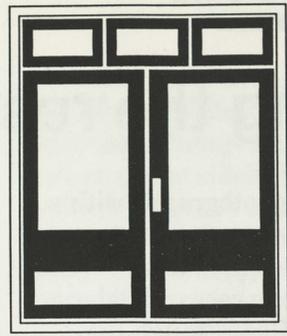
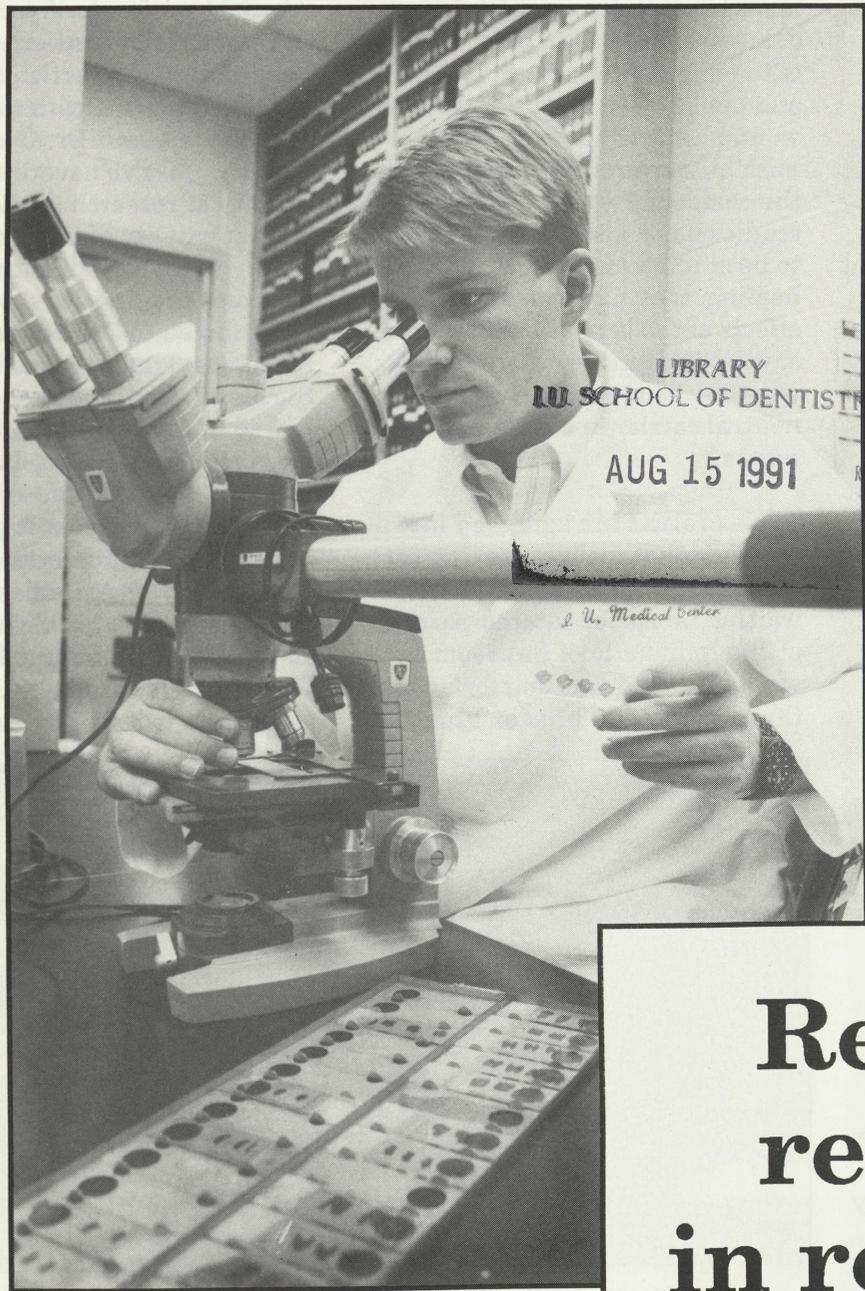


# INSIDE PASSAGES



Indiana University School of Dentistry Newsletter • Volume 6, Number 3, 1991



A DECADE  
OF SUPPORT

*Research training grants from the National Institutes of Health fund summer projects for IU students of dentistry.*

*(Story on page 2)*

## Reaping rewards in research.

DOES NOT CIRCULATE

*Susan Crum  
Timothy Bussick focuses on his research project in the Department of Dental Diagnostic Sciences.*

## Piquing the research interests of 'pre-docs'

He's snapped photographs with a scanning electron microscope, peered over the shoulders of technicians in the bone research laboratory, and shuffled through the animal research facility in hospital booties.

