

At various stages over the years she chewed nicotine-containing gums, underwent hypnosis, attended seminars, and donned a nicotine patch. All avenues eventually led her back to a fresh carton of cigarettes.

When Caren got married for the first time two years ago, she was doubly determined to leave cigarettes to her past. But with the joys of her new marriage came a twist to the cessation challenge: her husband Alex smokes.

"Then, one Friday night I saw a television news segment about Dr. Christen's program," Caren says. "When I called Monday I was told that before I could become a patient I would have to fill out a survey to see if I qualified. I was pretty sure that I did."

After reviewing Caren's scores, Dr. Christen was pretty sure she did, too. "Caren represented precisely the type of long-term, heavy smoker we hope to reach through this program," he says. Caren typically smoked two packs a day, but she often broke the seal on a third. "She scored 'off the chart' on a psychological test that identifies hard-core smokers," says Dr. Christen.

When Caren entered the Nicotine Dependence Program, she received the gum, the patch, and—most important of all—introduction into a thorough, ongoing counseling and educational program that the IU faculty considers critically important to a person's chances for success.

"The counseling sessions, which include discussions of both the psychological and physiological aspects of smoking, are what separates this program from anything else I've tried," says Caren, who finished using the products last January but has continued coming to the school to speak with Dr. Christen and to stay caught up on the list of recommended readings and videotapes he has given her. "It's easy to relate to and trust Dr. Christen because in addition to his credentials in this field, he's a former Marlboro smoker. He knows first-hand what I'm experiencing.

"Some people smoke because they

enjoy handling cigarettes, or they like the ceremony of lighting a cigarette," Caren continues. "Not me. I smoked to get myself going in the morning (even before I brushed my teeth), or to relax, to cope with stress at work, to deal with anger. Intellectually, I wanted to quit, but emotionally I really needed to smoke—oh, I've learned so much about myself and about addictions as I've become more aware of these issues."

Several months into the program, in spite of her high motivation and her best inten-

tions, Caren, in a moment of jealousy as she watched her husband smoking, caved in to her feelings for a cigarette. For a few days in June, she became a secret smoker, hiding the fact from all but her husband. "I didn't have the nerve to smoke in front of employees since I had been acting so evangelical about my success and trying to motivate the whole world to quit smoking," Caren says ruefully.

Dismayed by the turn of events, Caren tried to call Dr. Christen. "He was not in town, but I was immediately referred to another faculty participant, Dr. Chris Guba. I told her what had happened and she responded with such compassion, I ended up crying on the phone. She told me what had happened was O.K., and not at all unusual. She also gave me a lot of insight into why I might have done what I did, and it really hit home. Even though Dr. Guba prescribed the nicotine patch, I found after a couple of days that I was forgetting to put it on, so I figured I must not need it." As quickly as Caren had slipped back to cigarettes, she slipped out of their grasp. "It feels good to be a non-smoker. I strongly believe I won't smoke again. But it's good to know that the IU team doesn't give up on you."

Caren believes her success was propelled by a number of factors, most notably her desire to maintain a good quality of life. "I can't imagine not having all of the faculties I need to work or to

enjoy life with my husband," she says. An extra boost to Caren's motivation is the test she takes on the carbon monoxide breath analysis meter each time she visits the school. The meter lets Dr. Christen know if a program participant has been smoking. "The meter reinforces honesty," Caren says with a laugh.

Dr. Christen is impressed by Caren's progress and is confident that

"Now I realize that smoking cessation is a lot more complicated than I thought. There are many more issues involved than just puffing or not puffing."

hers has the potential to be a permanent success story. As he stated, "Caren really wanted to quit smoking—and that's the key. Like many successful ex-smokers, she has been willing to work hard at the quit-smoking process. My hat's off to her!"

Dr. Christen will begin to track success rates after the program reaches its first anniversary in mid-October '93. About 120 patients are under treatment in the program, which is patterned after a smoking cessation program at the Mayo Clinic, Rochester, Minn. "Mayo has about a 35 percent success rate, which is considered good for hard-core smokers," says Dr. Christen.

Among the growing number of patients in the Nicotine Dependence Program are about 30 employees from the Indianapolis Water Co., whose efforts to quit smoking are being supported by the company.

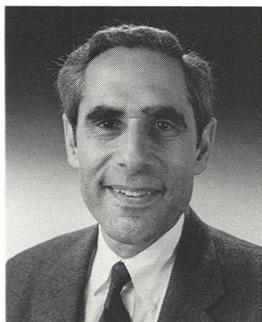
Now that Caren Jakovleski has grown comfortable with her new identity as a non-smoker, she is hopeful that husband Alex will give up cigarettes too. But she's learned enough about herself in the past year to realize how important it is for him to arrive at that decision for himself. "I think he'll stop," she says, "but it won't happen until *he* is ready." ■

Briefly . . .

Lawrence Goldblatt Accepts Deanship at Case Western

Lawrence I. Goldblatt, professor of oral pathology and an associate dean of the Indiana University School of Dentistry, will become dean of dentistry at Case Western Reserve University (CWRU), effective January 1.

A member of the IU dental faculty for two decades, Dr. Goldblatt has served as associate dean for graduate and post-graduate education since 1988 and for academic affairs since 1989.



Lawrence I. Goldblatt

Dr. Goldblatt has been active in organized dentistry and dental education at the state and national levels. Since

1981 he has been the IU dental school's representative of the American Association of Dental Schools' Council of Faculties, which he chaired during 1986-87. He served four years on the American Dental Association's Joint

Commission on National Dental Examinations, chairing the group in 1990-91. In addition, he has been a leader in Omicron Kappa Upsilon dental honor society, serving as president of the supreme (national) chapter in 1991-92. He is active in the American Academy of Oral Pathology and a member of the editorial board of the journal *Oral Surgery Oral Medicine Oral Pathology*.

Dr. Goldblatt earned his dental degree from Georgetown University in 1968. A lieutenant in the U.S. Navy Dental Corps after graduation, he completed a rotating dental internship at the U.S. Naval Hospital at St. Albans, N.Y., and served on the USS Tidewater and at the U.S. Naval Dental Clinic at Norfolk, Va. After three years of active military duty, he entered IU's graduate program in oral pathology and completed a master's degree in 1973.

Dr. Goldblatt's appointment at CWRU becomes effective one year after the departure of Geza Terezhalmay, who led the school for three years before resigning to accept a position at the Cleveland Clinic Foundation. ■

Alumni Bulletin Photos Receive Honorable Mention in National Contest

Two creative pictures that IUPUI photographers Doug Bartlow and Rick Baughn shot for the IU dental school's *Alumni Bulletin* received honorable mention at the University Photographers of America Association conference, held at Pennsylvania State University in the summer.

Among Mr. Bartlow's awards at the conference was an honorable mention for a photograph he took of dental student Sigrid Madding standing in front of a projected image of cells she was working with for a study of the metabolic effects

of nicotine on mouse fibroblasts (spring '93 issue). Mr. Baughn's awards included an honorable mention for the clinic scene appearing on the cover of our summer '92 issue. To obtain that shot, Mr. Baughn rigged his camera about 15 feet above a dental unit containing dental patient Rex True, of Camby. Dental team members in the picture were faculty members Drs. Jenny Sy-Munoz and Donnell Marlin, dental assistant Karen Sando, and then dental student Julie Gaydos (DDS'93).

The two photographers, both of the Office of Integrated Technologies, have been occasional contributors to the *Bulletin* for several years. ■

New Scholarship Program Established to Recruit African-American Students

The Health Foundation of Greater Indianapolis has provided the seed money to start a scholarship program for African-American dental students at Indiana University.

Dr. LaForrest D. Garner, associate dean for minority student services, has launched a statewide recruitment campaign for qualified candidates who would be eligible to enter dental school during the 1994-95 and 1995-96 academic years.

The \$20,000 grant from The Health Foundation of Greater Indianapolis will provide scholarships in the amount of \$5,000 each to four students—two students beginning the program in the fall of '94 and two more matriculating in the fall of '95.

"We are delighted by The Health Foundation's decision to support Indiana University's efforts to attract highly qualified African-American students into programs in dentistry," says Dr. Garner, who noted that for this academic year he lost three qualified candidates—all residents of Indiana—to out-of-state dental schools that offered scholarships. "IU has one of the top dental schools in the country. We welcome the opportunity to provide dental training to qualified Hoosiers, and it's disappointing to see a good candidate enroll elsewhere because we can't compete with scholarships."

For the 1993-94 school year there are only six African-Americans among the 327 students enrolled in IU's four-year dental program. "This very low number is similar to enrollment figures at almost every other dental school in the country," says Dr. Garner. "Clearly we are presented with a challenge, but we believe the assistance from The Foundation can help IU turn those figures around in Indiana. These funds give us a promising start for a program we hope to offer routinely in the future."

Dr. Garner is confident from his own experience as dean for minority student services that many young African-Americans aspire to careers in healthcare

and research. From 1988 to 1992 he headed the school's summer science programs for minority high school and college students, paid for with funds from the National Institutes of Health. "We were pleased with the turnout for these programs each summer—and with the quality of the work these bright youngsters did under the guidance of IU faculty serving as research mentors," he said. "When we learned that there would be no funding for the summer of '93, April Keaton, a Broad Ripple High School student who had participated the previous summer, returned as a volunteer researcher. This is the type of student we want to bring into our dental program."

There are 28 African-American dentists in Indiana's capital, where about 160,000 African-Americans reside.

"But there are no African-American dentists practicing south of Indianapolis in this state," said Dr. Garner.

Scholarship applicants may currently be attending out-of-state colleges, but they must be residents of Indiana. Applicants must also maintain a college grade point average of at least 3.0 (on a 4.0 scale), achieve a score of 12 or higher on the Dental Aptitude Test (DAT), and demonstrate financial need.

Dr. Garner is accepting applications now for the next academic year, which begins in August of 1994.

"There are more opportunities for African-Americans in the field of dentistry than ever before," he says. "In addition to rewarding careers in private practice, there are good jobs in academics, industry, and government."

Persons seeking more information about the scholarships should contact Dr. LaForrest D. Garner, associate dean for minority student services, Indiana University School of Dentistry, 1121 West Michigan Street, Indianapolis, IN 46202; ph 317/274-5625. ■

2 New C.E. Programs Reach Out to Dental Hygienists, School of Dentistry Alums

New course offerings broadened the scope of continuing education in Indiana during the past year and represented cooperative ventures among several professional organizations.

Gail F. Williamson, an IU associate professor in diagnostic sciences, and Dr.



Orthodontist Dr. William Hohlt was one of three speakers addressing the alumni at the new C.E. course sponsored by the IUSD Alumni Association.

Donald E. Arens, IU's director of continuing education, established the A. Rebekah Fisk Memorial Lecture, a clinical course designed to help non-practicing dental hygienists re-enter the profession and to give practicing dental hygienists an opportunity to improve their skills.

The course, which will be offered annually, honors the memory of Indiana University's first director of dental hygiene. Miss Fisk established Indiana's program on the Indianapolis campus and served as its director until her retirement

in 1970. She died in 1982.

The first lecture was presented on March 17 by Professor Williamson; R. Hunter Rackley, Jr., assistant professor of dental hygiene; and Mary L. Rehmel, lecturer in dental hygiene. The course is sponsored by IUSD, the Indiana Dental Hygienists' Association, and the Indiana Dental Association.

Another innovative continuing education program was created and sponsored by the IUSD Alumni Association, and held at the IU dental school.

"We came up with the idea of inviting the alumni back to IUSD for an annual professional development program designed especially for them," said Dr. John L. Wells, chair of the association's membership committee.

Presenters of the course, given on June 5, were dental faculty members Drs. Lawrence P. Garetto and William F. Hohlt, who addressed topics related to implants; and Indianapolis cardiologist Dr. James Hermiller, who spoke about the importance of cardiology to a dentist's personal health. The program included a sit-down breakfast and was free to current members of the association and to any person who paid the \$30 dues for a one-year membership.

The participants included 17 new Alumni Association members. The organization plans to showcase the dental school at the 1993-94 program. ■

Dental School Discontinues Publication of *Inside Passages*

With the dental school progressing with plans to computerize its school-wide communications system, the publications division has discontinued routine publication of the school's internal newsletter, *Inside Passages*.

The newsletter was a period publication primarily directed to IUSD faculty, staff, and students, although members of the IUSD Century Club also received complimentary copies.

Changes initiated three years ago in the publications division led to the decision to discontinue the newsletter.

In 1990 the school launched an internal monthly calendar, titled *Coming Up*, and began to publish the dental school's annual report as a special edition of the *Alumni Bulletin*. As these two publications have evolved, they have incorporated much of the material previously published in the newsletter, creating overlap in content that is not cost effective.

The *Inside Passages* nameplate has been preserved and will be used on occasions when a special school publication is called for. Members of the Century Club who are not already on the *(Continued next page)*

mailing list for the *Alumni Bulletin* will now be sent a copy of that quarterly publication.

The school's internal calendar, *Coming Up*, will be sent to faculty and staff by way of computer when the electronic mail system is activated in the 1993-94 school year.

One portion of the newsletter that was not absorbed by the calendar or annual report was the "photo spread" section, which typically carried collages of photos taken at annual student and staff events. To ensure that these important events continue to receive recognition at the school, a new display case is being mounted for pictorial exhibits in the school's main lobby. ■

Fire! No (April) Fooling!

When faculty member Dr. Glenn Richard heard that he couldn't return to the dental school from his morning meeting across campus because the school was on fire, he assumed that he was on the receiving end of an April Fools' joke.

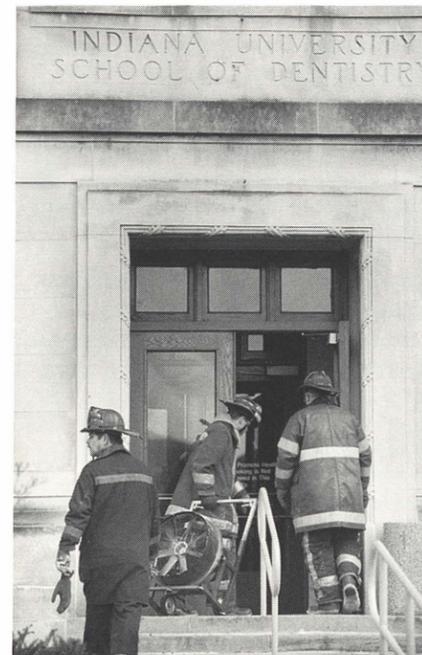
But firefighters, television camera crews, and hundreds of students, employees, and patients standing on the dental school lawn convinced him this April 1 fire was no April-fooler.

It was actually an underground utility tunnel connecting the dental school to buildings on the opposite side of Michigan Street that caught fire, but smoke billowing into the school as well as into two buildings across the street resulted in an evacuation of hundreds of persons. The

mid-morning fire, which was believed to be electrical, injured no one and did minimal damage.

The school sustained some smoke damage and acquired an unpleasant post-fire odor that lingered for several weeks. According to John H. Owens, building manager, steam to heat the dental school and run the autoclaves is provided through the tunnel, which opens into the basement in the original part of the building, built in 1933.

Dental school classes and clinics were canceled for the afternoon. Most patient appointments were rescheduled, but several patients who were in the midst of treatment when the alarm sounded were moved to the Oral Health Research Institute's clinic so their work could be completed. ■



Having already removed the people, firefighters haul in fans to remove the smoke that poured into the dental school during an April 1 blaze in an underground utility tunnel.

Reprinted with permission of The Indianapolis News; Mike Fender, staff photographer

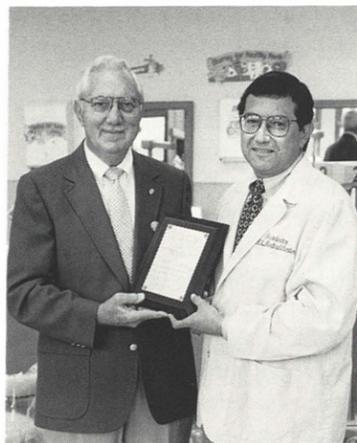
Pediatric Dentistry Alumni Association Honors Douglas Barton

Dr. Douglas H. Barton, part-time associate professor of pediatric dentistry in the Department of Oral Facial Development, is the 1993 recipient of the Ralph E. McDonald Research Award from the IU Pediatric Dentistry Alumni Association. The award was presented July 3 during the association's biennial meeting, held on the IUPUI campus. It recognizes Dr. Barton's recent research into patient attitudes, with was published in the Jan/Feb '93 issue of *Pediatric Dentistry* under the title "Dental Attitudes and Memories: A Study of the Effects of Hand Over Mouth/Restraint."

Results of the study suggest that children do not seem to be affected by hand over mouth/restraint experiences; when used properly, hand over mouth/restraint does not affect patients' dental attitudes or behaviors.

The research award is named for professor emeritus Ralph E. McDonald, former chair of pediatric dentistry who served as dean of dentistry from 1968 to 1985.

Dr. Barton (DDS'69, MSD'71), who is a private practitioner in South Bend, has been a frequent contributor to the



Dr. Douglas Barton (right) accepts the pediatric dentistry alumni association's research award from Dr. Ralph McDonald, for whom the award is named.

teaching effort on the IU South Bend campus. Since 1989, when he was appointed to the Indianapolis faculty, he has been traveling to the IUPUI campus one day a week. He is a former president of the Indiana Society of Pediatric Dentistry.