Before he graduates, dental student **Timothy J. Bussick** hopes to visit all of the areas where research is under way at the School of Dentistry so he can learn as much about opportunities in dental research as possible.

"Right now, I'm a novice in *all* areas," Tim says with a smile. "But I'm finding that one of the best parts of research is the people involved—this summer I've enjoyed soaking up knowledge from as many of them as I can."

Tim is one of six second-year students participating in Short-Term Research Training Grants awarded by the National Institutes of Health, a summer program now in its tenth year at Indiana University. He has been working on two projects with research mentors Dr. Abdel H. Kafrawy and Shirley E. Shazer in the Department of Dental Diagnostic Sciences. "Dr. Kafrawy didn't tell me I had to do a certain project," says Tim. "He gave me choices, and encouraged me to come up with an idea of my own if I wanted."

Tim decided to participate in a current study of the effect of collagen implants on bone formation in rats being conducted by periodontic graduate student Dr. Mary Jew. (IUPUI student Edith Jackson is a co-investigator.) It has been hypothesized that the response to collagen is determined by the environment in which it is placed. The researchers are placing the collagen at two sites: in subcutaneous connective tissue, where they believe the collagen will

elicit fibrous encapsulation instead of bone formation; and over the calveria, where they theorize the collagen will mineralize, stimulating new bone growth.

Tim's other project follows the work of Dr. Chiu-Kwan Poon, a recent graduate of the postdoctoral program in dental diagnostic sciences; he will study the effects of Aquaphor, a water miscible ointment base, on the healing process of the oral mucosa in rats. Studies of the effects different chemical and biological compounds have on wound healing have used water miscible substances to transport the compounds. "While these studies have shown various agents to be of importance in wound healing, they have not shown the effects of the carrier itself," Tim says. "We want to determine whether Aquaphor serves as a neutral carrier in such experiments."

Tim's projects are squeezed into a schedule that includes taking care of his other school assignments, waiting tables for catered parties at the Indiana Roof Ballroom on weekends, and training for a job at the blood bank. "I haven't had any

trouble fitting the research into my schedule—you just have to organize your time," he says. "I plan to be finished by first semester's midterms. After that, I'd like to stay involved in research with Shirley and Dr. Kafrawy."

"We have now trained 70 undergraduate students in this program since it began a decade ago," says Dr. James L. McDonald, Jr., an associate professor of preventive and community dentistry who coordinates IU's participation in the NIH program with associate dean for research Dr. George K. Stookey. "We've never had a scarcity of research applicants, and the quality of the candidates is very high. Our dilemma is that, with only six positions available, we're forced to leave out deserving students. That's tough to do—Dr. Stookey is continually scrambling to find additional funds to support more students."

A new student research group, begun last year under the leadership of Charles A. Sadler, Jr. (DDS '91), was made possible with funds donated by IU alumnus Dr. Donald W. Johnson ('56). The group gets together on a regular



Susan Crum

*Dental student Sigrid Madding works in the Cell Culture Laboratory under a laminar air-flow hood, which rids the environment of impurities; she is studying the effects of nicotine and cotinine on cell proliferation for a project headed up by faculty in the Department of Preventive and Community Dentistry.*

basis to share research interests and to try to find outlets for research ideas. Projects were undertaken last year by Charles Sadler and his classmates Edna F. Kemp, Anthony M. Puntillo, and Douglas L. Ramsey.

"We know we are piquing student interest in research, and we are providing good research experiences," says Dr. McDonald, "but we must also try to determine how we can *sustain* that interest. I'm speculating, but my guess is that if we had the funds to offer research projects that students could work on during the entire four years of their program, we'd have a better chance of seeing career researchers and teachers develop within the program."