Dr. Barton's co-authors for his award-winning article are Elizabeth Hatcher, administrative assistant in pediatric dentistry; Dr. Rosario Potter, professor of oral facial genetics; and Dr. Hala Henderson, professor of pediatric dentistry. ■

Keeping Up With the Joneses: Prof Becomes Mom to Triplets

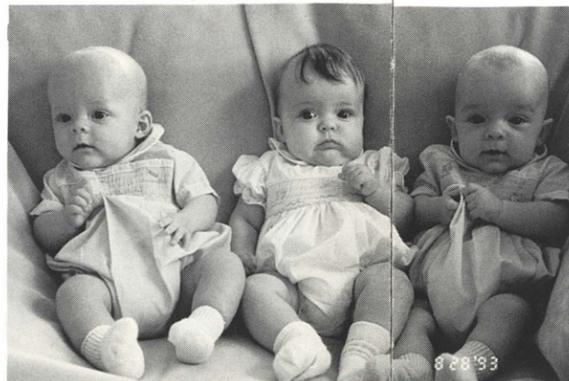
One of the more spectacular events of the past academic year happened not at the dental school, but at St. Vincent Hospital on the city's northside, where restorative dentistry faculty member Dr. Rose Marie Jones and her husband, Dr. Rhys Jones, became parents to fraternal triplets born March 26.

The Jones household more than doubled in size in about two minutes: Molly-Emma Meryl arrived at 5:20 pm and her brothers, John-Mark Emil and Emery Horace Joseph, were both born within the next minute.

Each baby weighed more than four

And Babies Make Five.

The Jones triplets are, from left, John-Mark Emil, Molly-Emma Meryl, and Emery Horace Joseph.



pounds at birth and all were born in excellent health, even though they came six weeks ahead of schedule.

Rose Marie and Rhys, who is a general practice physician in Carmel, are originally from Canada. Rose Marie trained as a dentist at the University of Western Ontario and holds an MSD degree in prosthodontics from IU. They've lived in Indianapolis since the early 1980s.

A daytime nanny cares for the children until the Joneses get home from work; Rose Marie returned to her full-time teaching schedule at the dental school in late spring.

And how does the couple feel about becoming a family of five? "We are overjoyed," says Rose Marie with a broad smile. "And tired!" ■

Clinical Research Facility Offers Diverse Research Opportunities

Since joining the IU faculty in July, recently retired U.S. Air Force Colonel Bruce A. Matis has been developing what he calls a "user-friendly" environment to attract a diverse group of researchers to the IU dental school's newly established Clinical Research Facility.

Dr. Matis, who directs the facility, defines his user-friendly system as one that lets researchers concentrate on doing what they do best—research—and leaves the numerous ancillary tasks associated with research to the facility's staff.

"We want to offer the faculty hassle-free research opportunities in this clinic," says Dr. Matis. "We'll recruit patients for them, order and manage their supplies, estimate budgets, and provide the technical support they need to undertake their studies."

The Clinical Research Facility is housed on the school's fourth floor, in the area where Advanced Education in General Dentistry training was provided until that program closed on June 30. The contemporary seven-chair clinic is fully equipped and employs five full-time staff members, including two study coordinators. Reconfiguration of the dental treatment rooms is possible in order to accommodate a variety of research equipment.

"Clinical testing of dental products and developing new technologies are our primary missions," says Dr. Matis.

With more than a dozen projects approved and one 10-year followup amalgam study already completed since the facility opened its doors, Dr. Matis believes that IU researchers have unique services to offer dental manufacturers. "Many members of the dental faculty hold joint appointments in areas such as engineering, medicine, biochemistry, microbiology, immunology, physiology, biophysics, pharmacology, and toxicology. Collectively we are in an ideal position to answer a wide range of clinical research questions posed by manufacturers."

In addition to helping researchers recruit patients for specific projects, Dr. Matis and his staff are building a patient pool for the facility that will serve

as a permanent resource. Dr. Matis plans to focus his recruitment program on the campus's employees. Some 900 employees of the thousands who work at IUPUI already are reliable, long-time volunteers for projects undertaken at the dental school's Oral Health Research Institute.

Although the Institute's clinical facility, directed by Dr. Bradley B. Beiswanger, and Dr. Matis's facility are run separately, Dr. Matis expects the two to complement rather than compete with one another.

"The Institute will continue to pursue its strong program in preventive dentistry research," he says. "We want to draw faculty members from all of the disciplines to our facility. I'm looking for a symbiotic relationship to develop here among researchers in all the departments."

Dr. Matis is also gearing the facility to support the efforts of first-time as well as long-time researchers.

"We welcome new researchers and we'll do whatever we can to help them get started—including brainstorming with them," he says. Dr. Matis is also prepared to guide new researchers through the experience of writing a research protocol.

"Indiana University has a rich tradition of conducting quality dental research as pioneered by faculty such as the late Ralph Phillips," says Dr. Matis. "We plan to continue that tradition."

Until his appointment at IU Dr. Matis had chaired the Restorative Dentistry Department at Lowry Air Force Base in Colorado for a year. He served eight of his 22 years of active duty conducting research at the Dental Investigation Service of the United States Air Force's School of Aerospace Medicine in San Antonio, Texas.

While Dr. Matis will be overseeing activities of other clinical researchers, he does not intend to give up his own role as a primary investigator. He currently is working on several projects, including a 10-year followup study on glass ionomers that examines wear patterns through digital imaging. ■

Building a Reputation

PUBLICATIONS

July 1, 1992—June 30, 1993

Names of primary authors appear in boldface type. Names not appearing in full indicate researchers from institutions other than IUSD.

ARTICLES

Allocation of the radio spectrum: is the sky the limit? Indiana International and Comparative Law Review 3(2):319, 1993. **Sara Hook**, associate librarian and head, School of Dentistry Library

Alternative use of the electrical burn appliance. Pediatric Dentistry 14(5):345, 1992. **Brian Sanders**, assistant prof, pediatric dentistry; with David Hennon, prof, pediatric dentistry and orthodontics; B. Eppley; A. Michael Sadove, prof, surgery (Medicine) and oral and maxillofacial surgery (Dentistry); and R. Zuker

Basic principles of infectious diseases as related to dental practice. Dental Clinics North America 37:1, 1993. **Chris Miller**, prof, oral microbiology (Dentistry) and microbiology and immunology (Medicine); with James Cottone, MS oral diagnosis/oral medicine '77

Cleaning, sterilization and disinfection: basics of microbial killing for infection control. Journal American Dental Association (JADA) 124:48, 1993. **Chris Miller**

Control of orthodontic pain. Journal Indiana Dental Association (JIDA) 71(4):8, 1992. **Kirt Simmons**, former assistant prof, orthodontics; with Mary Beth Brandt, graduate student, orthodontics



Drs. Margot L. Van Dis and Dale A. Miles, both associate professors in diagnostic sciences, have launched the second edition of their textbook, *Radiographic Imaging for Dental Auxiliaries*, co-written with Catherine W. Jensen and Ann Bruno Ferretti

Critical review of the relative anticaries efficacy of sodium fluoride and sodium monofluorophosphate dentifrices. Caries Research 27:337, 1993. **George Stookey**, prof, preventive and community dentistry; with P. DePaola, J. Featherstone, O. Fejerskov, I. Möller, S. Rotberg, K. Stephen, and J. Wefel

Current thoughts on prudent fluoride use. JIDA 72(3):10, 1993. **George Stookey**

Curriculum guidelines for predoctoral pathology. J Dental Education 56(10):710, 1992. **Susan Zunt**, associate prof, oral pathology; with L. Abbey, R. Howell, T. Najjar, J. Nelson, P. Sapp, G. Wysocki, and S. Young

Dental attitudes and memories: a study of the effects of hand over mouth/restraint. Pediatric Dentistry 15(1):13, 1993. **Douglas Barton**, associate prof, pediatric dentistry; with Elizabeth Hatcher, administrative assistant, pediatric dentistry; Rosario Potter, prof, oral facial genetics; and Hala Henderson, prof, pediatric dentistry

Dentinal hypersensitivity: recent advances in diagnosis and treatment. JIDA 72(1):20, 1993. **Norris Richmond**, prof, operative dentistry

Development and history of chewing gum. Bulletin of the History of Dentistry 40(2):57, 1992. **Lisbeth Cloys**, DDS'91; with Arden Christen, prof, preventive and community dentistry; and Joan Christen, research associate, preventive and community dentistry

Diagnosis and management of autoimmune and idiopathic mucosal diseases. Dental Clinics North America 36:897, 1992. **Margot Van Dis**, associate prof, dental diagnostic sciences; with S. Vincent

Effect of finish line form and luting agent on the breaking strength of Dicor crowns. International J Prosthodontics 6(3):286, 1993. **Guillermo Bernal**, MSD prosthodontics '91; with Rose Marie Jones, David Brown, and Carlos Munoz-Viveros, all associate profs, prosthodontics; and Charles Goodacre, prof, prosthodontics

Effect of finishing techniques on marginal adaptation and surface morphology of three

glass ionomer cements. JIDA 71(6):20, 1992. **Esam Naguib**, visiting scientist; and Timothy Carlson, associate prof, operative dentistry

Effect of the articulator settings on the cusp inclines as measured by a coordinate measuring machine. J Prosthodontics 2(1):19, 1993. **A. George Wagner**, prof, prosthodontics; with K. Rennels

Effect of time and duration of sorbitol gum chewing on plaque acidogenicity. Pediatric Dentistry 15(3):197, 1993. **Kichuel Park**, prof, preventive and community dentistry; with Bruce Schemehorn, research associate, Oral Health Research Institute (OHRI); and George Stookey

Effects of environmental factors on maxillofacial elastomers: Part I—literature review. J Prosthetic Dentistry 68(2):327, 1992. **Carl Andres**, associate prof, prosthodontics; with Steven Haug, assistant prof, prosthodontics; Carlos Munoz-Viveros; and Guillermo Bernal

Effects of environmental factors on maxillofacial elastomers: Part II—report of survey. J Prosthetic Dentistry 68(3):519, 1992. **Carl Andres**; with Steven Haug, David Brown, and Guillermo Bernal

Effects of environmental factors on maxillofacial elastomers: Part III—physical properties. J Prosthetic Dentistry 68(4):644, 1992. **Steven Haug**; with Carl Andres, Carlos Munoz-Viveros; and Mitsunobu Okamura, former visiting scientist, prosthodontics

Effects of environmental factors on maxillofacial elastomers: Part IV—optical properties. J Prosthetic Dentistry 68(5):820, 1992. **Steven Haug**; with Carl Andres, Carlos Munoz-Viveros, and Guillermo Bernal

Effects of steam sterilization on the contents of sharps containers. American J Infection Control 21(1):28, 1993. **Charles Palenik**, prof, oral microbiology; with N. Cumberlander

Electrosurgical pulpotomy: a retrospective human study.* J Dentistry for Children 60(2):107, 1993. **Ronald Mack, Certificate pediatric dentistry '73; with Jeffrey Dean, assistant prof, pediatric dentistry

Enamel management during orthodontic treatment. JIDA 71(4):12, 1992. **Gordon Arbuckle**, assistant prof, orthodontics; with George Willis, associate prof, operative dentistry

* also published as abstract J Dental Research

Epidemiology of smoking. Health Values 17(2):4, 1993. **Christianne Guba**, assistant prof, preventive and community dentistry; with James McDonald, prof, preventive and community dentistry

Evaluating oral lesions: systematic approach with exercises. J Dental Hygiene 66(6):264, 1992. **Gail Williamson**, associate prof, dental diagnostic sciences; with Don-John Summerlin, assistant prof, oral pathology

Fine-needle aspiration biopsy in oral and maxillofacial surgery. Oral Surgery Oral Medicine Oral Pathology 75:152, 1993. **Jay Platt**, DDS'86, general practice residency certificate '87, and oral and maxillofacial surgery certificate '90; with Steven Rodgers, resident, oral and maxillofacial surgery; Charles Nelson, associate prof, oral and maxillofacial surgery (Dentistry) and plastic surgery (Medicine); and D. Davidson

Fluoride program project: year one. JIDA 72(3):16, 1993. **Ann Dunipace**, OHRI associate scientist

Fluoride: safety issues. JIDA 72(3):22, 1993. **Yiming Li**, OHRI associate scientist (Dentistry) and assistant prof, pharmacology and toxicology (Medicine)

Glass-ionomer-lined cervical composite restoration: an in vitro investigation. Operative Dentistry 18(1):17, 1993. **Karin Brown**, MSD operative dentistry '88; with Marjorie Swartz, prof emerita, dental materials; Michael Cochran, prof, operative dentistry; and the late Ralph Phillips, research prof, dental materials

IgA antibodies to Streptococcus mutans in caries resistant/susceptible children.* J American Academy Pediatric Dentistry 15(2):138, 1993. **Paul Rose, resident, pediatric dentistry; with Richard Gregory, associate prof, oral microbiology; Linda Gfell, senior research assistant, oral microbiology; and Christopher Hughes, assistant prof, pediatric dentistry and oral microbiology

Impact of tobacco use and cessation on oral and dental diseases and conditions. American J of Medicine (Suppl 1A) 93:25S-31S, 1992. **Arden Christen**

Improving casting contours by regaining horizontal space. Operative Dentistry 18(3):116, 1993. **Michael Cochran**

*also published as abstract J Dental Research and in proceedings of annual meeting, Indiana Branch of the American Society for Microbiology

Induction of salivary IgA in mice by intubation with smokeless tobacco extract. Bacteriology Proceedings 93:154, 1993. **Richard Gregory**; with S. Rubenstein; Ralph McClure, OHRI field recorder; and Linda Gfell

Manpower study of orthodontic specialists for the state of Indiana: a preliminary report. JIDA 71(4):21, 1992. **David Clark**, assistant prof, orthodontics; with W. Eugene Roberts, prof, orthodontics (Dentistry) and physiology and biophysics (Medicine)

Mathematic model of occlusal adjustment. J Prosthetic Dentistry 68:471, 1992. **Thomas Katona**, assistant prof, orthodontics (Dentistry) and mechanical engineering (Engineering and Technology)

Orthodontic crown lengthening. JIDA 71(6):24, 1992. **William Hohlt**, assistant prof, orthodontics

Orthodontic decalcification management with microabrasion. JIDA 71(4):16, 1992. **George Willis**; with Gordon Arbuckle

Physiology of osseous and fibrous integration. Alpha Omegan 85(4):57, 1992. **W. Eugene Roberts**; with Lawrence Garetto, assistant prof, orthodontics (Dentistry) and physiology and biophysics (Medicine)

Preosteoblast production in COSMOS 2044 rats: short-term recovery of osteogenic potential. J Applied Physiology 73(Suppl):14S, 1992. **Lawrence Garetto**; with E. Morey; G. Durnova; and W. Eugene Roberts

Prescription fluoride supplements—a reminder. Hoosier Pediatrics 13(1), 1992. **Mark Mallatt**

Prescription of transdermal nicotine patches for tobacco-using dental patients: current status in Indiana. JIDA 71(6):12, 1992. **Arden Christen**; with Joan Christen

Presence of microorganisms in used ultrasonic cleaning solutions. American J Dentistry 6(1):27, 1993. **Chris Miller**; with Shelley Riggen, dental research technician, oral microbiology; Margie Sheldrake, research associate, oral microbiology; and John Neeb, DDS'93

Quantitative analysis of six composite polishing techniques on a hybrid composite material. J Esthetic Dentistry 4:30, 1992. **W. Tate**; with Edward DeSchepper, associate prof, operative dentistry; and T. Cody

Surgical ciliated cyst: a delayed complication in a case of maxillary orthognathic surgery. J Oral and Maxillofacial Surgery 51(6):705, 1993. **David Hayhurst**, resident, oral and maxillofa-

cial surgery; with John Moenning, DDS'83 and MSD oral and maxillofacial surgery '88; Don-John Summerlin; and David Bussard, DDS'77 and oral and maxillofacial surgery certificate '80

Technique for fixation of oral mucosal lesions. J Oral and Maxillofacial Surgery 50(12):1345, 1992. **John Moenning**; with Charles Tomich, prof, oral pathology

Triamcinolone acetonide versus chlorhexidine for treatment of recurrent aphthous stomatitis. Oral Surgery Oral Medicine Oral Pathology 75(3): 397, 1993. **Dale Miles**, associate prof, dental diagnostic sciences; with Steven Bricker; Thomas Razmus, associate prof, dental diagnostic sciences; and Rosario Potter

Update on heat sterilization and sterilization monitoring. Compendium Continuing Education Dentistry 14:304, 1993. **Chris Miller**

Utilization of the nicotine transdermal systems. JIDA 71(6):15, 1992. **Arden Christen**; with Joan Christen

Utilization of 3-D computed tomographs in oral surgery. JIDA 72(2):16, 1993. **Steven Rodgers**; with John Moenning; David Bussard; Brent Garrison, MSD oral and maxillofacial surgery '85; Thomas Lapp, DDS'68; and J. Dickey

ABSTRACTS

Analysis of bone remodeling in rabbit condyles following 6, 12, and 24 weeks of altered loading. Proceedings of IUSD Research Day 1:17 (#P004), 1993. **Patsy Dunn**, research technologist, orthodontics; with J. Todd Hunt, MSD orthodontics '92; and Lawrence Garetto

Anodic polarization behavior and microstructure of gallium-based alloy. J Dental Research 72:218 (#919), 1993. **Yoshiki Oshida**, associate prof, dental materials; with B. Keith Moore, prof, dental materials