The other NIH researchers this summer include **Cynthia Ditslear**, working in oral pathology with principal investigator Dr. Susan L. Zunt, associate professor of oral pathology. They are trying to determine the usefulness of the Visual Analogue Scale (a device that enables patients to assign numerical values to various levels of pain) in assessing subjective patient response to topical treatment of a mucocutaneous disease, erosive lichen planus, with an experimental drug, cyclosporine. "The disease is usually treated by steroids and retinoids, but some patients do not respond to traditional therapies," says Dr. Zunt.

**Denise A. Flanagan**, under the guidance of Charles J. Palenik, professor of oral microbiology, is measuring the antimicrobial abilities of various commercial alginate impression materials. "Some manufacturers have elected to neutralize adhering bacteria by placing known surface disinfectants into the alginates," says Professor Palenik. "We are trying to show through an *in vitro* study the ability of these disinfectants to kill the bacteria. Casts made from disinfected impressions should

**“We’ve never had a scarcity of applicants,” says Dr. McDonald, “and the quality of the candidates is very high.”**

contain fewer microorganisms, or none at all.”

The Cell Culture Laboratory is the site of a study by **Sigrid E. Madding**, who is working with senior research technician Timothy W. Noblitt and preventive and community dentistry faculty members Dr. McDonald and Dr. Byron L. Olson; the group is interested in effects of nicotine and cotinine on cellular proliferation. "Smokers and tobacco chewers have bone loss—an actual loss of bone mass—in the mouth and elsewhere in the body," says Mr. Noblitt. "One theory is that nicotine affects the metabolic activity of the cell—the cell may be so active in ridding itself of the nicotine that it's unable to lay down the bone as it is supposed to. Sigrid's project involves looking at the cytotoxic effects of nicotine and cotinine from a variety of parameters."

According to Dr. Ann J. Dunipace, associate director of preclinical research at the Oral Health Research Institute, NIH researcher **George C. Mansfield** is conducting an *in vitro* Ames Test as the first part of an NIDR-funded study to evaluate the genotoxicity of glutaraldehyde, which is used in dentistry as a pulpotomy medication, dentin bonding mediator, sterilizing agent, and for various tissue preparation procedures. "Toxicity of the compound in laboratory animals is unclear due to conflicting information," says Dr.

Dunipace, "but strong irritation and skin sensitization have been reported. Mutagenicity information on glutaraldehyde is also limited. George's studies are part of a series of genotoxic tests, and the collective results from all these studies will provide reliable data on the genetic effects, if any, of glutaraldehyde, and will help establish the risks or safety of its continued use in dentistry."

**Kathleen A. Smith** is preparing baseline data for Dr. David Bixler, head of oral facial genetics, as a follow-up to last year's project by third-year student Kurt Martin. "Kathy is trying to identify landmarks on the frontal (PA) head-plate of normal patients that relate to the embryological development of the face," Dr. Bixler explains. "The information could be useful to us in describing defects or variations that might have some relationship to cleft lip and palate disorders. Once we have Kathy's data on normal persons, we can compare it to our previously collected data on persons with clefts."

All six students will present papers at a fall meeting of the Indiana Section of the American Association for Dental Research. Dr. McDonald underscores the practical application of the summer program. "By the time students leave the dental school, they need to have developed a critical judgment regarding the significance of research findings they will read about and encounter in their dental practices. The NIH program definitely sharpens their skills to do this."

"I highly recommend the experience," says Tim. "And the stipend doesn't hurt, either. I think I'll be able to apply the knowledge I've gained in this lab to classes I'll be taking in the fall. My advice to students coming up in the class behind me? Go for it! You'll find it very worthwhile."



*Getting acquainted with Dr. Garner (center) during the "Welcome to IUSD" pizza luncheon are (clockwise from top stair) Natalie Cumberlander, Erinn Harris, Tiffany Terrell, Aimee Partlow, Taniese Woodson, Diann Carroll, Carmen Gallegos, and Shannon Grady. Not pictured is Edith Jackson. (Photo by Mike Halloran)*

## The Right Start:

*Dr. Garner wraps up another successful summer research program for minority high school and college students*

**T**hey started in June with a pizza party. They finished in August with a banquet.

And in between those two meals, there was much food for scholarly thought for nine Indiana high school and college students who learned to think like researchers during two intensive, hands-on programs offered by faculty and staff at Indiana University and sponsored by the Indianapolis Research Support Committee, an IUPUI funding organization.