Anticariogenic potential of chewing gums containing various sweeteners. J Dental Research 72:673 (#1263), 1992. **Kichuel Park**; with Bruce Schemehorn; Barry Katz, associate prof, preventive and community dentistry; George Stookey; and H. Butchko

Antigingivitis efficacy of a stannous fluoride dentifrice. J Dental Research 72:710 (#1558), 1992. **S. Majeti**; with Bradley Beiswanger, prof, preventive and community dentistry; S. Burgess; M. Crisanti; C. Guay; B. Bolimer; and M. Lukacovic

Antimicrobial abilities of disinfectant-containing dental impression materials. J Dental Research 72:266 (#1300), 1993. **Denise Flanagan**, DDS'94; with Charles Palenik, Chris Miller, and James Setcos, DDS'88*

Antimutagenic potential of iron and germanium against benzo(a)pyrene in the Ames Test. Proceedings of IUSD Research Day 1:70 (#T036), 1993. **Byron Olson**, prof, preventive and community dentistry (Dentistry) and biochemistry and molecular biology (Medicine); with Marisa Ley, DDS'93; James McDonald; Yiming Li; and Timothy Noblitt, OHRI research technologist

Binding of oral bacteria to KB epithelial cells. Proceedings of IUSD Research Day 1:64 (#T024), 1993. **Kristin Gross**, DDS'95; with Timothy Noblitt, Yiming Li, and Christopher Hughes

Binding of Veillonella atypica PK1910 to saliva-coated hydroxyapatite. Proceedings of IUSD Research Day 1:41 (#P052), 1993. **Sonya Wu-Ng**, resident, pediatric dentistry; with Christopher Hughes

Biological effects of fluoride in Chinese populations. J Dental Research 72:234 (#1042), 1993. **George Stookey**; with Yiming Li, Barry Katz, C. Liang, R. Ji, S. Sun, S. Cao, and S. Niu

Biological effects of fluoride: safety considerations. Proceedings of Fourth National Academic Conference on Endemic Fluorosis, p. 313, 1992. **Yiming Li**

Bond strengths of resin cements to post-cured hybrid composite. J Dental Research 72:387 (#2272), 1993. **Edward DeSchepper**; with W. Tate and J. Powers

Bonding strength of various surface-treated stainless steel orthodontic bands. J Dental Research 72:139 (#283), 1993. **A. Hashem**; with Yoshika Oshida, William Hohlt, B. Keith Moore, and L. Tuneburg

Bone remodeling and strain variation following altered mandibular condyle loading in retired breeder rabbits. Proceedings of IUSD Research Day 1:44 (#P058), 1993. **Anthony Puntillo**, graduate student, orthodontics

Carbamide peroxide bleaching: enamel surface changes and staining. J Dental Research 72:384 (#2249), 1993. **Richard Davis**, U.S. Air Force fellow, dental materials; with Tanya Woody, graduate student, advanced education in general dentistry; Nels Ewoldsen, graduate student, dental materials; and B. Keith Moore

Cellular proteins of fluoride-resistant L929 fibroblasts. J Dental Research 72:412 (#2474), 1993. **Yiming Li**; with Timothy Noblitt; Wu Zhang, OHRI research technologist; and George Stookey

Color changes associated with combined office and home bleaching. J Dental Research 72:215 (#897), 1993. **Tanya Woody**; with Richard Davis and B. Keith Moore

Comparing dentifrice abrasive systems with regard to abrasion and cleaning. J Dental Research 72:559 (#352), 1992. **Bruce Schemehorn**; with Terry Ball and Glynnis Henry, OHRI dental research technicians; and George Stookey

Cytogenic effect of glutaraldehyde-micronucleus assay. J Dental Research 72:163 (#474), 1993. **Timothy Noblitt**; with Yiming Li; Ann Dunipace; Adriana Origel, former dental research technician; and George Stookey

Cytotoxicity and mutagenicity of a gallium alloy. J Dental Research 72:163 (#473), 1993. **Yiming Li**; with Jeffrey Allen, DDS'95; Timothy Noblitt; B. Keith Moore; and George Stookey

Degradation of human dentin collagen. J Dental Research 72:319 (#1726), 1993. **Shing-Zeng Dung**, graduate student, preventive and community dentistry; with Richard Gregory, Ann Dunipace, and George Stookey

Dental fluorosis and the use of fluoride supplements. J Dental Research 72:413 (#2476), 1993. **Richard Jackson**, OHRI research associate; with Sue Kelly, assistant director OHRI clinical research; Barry Katz; and George Stookey

Determining cleaning and abrasion properties of a rotating bristle toothbrush. J Dental Research 72:413 (#2481), 1993. **Bruce Schemehorn**; with Glynnis Henry; Terry Ball; and Chong Lin Chew, MSD dental materials '77

Differences in S. mutans isolates: association with virulence. J Dental Research 72:403 (#2396), 1993. **Richard Gregory**; with Christopher Hughes and H. Malstrom

Effect of age on animal response to chronic fluoride exposure. J Dental Research 72:413 (#2475), 1993. **Ann Dunipace**; with Wu Zhang; Linda Miller, OHRI laboratory animal technologist; Tammy Oswald, OHRI assistant animal laboratory technician; Stephanie Williams, OHRI animal laboratory technician; and Janice Warrick, assistant director, OHRI Bioresearch Facility

Effect of blood on killing of bacterial spores in sterilization efficacy testing. Proceedings of IUSD Research Day 1:38 (#P045), 1993. **Darla Gaines**, laboratory sterilization testing technician, oral microbiology; with Shelley Riggen, Margie Sheldrake, and Chris Miller

Effect of epidermal growth factor on oral mucosal wound healing. J Dental Research 72:415 (#2493), 1993. **Chiu-Kwan Poon**, MSD dental diagnostic sciences '91; with Dale Miles; Abdel Kafrawy, prof, dental diagnostic sciences; and Shirley Shazer, histotechnologist, dental diagnostic sciences

Effect of long-term exposure to a tooth whitener. J Dental Research 72:248 (#1162), 1993. **Yiming Li**; with Timothy Noblitt, Wu Zhang, Adriana Origel, Abdel Kafrawy, and George Stookey

Effect of smokeless tobacco on secretory component-IgA dissociation. Proceedings of annual meeting, Indiana Branch of the American Society for Microbiology, p. 20, 1993. **Vanessa Bateman**, former laboratory assistant, oral microbiology; with Linda Gfell and Richard Gregory

Effect of smokeless tobacco use on antibody levels. Proceedings of annual meeting, Indiana Branch of the American Society for Microbiology, p. 16, 1993. **L. Leatherman-Johnson**; with Linda Gfell and Richard Gregory

Effect of sucralose chewing gum on plaque pH response. J Dental Research 72:397 (#2347), 1993. **Kichuel Park**; with Bruce Schemehorn; Noel Garcia, DDS'91; George Stookey; Taein Kim, OHRI research associate; C. Hovliaras; and M. Barnett

Effect of surface coating on flexural strength of glass ionomer. J Dental Research 72:197 (#745), 1993. **Charles Hermesch**, former U.S. Air Force fellow, dental materials '91; with B. Keith Moore

Effect of 2-week xylitol gum usage on plaque pH. J Dental Research 72:346 (#1944), 1993. **Kichuel Park**; with Bruce Schemehorn, Noel Garcia, George Stookey, M. Barnett, J. Vincent

Effectiveness of two sterilization methods on contents of sharps containers. J Dental Research 72:266 (#1304), 1993. **Charles Palenik**; with L. Golden

Effects of amalgam restorations on salivary and serum mercury levels. J Dental Research 72:328 (#1799), 1993. **H. Malstrom**; with Vanessa Bateman, Linda Gfell, and Richard Gregory

Effects of collimation, filtration, and FFD on RVG caries detection. J Dental Research 72:255 (#1216), 1993. **Edwin Parks**, graduate student, dental diagnostic sciences; with Dale Miles

Effects of collimation and filtration on caries detection using RVG: Part I. Dento-Maxillo-Facial Radiology 22:105, 1992. **Margot Van Dis**; with Edwin Parks, Dale Miles, and Gail Williamson

Effects of collimation and filtration on caries detection using RVG: Part II. Dento-Maxillo-Facial Radiology 22:105, 1992. **Edwin Parks**; with Dale Miles, Margot Van Dis, and Thomas Razmus

Effects of collimation and increasing OFD on the detection of object detail. Dento-Maxillo-Facial Radiology 22:103, 1992. **Dale Miles**; with Edwin Parks, Margot Van Dis, and Thomas Razmus

Effects of constant infusion of insulin-like growth factor-1 (IGF-1) on the temporomandibular joint. IUSD Research Day 1:44 (#P057), 1993. **Timothy Alford**, graduate student, orthodontics; with Kirt Simmons

Efficacy testing of visible light curing units. J Dental Research 72:137 (#270), 1993. **Carolyn Fowler**, adjunct assistant prof, dental materials; with Marjorie Swartz and B. Keith Moore

Epithelial synthesis of secretory component, lactoferrin and lysozyme: smokeless tobacco.* J Dental Research 72:328 (#1800), 1993. **Linda Gfell; with Richard Gregory

Esthetic nose plug for Olympic Synchronized Swimmers. Proceedings of IUSD Research Day 1:50 (#P069), 1993. **Glenn Richard**, associate prof, prosthodontics; with Carl Andres

Factors affecting calculus prophylaxis effort: hygienist efficiency and tartar control dentifrice. J Dental Research 72:290 (#1493), 1993. **D. White**; with Bradley Beiswanger, and J. Arends

Factors influencing dentin bond of light-cured Type II glass ionomers. J Dental Research 72:197 (#751), 1993. **Kou Hinoura**, former visiting scientist, dental materials; with M. Mijazaki, H. Iwachi, H. Onose, and B. Keith Moore

Fluoride intake increases bone density and decreases bone strength. J Dental Research 72:395 (#2333), 1993. **C. Turner**; with J. Rho, Wu Zhang, and Ann Dunipace

Forces/moments on an anterior implant. J Dental Research 72:117 (#111), 1993. **Thomas Katona**; with Charles Goodacre, David Brown, and W. Eugene Roberts

Full crown preparation design for root resected teeth. Proceedings of IUSD Research Day 1:49 (#P068), 1993. **Christine Bishop**, graduate student, prosthodontics

Functional restorations as related to specific gravity and hardness. Proceedings of IUSD Research Day 1:43 (#P056), 1993. **Melvin Lund**, prof, operative dentistry; with Luis Ortega, MSD operative dentistry '92

Genetic predisposition in parents with cleft lip and palate patients. Proceedings of IUSD Research Day 1:27 (#P024), 1993. **Charles Sadler**, graduate student, orthodontics; with Richard Ward and David Bixler

Genotoxicity of glutaraldehyde: sperm morphology test. J Dental Research 72:162 (#472), 1993. **Ann Dunipace**; with George Mansfield, DDS'94; Timothy Noblitt; Yiming Li; and George Stookey

*Immunofluorescent technique to detect *S. mutans* in secondary caries lesions.* Proceedings of IUSD Dental Research Day 1:18 (#P006), 1993. **Carlos Gonzalez-Cabezas**, graduate student, preventive and community dentistry; with Yiming Li, Timothy Noblitt, Richard Gregory, Abdel Kafrawy, and George Stookey

Immunoglobulin proteolytic enzymes in crevicular fluid following experimental gingivitis. J Dental Research 72:244 (#1128), 1993. **N. McLaurin**; with Shing-Zeng Dung and Richard Gregory

Implant mobility in rabbit thin cortical Bone-Periotest® assessment. J Dental Research 72:286 (#1465), 1993. **Kirt Simmons**; with Caroline Jennermann and Lawrence Garetto

Induction of heat shock proteins in *S. mutans*.* J Dental Research 72:152 (#390), 1993. **Margie Sheldrake; with Linda Gfell, Christopher Hughes, and Richard Gregory

Influence of irradiation sequence on dentin bond of resin inlays. J Dental Research 72:719 (#1630), 1992. **S. Ando**; with Kou Hinoura, Y. Akiyama, B. Keith Moore, and H. Onose

In situ pH model for screening antimicrobial agents. J Dental Research 72:415 (#2492), 1993. **Kichuel Park**; with Bruce Schemehorn, Noel Garcia, George Stookey, D. White, and M. Crisanti

In vitro model for studying enamel remineralization. Proceedings of IUSD Research Day 1:21 (#P011), 1993. **J. Keith Roberts**, assistant prof, pediatric dentistry; with Richard Farnham, OHRI laboratory technician; Gerald Wood, OHRI research associate; and Bruce Schemehorn

*In vitro relationship between *Entamoeba Gingivalis* and *A. actinomycetemcometans*.* J Periodontology 63(12):1006, 1992.

Gay Derderian, assistant prof, periodontics; with A. Newsome and E. Brady Hancock, prof, periodontics

In vitro single section model for development of secondary caries. Proceedings of IUSD Research Day 1:20 (#P010), 1993. **Taein Kim**; with Kichuel Park

Investigation of mechanical environment within the human mandible with and without endosseous implant. Proceedings of annual meeting, American Society of Mechanical Engineering, bioengineering division, BED 22:301, 1992. **Jie Chen**, assistant prof, orthodontics (Dentistry) and mechanical engineering (Engineering and Technology); with X. Lu; Nasser Paydar, associate prof, mechanical engineering (Engineering and Technology) and adjunct associate prof, orthodontics (Dentistry); H. Akay; and W. Eugene Roberts

Isolation and characterization of fluoride resistant *S. mutans*.* J Dental Research 72:302 (#1594), 1993. **Lana Stoll, DDS'95; with Linda Gfell, Ralph McClure, Christopher Hughes, and Richard Gregory

Killing of bacterial spores placed inside the turbine chamber of high-speed handpieces. Society for Infection Control in Dentistry 8(2):1, 1993. **Chris Miller**; with Margie Sheldrake; Darla Gaines; Shelley Riggan; and Kathryn Neal, supervisor, dental central services, oral microbiology

Lesion type and dentin response to fluoride in situ. J Dental Research 72:319 (#1727), 1993. Wu Zhang; with Ann Dunipace; Andrew Beiswanger, OHRI senior dental research technician; **Jie Chen**; Konstantin Pavolotsky, DDS '95; Liliya Lukantsova, OHRI dental research technician; and George Stookey

Local Schwartzman phenomenon and the rabbit's incisor pulp. J Dental Research 72:126 (#178), 1993. **Maria Gaintantzopoulou**, MSD operative dentistry '90; with George Willis, Steven Bricker, and Abdel Kafrawy

*Also published in proceedings of annual meeting, Indiana Branch of the American Society for Microbiology

Margin quality and microleakage of indirect Class II composite inlays. J Dental Research 72:115 (#92), 1993. **Juan Agosto**, MSD operative dentistry '93; with Marjorie Swartz, Melvin Lund, B. Keith Moore, and Michael Cochran

Measurement of enamel mineral changes in situ. J Dental Research 72:672 (#1253), 1992. **Ann Dunipace**; with Konstantin Pavolotsky; N. Barrett-Vespono; Andrew Beiswanger; J. Featherstone; and George Stookey

Mechanical simulation of the human mandible with an endosseous implant. J Dental Research 72:528 (#104), 1992. **Jie Chen**; with Nasser Paydar, H. Akay, and W. Eugene Roberts

Mechanism of HLA-1 downregulation in cytomegalovirus infected cells. J Dental Research 72:416 (#2499), 1993. **Mark Wohlford**, assistant prof, oral and maxillofacial surgery; with D. Sedmak

Metabolic effects of nicotine on mouse fibroblasts. J Dental Research 72:161 (#464), 1993. **Sigrid Madding**, DDS'94; with Byron Olson, James McDonald, Yiming Li, and Timothy Noblitt

Model to determine the relative abrasiveness of rotary toothbrushes. J Dental Research 72:413 (#2480), 1993. **Bruce Schemehorn**; with Terry Ball and B. Bloom

*Molecular studies of coaggregation of *Y. atypica* PK1910.* Proceedings of IUSD Research Day 1:41 (#P051), 1993. **Christopher Hughes**; with Jamie Swan, senior research technician; and C. Lee

Neutralization of *S. sanguis* IgA1 protease by lactoferrin and transferrin.* J Dental Research 72:327 (#1792), 1993. **Michelle Wittler, DDS'95; with A. Newsome; Shing-Zeng Dung; Linda Gfell; Ralph McClure; and Richard Gregory

Occurrence of marginal enamel cracking in composite resin restored teeth. J Dental Research 72:136 (#262), 1993. **K. Tajima**; with K. Chen, M. Terashita, Y. Kozono, Yoshiki Oshida, and B. Keith Moore

Ohio hygiene students and faculty attitudes toward individuals with AIDS. J Dental Education 57:120 (#18), 1993. **L. Lind**; with J. Haring and Margot Van Dis

Oral bacterial factors influence spontaneous up-regulation of neutrophil surface molecules. J Dental Research 72:399 (#2369), 1993. **Christopher Hughes**; with S. Neel and D. English

Potent polypeptide growth and differentiation factors enhance wound regeneration in vivo. Proceedings of Midwest Society of Periodontology Quarterly Newsletter, 1993. **David Rolf**, assistant prof, periodontics

Potent polypeptide growth factors enhance wound regeneration in vivo. J Dental Research 72:250 (#1178), 1993. **David Rolf**; with R. Lim