The IUSD Summer Research Program for Talented Minorities and the Minority High School Student

Research Apprentice Program made it possible for students with an interest in science and research to gain first-hand experience in the field. According to Dr. LaForrest D. Garner, IUSD associate dean for minority student services and coordinator of the scholarship program, selection of scholarship recipients was based on academic achievement, letters of recommendation, and student-submitted letters describing interest in participating. Both annual eight-week programs have been offered by the dental school in previous summers with funding by the National Institutes of Health.

Teaming up with IU faculty mentors, the students joined research projects in various stages of development throughout the dental school and the Oral Health Research Institute. For their efforts, college-level participants earned a \$460 stipend and three college credits; high school students received a stipend of \$1,300. In partial fulfillment of both programs, the young researchers submitted papers describing their contributions to individual projects and presented their findings at a meeting of scholarship recipients and mentors.

This summer's participants and their mentors were **Erinn Harris**, Earlham College, and **Aimee Partlow**, Howe High, both working with faculty mentor Dr. Ann Dunipace, OHRI associate director of preclinical research; **Taniese Woodson**, Lawrence Central, with Dr. Lawrence Garetto, director of the bone research laboratory, orthodontics; **Edith Jackson**, IUPUI, with Dr. Abdel Kafrawy, professor of dental diagnostic sciences; **Tiffany Terrell**, Pike High, with Dr. Jean Schoknecht, supervisor of the IUSD Scanning Electron Microscope Facility; **Diann Carroll**, Purdue University at Calumet, with Dr. Kirt Simmons, assistant professor of orthodontics; **Shannon Grady**, Arsenal Technical High, with Drs. Byron Olson and James McDonald, both professors of preventive and community dentistry; **Carmen Gallegos**, Purdue University at Calumet, with Dr. Yiming Li, director of the cell culture laboratory; and **Natalie Cumberlander**, Lawrence Central High, with Charles Palenik, professor of oral microbiology.

Lynn K. Finkel, of Mooresville, has accepted a position as IUSD director of administrative and financial affairs. He replaces James R. Levens, who resigned after 16 years with the school to supervise budgetary activities of the IU College of Arts and Sciences on the Bloomington campus.

## New budget director, full-time professor accept dental school appointments



Mr. Finkel comes to the dental school after an 18-year career at the IU School of Medicine, where he had served since 1984 as associate director of fiscal affairs in the Office of the Dean.

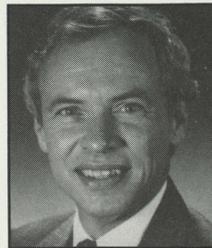
Dr. Yoshiki Oshida, Syracuse, New York, joined IU's full-time faculty as an associate professor of dental materials on July 1. He is a former research associate professor in the Department of Mechanical and Aerospace Engineering of the L.C. Smith College of Engineering at Syracuse University.

Dr. Oshida holds a baccalaureate

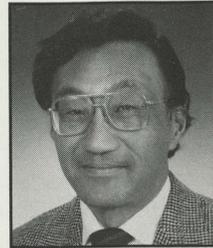
degree (1965) in metallurgical engineering and a PhD degree (1971) in materials science from Waseda University, Tokyo, Japan; and a master's degree (1967) in chemical engineering and materials science from Syracuse University.

During his 10-year affiliation with Syracuse University, Dr. Oshida taught in the departments of mechanical and aerospace engineering, and chemical engineering and materials science.

The recipient of five research grants in the past decade, Dr. Oshida recently completed a three-



Mr. Finkel



Dr. Oshida

year fatigue evaluation of multilayered copper structures for the IBM Endicott Research Center. In the mid-'80s he was a co-investigator of a five-year project, "Effect of High Temperature Oxidation on Fatigue Crack Initiation in Ni-Based Superalloys," for the National Aeronautic and Space Administration's Lewis Research Center.