Preliminary analysis of rat periodontal ligament osteoblast histogenesis from SLS-1. ASGSB (American Society for Gravitation and Space Biology) Bulletin 6(1):58 (#70), 1992. **Lawrence Garetto**; with E. Morey-Holton and W. Eugene Roberts

Prevalence of fluorosis and caries in school children. J Dental Research 72:413 (#2477), 1993. **Richard Jackson**; with Sue Kelly; Barry Katz; James Hull, OHRI research associate; and George Stookey

Quantalcalc assessment of prophylaxis/tartar control benefits of pyrophosphate dentifrices. J Dental Research 72:396 (#2346), 1993. **D. White**; with Bradley Beiswanger; E. Cox; J. Arends; R. Baker; Melissa Mau, associate director, OHRI clinical research; Marita Tuohy, OHRI project dentist; and M. Bosma

Quantitative assessment of in vitro secondary carious lesions. J Dental Research 72:317 (#1711), 1993. **Kichuel Park**; with Timothy Bussick, DDS'94; Taein Kim; Edward Sammons, DDS'95; Bruce Schemehorn; and George Stookey

Rat caries model sensitive to antimicrobials. J Dental Research 72:147 (#350), 1993. **Janice Warrick**; with George Stookey, R. Montgomery, and D. Nelson

Rinsing and drying induced cracking of immature glass ionomer cements. Proceedings of IUSD Research Day 1:30 (#P030), 1993. **Nels Ewoldsen**; with B. Keith Moore

Sterilization of high-speed handpieces in different types of sterilizers. Proceedings of IUSD Research Day 1:40 (#P049), 1993. **Shelley Rigger**; with Darla Gaines, Margie Sheldrake, and Chris Miller

Surface pH changes over time for glass ionomer luting cements. J Dental Research 72:130 (#216), 1993. **Nels Ewoldsen**; with Richard Davis and B. Keith Moore

Surface roughness versus bond strength for two amalgam bonding agents. J Dental Research 72:368 (#2121), 1993. **Mark Winkler**, assistant prof, dental materials; with B. Keith Moore

Tensile strength and elongation of laser-welded titanium. J Dental Research 72:131 (#224), 1993. **M. Ito**; with Yoshiki Oshida and A. Hashem

Thin section microradiography and image analysis of lesioned enamel specimens. Proceedings of IUSD Research Day 1:19 (#P008), 1993. **Gayle Fischer**, OHRI senior dental technician; with Marie Wilson, OHRI dental research technician; and Andrew Beiswanger

Trabecular adaptation in continuously loaded endosseous implants. Proceedings of IUSD Research Day 1:17 (#P003), 1993. **Grant Bailey**, graduate student, orthodontics; with Lawrence Garetto and W. Eugene Roberts

Use of fluoride for dental caries prevention. Proceedings of Fourth National Academic Conference on Endemic Fluorosis, p. 313, 1992. **George Stookey**

Volumetric change of light cured glass ionomer in water. J Dental Research 72:222 (#947), 1992. **Kou Hinoura**; with H. Onose, S. Masutani, T. Matsuzaki, and B. Keith Moore

Volumetric shrinkage of light cured glass ionomers bases. J Dental Research 72:632 (#938), 1992. **Kou Hinoura**; with H. Onose, M. Matsuzaki, B. Keith Moore, and T. Kuroda

CHAPTERS

Bone Physiology and Metabolism. In: Contemporary Implant Dentistry (C.E. Misch, editor), C.V. Mosby, St. Louis, 1993. **W. Eugene Roberts**; with Lawrence Garetto and N. Brezniak

Nicotine Addiction Intervention. In: Dentistry Faces Addiction, Supplement to Biological Therapies in Dentistry (A.G. Williams, editor), Mosby Year Book, Inc., St. Louis, 1992. **Jennifer Klein**, associate prof, dental hygiene (South Bend); with Arden Christen; Joan Christen; James McDonald; and Christianne Guba

Orthodontic Considerations. In: Modern Practice in Orthognathic and Reconstructive Surgery Vol III (W.H. Bell, editor), C.V. Mosby, St. Louis, 1992. **Ronald Hathaway**, assistant prof, orthodontics

Orthopedic Correction of Maxillary Deficiency. In: Modern Practice in Orthognathic and Reconstructive Surgery Vol III (W.H. Bell, editor) C.V. Mosby, St. Louis, 1992. **Ronald Hathaway**

*Also published in proceedings of annual meeting, Indiana Branch of the American Society for Microbiology

Radiographic Assessment. In: Comprehensive Dental Hygiene Care (Irene Woodall, editor), 4th edition, Mosby Year Book, Inc., St. Louis, 1993. **Gail Williamson**

TEXTBOOK

Radiographic Imaging for Dental Auxiliaries, 2nd edition, W.B. Saunders, Philadelphia, 1993. **Dale Miles**; with Margot Van Dis, Catherine Jensen, and Ann Ferretti

COLUMNS

Maynard Hine, prof emeritus, periodontics. Historical columnist for J Indiana Dental Association, 2 issues

Chris Miller, infection control columnist for RDH (Registered Dental Hygienist), 12 issues

Kichuel Park, columnist for J Korean Dentistry, 12 issues

Gail Williamson, columnist for Indiana Dental Hygienists' Association Newsletter, 4 issues

HONORS

DONALD E. ARENS
Louis I. Grossman Award, French Endodontic Association

BRADLEY B. BEISWANGER
Distinguished Faculty Award for Research, IUSD Alumni Association

MICHAEL A. COCHRAN
Clinician of the Year Award, American Academy of Gold Foil Operators

SUSAN M. CRUM
Certificate of Appreciation, IUSD Alumni Association

ROLANDO A. DECASTRO
Glenn W. Irwin, Jr., M.D. Experience Excellence Recognition Award for outstanding service to the IUPUI campus

ROBERTA M. HILDERBRAND
Distinguished Faculty Award for Teaching, IUSD Alumni Association

MAYNARD K. HINE
Certificate of Appreciation, American Board of Periodontology

Honorary membership, WFYI board of directors

SARA A. HOOK
2nd place team member, Client Counseling Competition, IU School of Law (Indianapolis)

YIMING LI
Elected to Theta Theta Chapter, Omicron Kappa Upsilon Dental Honor Society

DALE A. MILES
Elected to Theta Theta Chapter, OKU

Certificate of Appreciation, American Academy of Oral Medicine

LINDA MILLER
Technologist of the Year, Indiana Branch, American Association for Laboratory Animal Science

KICHUEL K. PARK
Outstanding Faculty of Dentistry Award, Seoul National University, South Korea

W. EUGENE ROBERTS
Cosmos Achievement Award from National Aeronautics and Space Administration

Listed in *Who's Who in the Midwest*, 23rd Edition, and *Who's Who in the World*, 11th edition

Dr. George Grieve Memorial Lecturer, Canadian Dental Association

DAVID D. ROLF II
1st place honors, Midwest Society of Periodontology's graduate student research competition, Chicago

CHARLES E. SMITH
Co-recipient, Meritorious Award in Community Preventive Dentistry, national honor sponsored by the American Dental Association and Johnson & Johnson Consumer Products, Inc., for project *Oral Health Promotion for People with Disabilities: Indiana's Cooperative Effort*

HENRY M. SWENSON
Honorary membership, Southern Academy of Periodontology, St. Petersburg, Florida



Clinical Affairs employees Pamela J. Elliott, administrative assistant (left), and Debra J. Pennington, administrative secretary, received awards for outstanding and dedicated service from the DDS Class of 1993.

CHARLES E. TOMICH
Honorary membership, Indiana Society of Oral and Maxillofacial Surgeons

JANICE M. WARRICK
Eldon J. Cox Memorial Award for Distinguished Service, Indiana Branch, American Association for Laboratory Animal Science

GAIL F. WILLIAMSON
President's Award, Indiana Dental Hygienists' Association

KAREN M. YODER
Co-recipient, Meritorious Award in Community Preventive Dentistry, national honor sponsored by the ADA and Johnson & Johnson Consumer Products, Inc., for project *Oral Health Promotion for People with Disabilities: Indiana's Cooperative Effort*

Awards bestowed by the Indiana University DDS Class of 1993:

Steven E. Dixon (Best Part-time Instructor)

Pamela J. Elliott (Outstanding and Dedicated Service)

Ronald K. Harris (Recognition of Service)

Carl W. Newton (Best Lecturer)

Debra J. Pennington (Outstanding and Dedicated Service)

Philip C. Rake (Outstanding Laboratory Instructor)

Glenn E. Richard (Outstanding Clinical Instructor)

Charles E. Tomich (Best Lecture Series)

Joanne ("Jody") Walker (Outstanding Staff Member)

Building Friendship

To close the 1992-93 edition of the Annual Report, we turn our attention to the IU School of Dentistry's promising new venture of friendship with Prince of Songkla University, in Haadyai, Songkla, Thailand.