Dr. Oshida holds five patents in the United States and 58 in Japan. The U.S. patents are for techniques used with metallic materials. He has presented programs throughout the U.S. and in Canada, Japan, China, and Australia.



Mike Halloran

The Class of 1994 was well represented at the ASDA conference. From left: Sigrid Madding, Rod Strickland, Mark Sitzman, Al Miller, Kathleen Smith, Lisa Stewart, Tony Ratliff, and Serkis Isikbay.

## ASDA speakers offer timely topics

Dental students participating in the American Student Dental Association/Indiana Dental Association conference last spring heard contemporary opinions on two topics highly relevant to their futures as dentists.

The annual day-long program, co-sponsored with the IUSD Student Research Group and held in conjunction with the IDA meeting in May, included a luncheon presentation by IU Professor Morton J. Marcus, director of the IU School of

Business' Indiana Business Research Center. Addressing the topic, "Building a Professional Career in Indiana's Economic Environment," Professor Marcus drew on his two decades of experience in studying Indiana's changing economy and population. He is the editor of *Indiana Business Review*.

Dr. Marilyn C. Miller, a Case Western Reserve dental graduate currently serving as director of the Princeton (New Jersey) Dental Resource Center, presented an afternoon program entitled "Technology 'N' Trends: Keeping Up with the Explosion of New Dental Research." A fellow of the Academy of General Dentistry and former practitioner in California, Dr. Miller is the author of articles on diet and caries, fluoride, and dental sealants.

**Rick Baughn**, head photographer in the IUPUI department of Learning Technologies, won second prize in the science/research division of a national contest for the photo he took of orthodontic chairman Dr. Eugene Roberts that appeared on the cover of the spring 1990 issue of the *IUSD Alumni Bulletin*. The annual contest, held this year in Brockport, New York, in June, was sponsored by the University Photographers of America Association.

Two IU assistant professors of pediatric dentistry moved closer to diplomate status in the American Board of Pediatric Dentistry after completing examinations held in San Antonio, Texas, in May. Dr. **Jeffrey A. Dean** passed the case histories portion of the exam, and Dr. **Brian J. Sanders** passed the orals. The Board examination is offered in four parts over a period of years; Dr. Dean has now completed three of the sections, and Dr. Sanders two. In other "board" news, Dr. **Dale A. Miles**, associate professor of dental diagnostic sciences, has learned that he passed an examination given in New Orleans, Louisi-

# WHO'S NEWS

ana, in April, and is now a diplomate of the American Board of Oral Medicine.

Also, Dr. Miles recently participated in an Emerging Business Forum sponsored by the Indiana Institute for New Business Ventures Inc. as a panelist offering a health professional's opinion of disposable tanning-bed liners, a new product invented by two Indiana business women to ensure a sanitary environment for consumers of machine-induced tans. His remarks were published in the May 13-19 issue of the *Indianapolis Business Journal*.

Fourth-year dental student **Steven R. Schimmele** was elected president of the Student Affairs Council in the spring. Other new SAC officers are third-year student **Kurt F. Martin**, vice president; and fourth-year students **Marybeth Brandt**, secretary, and **John R. Avila**, treasurer.

**Dr. Kichuel K. Park**, professor of preventive and community dentistry, participated in the 30th Year Anniversary of the Korean Academy of Dental Health, held in Seoul in June. Joining a speakers roster that also included health professionals from Korea, Sweden, and Japan, Dr. Park discussed current status and future perspectives of oral disease prevention in health service organization programs in the U.S.

American Student Dental Association officers elected to the Indiana chapter for 1991-92 are: **Kurt Martin**, president, 1st delegate, and Class of '93 representative; **Timothy Bussick**, 2nd delegate and Class of '94 rep; and **Michael Behnen**, Class of '91 rep. Fourth-year student **Mark Shafer** was appointed as the local Political Educational Network liaison for ASDA.