Dental deans Narong Suksu-art and H. William Gilmore signed the Agreement of Friendship and Cooperation while Dr. Suksu-art visited the IUPUI campus in May with a delegation of Thailand's leaders in education. IUSD now has agreements with all five dental schools in Thailand.

Prince of Songkla's dental school, which is located in a town near the Malaysian border, will celebrate its 10th anniversary in 1994.

"The Faculty of Dentistry was established by the University in order to solve the problems of a shortage and unequal distribution of dentists in the southern part of Thailand," says Dean Suksu-art. "Of the five dental schools in this country, ours is the only one in the south. As a new school in this location we also face shortages of qualified personnel. Fortunately, the Thai government is supporting additional training of personnel so we can use this avenue to increase the number of staff receiving advanced training."

A total of 215 dental students are enrolled in the University's six-year predoctoral program. The dental school also provides training for dental assistants. The large dental faculty is composed of 86 full-time and 60 part-time members.

Prince of Songkla's primary interests in research lie in identifying persons at high risk for dental caries, conducting epidemiologic and clinical studies pertaining to odontogenic tumors and oral cancer, and conducting epidemiologic studies on the overall oral health needs of people residing in southern Thailand.

"We are confident that this new friendship agreement with Indiana University School of Dentistry will promote understanding between our two

Presidents

TIMOTHY J. CARLSON
Theta Theta Chapter of OKU

STEVEN P. HAUG
Indiana Section, American College of Prosthodontists

ROSE MARIE JONES
Indiana Section, American Association of Dental Research

Fellows

CARL J. ANDRES
American College of Dentists

ELISE BOLSKI
United Cerebral Palsy Research and Educational Foundation, Inc.

STEPHEN M. COTTRELL
Postdoctoral Fellow in Periodontics

RICHARD D. DAVIS
U.S. Air Force Fellow in Dental Materials

LARRY L. GRAHAM
International College of Dentists

DAVID K. HENNON
American College of Dentists

RAYMOND M. MADDOX
American College of Dentists

CHARLES L. STEFFEL
International College of Dentists

Chairs

DONALD E. ARENS
Public and Professional Awareness Committee, American Association of Endodontists

STEVEN L. BRICKER
Reference Committee for Association Policy, and Section of Oral Diagnosis/Oral Medicine, American Association of Dental Schools

RONALD R. HATHAWAY
Council on Professional Education, American Cleft Palate-Craniofacial Association

MAYNARD K. HINE
Indiana Dental Association's Historical Records and Memorials Committee

WILLIAM F. HOHLT
Evaluation Committee for Evaluation of H. William Gilmore's Deanship

SARA A. HOOK
Dean's Tutorial Society, IU School of Law (co-chair)

BARRY F. SMITH
United Way Campus Campaign, IUPUI (co-chair)

Other Recognition

GAY M. DERDERIAN
Achieved board eligible status, American Board of Periodontology

E. BRADY HANCOCK
Interviewed for public service announcement for IU's statewide radio program *HealthScan* (Periodontal Screening and Recording)

DAVID K. HENNON
Appointed to editorial board, *The Compendium*

DAVID D. ROLF II
Achieved board eligible status, American Board of Periodontology

BRIAN J. SANDERS
Appointed to board of directors, United Cerebral Palsy of Central Indiana

CHARLES E. SMITH
Appointed to board of directors, Indiana Public Health Foundation

GAIL F. WILLIAMSON
Interviewed for public service announcements for *HealthScan* (Regular Teeth Cleaning, Role of the Dental Hygienist, Role of the Dental Assistant)

MARK E. WOHLFORD
Interviewed for public service announcement for *HealthScan* (Tooth Extraction)

SUSAN L. ZUNT
Served as liaison from American Academy of Oral Pathology to the ADA's Continuing Education Recognition Program, Steering Committee and Review Committee

countries,” reports Dr. Krassanai Wangrangsimakul, vice dean of the Faculty of Dentistry. “We are hopeful that sharing information and working together on research activities will lead to the development of a close relationship between our two schools. We would also like assistance in our staff development program.”

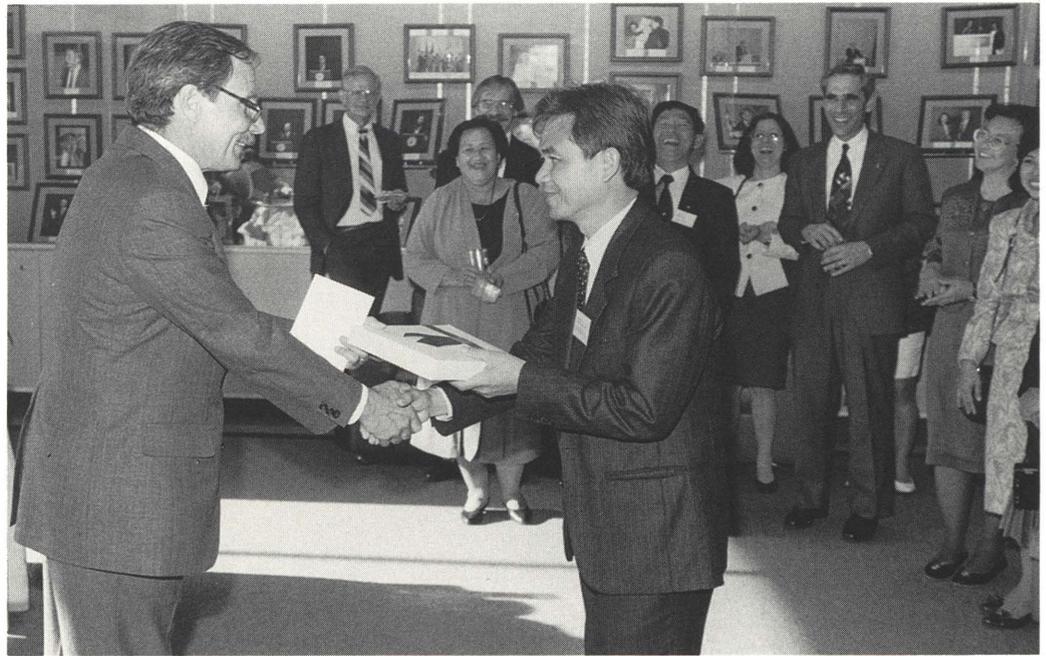
The most ambitious task currently facing Prince of Songkla University’s dental school is a large-scale oral health program focusing on the needs of rural Thais. The five-year program, entitled the Rural Oral Health Center of Southern Thailand, represents the country’s collaborative effort with Denmark.

The goal of the program is to improve the delivery of oral health services to rural communities. It is funded primarily by the Danish International Development Agency (DANIDA) in cooperation with Thailand’s Department of Technical and Economic Cooperation, Ministry of Public Health, and Ministry of Foreign Affairs.

The program is administered by the Prince of Songkla’s Faculty of Dentistry with assistance from DANIDA personnel, including faculty and staff of the Royal Dental colleges in Aarhus and Copenhagen.

Program participants are confronting an enormous challenge. In some parts of Southeast Thailand, the patient-to-dentist ratio stands at 18,000-to-1 (compared to Indiana’s ratio of about 2,000-to-1).

“The agreements we have signed with the dental schools in Thailand hopefully will help ease the nation’s severe shortage of dental



Dr. Narong Suksu-art (right), dean of the Faculty of Dentistry at Prince of Songkla University, is greeted by Gerald L. Bepko, chancellor of IUPUI and vice president of IU (Indianapolis) during an IUPUI reception held last May to honor a visiting delegation of Thailand’s leaders in education.

health care workers,” says Dean Gilmore.

Indiana University is pleased to announce that Dr. Angkana Thearmontree, a faculty member at Prince of Songkla University, has accepted a position in IU’s two-year graduate preventive dentistry program. She is a recipient of a Thai government scholarship, and is the first person from her school to study at IUSD. She was one of nine students in the Prince of Songkla’s first graduating class.

“After I graduate from IU, I will share my knowledge and experience with my colleagues and my students back home,” says Dr. Thearmontree, who was raised in Phatthalung, a small province in southern Thailand. “I hope that my contribution will impact the dental health in Thailand.” ■



The dental school and a dental team (far left) at Prince of Songkla University, Thailand.

INDIANA UNIVERSITY
PURDUE UNIVERSITY
INDIANAPOLIS



INDIANA UNIVERSITY SCHOOL OF DENTISTRY
(Alumni Bulletin)
1121 West Michigan Street
Indianapolis, Indiana 46202

Address Correction Requested

Nonprofit Organization
U.S. POSTAGE
PAID
Indianapolis, Indiana
Permit No. 4245



Publication member of the
American Association
of Dental Editors

9308-46

©1993, IUPUI Publications

IUPUI is an Equal Opportunity/
Affirmative Action Educational Institution