*Professor Jeri Francis at her farewell reception*

## GOODBYE TO PROFESSOR FRANCIS.

Professor Jeri Lee Francis resigned from her position as an assistant professor of dental assisting on May 10, after devoting 20 years of outstanding service to the dental school. A 1965 dental assisting graduate of the Wood School, Jeri began her IU career as a dental assistant in undergraduate pediatric dentistry in 1971, then transferred to the graduate division. She earned an IU dental assisting certificate in 1975, and in 1983 became a full-time faculty member in dental assisting. Jeri completed an IU bachelor's degree in health occupations education, graduating with distinction in 1982. For 10 years Jeri helped hundreds of dental auxiliaries master expanded functions through

her work as an instructor in one of IUSD's best known weekend C.E. courses.

Jeri was honored in April as her many friends at the school gathered for an afternoon reception to recognize her years of achievement and to wish her well on her way to a new career—that of being a full-time wife to her husband, Paul, and mother to their two daughters, Alex, 4, and Tori, 17 months.

"Jeri's dedication and loyalty to her work will be missed not only by the faculty, but by the many staff members and dental assisting students with whom she worked very closely through the years," says Pauline Spencer, director of dental assisting and Jeri's longtime colleague.



*Prosthodontic professor Dr. Carl J. Andres (right) accepts a faculty membership certificate from OKU President-elect Dr. B. Keith Moore.*



*Dr. Moore congratulates new OKU honorary member James A. Levens, IUSD director of administrative and financial affairs at that time.*



*New OKU life member Dr. Francis E. McCormick, professor emeritus of pediatric dentistry (left), receives congratulations from Dr. Moore and OKU President Dr. David K. Hennon.*

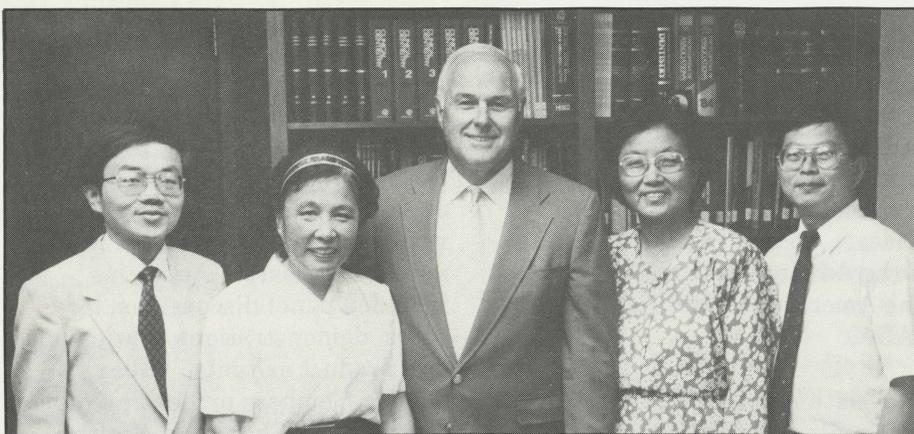


*Louise M. Judd, clinical assistant professor of dental hygiene (left), is inducted as a Sigma Phi Alpha faculty member; her certificate was presented by Evelyn R. Oldsen, IUSD director of dental hygiene.*

## Honor societies induct members

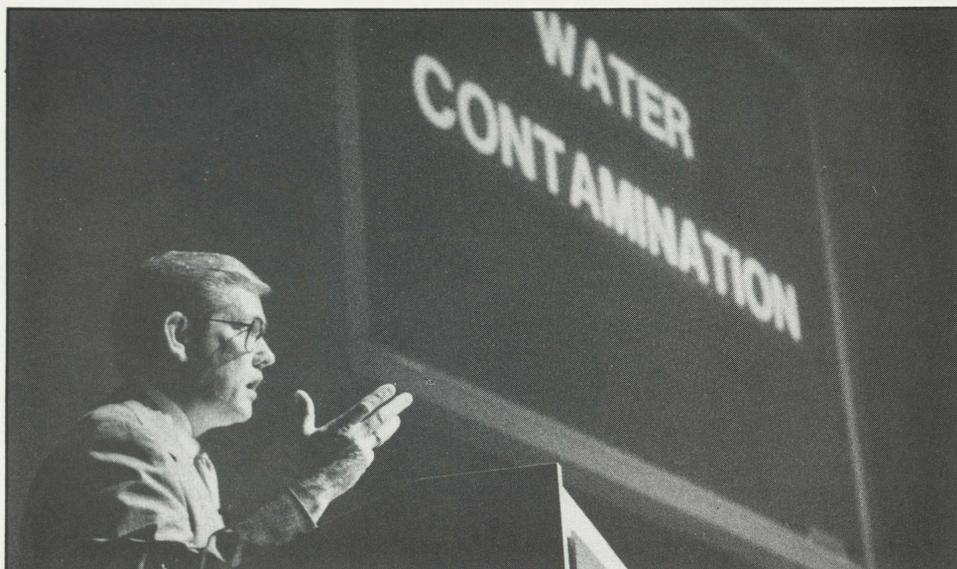
Omicron Kappa Upsilon dental honor society and Sigma Phi Alpha dental hygiene honor society inducted new members during a luncheon program held at the Union Building in April.

New faculty and honorary members are shown above. OKU alumni members from the Class of '91 are Julie A. Boyd, who also received the Outstanding Student Award; Grant S. Bailey, Steven A. Douglas; Sung H. (Stacey) Lee; Charles A. Sadler, Jr.; Amy J. Viano; and Sherri L. Wilson. New Sigma Phi Alpha alumni are Donna L. Hutton, Donna L. Krietenstein, Kathleen M. Quinn, and Patricia A. Smith. Susan E. Draheim (DDS '92), received OKU's William S. Kramer Award for academic excellence.



*All photos by Mike Halloran*

**REUNION TIME FOR DR. LI.** Dr. Yiming Li, director of IUSD's cell culture laboratory and assistant scientist at the Oral Health Research Institute (right), spent the first week in July in the company of faculty members from his alma mater, Shanghai Second Medical University School of Dentistry, in the People's Republic of China. The professors were here to learn about the teaching and research programs in IU's departments of endodontics and prosthodontics. Shown with Dr. Li are, from left: Dr. Baowei Zhang, associate chair and associate professor of prosthodontics; Dr. Xiaoyi Wang, professor of endodontics; IU Dean H. William Gilmore; and Dr. Chongying Yang, chair and professor of prosthodontics.



Topics covered by Dr. Chris H. Miller's presentations included updates on water contamination, spore testing, and instrument processing. (Conference photos by Mike Halloran)

## Changes in the interest of all

*Dr. Chris Miller hosts national conference for infection control and the School introduces a new Division of Human Health and Safety.*

A brochure publicized the three-day affair as the most comprehensive meeting on infection control in dentistry ever held—words that were backed up by the participation of a host of national infection control experts that included representatives from the Occupational Safety and Health Administration (OSHA), Centers for Disease Control (CDC), Food and Drug Administration (FDA), and the American Dental Association (ADA).

The sixth annual conference of the Office Sterilization and Asepsis Procedures (OSAP) Research Foundation, held on the IUPUI campus June 6-8, addressed the growing concerns about infectious disease transmission in the dental office setting. "There were updates from the government agencies in every area," says Dr. Chris H. Miller, IU chairman of oral

microbiology and conference host. The meeting attracted about 150 dental professionals, manufacturers, distributors, and university faculty from throughout the country. "It's interesting to note that more people came from out of state," Dr. Miller says, "perhaps because Indiana has had a thorough information dissemination system on infection control in place for several years." Activities included panel discussions, lectures, demonstrations, workshops, and product exhibits. Other IU faculty members presenting topics included Dr. Charles E. Smith, director of the dental division of the Indiana State Board of Health; Dr. Jack E. Schaaf, associate professor of dental diagnostic sciences; and Charles J. Palenik, professor of oral microbiology.

During the conference Dr. Miller was elected chairman of OSAP for

1991-1992. A non-profit organization founded in 1984, OSAP has assisted in the development, implementation, and maintenance of aseptic technique standards, and heightened awareness of and the need for effective infection control procedures.

A charter member of OSAP's board of directors, Dr. Miller has chaired the Foundation's research committee and is past editor of the organization's publication, the *OSAP Report*. A longtime leader in the prevention of disease transmission in the practice of dentistry, he serves as a consultant to the ADA's Council on Dental Therapeutics and co-chairs groups within the Association for Advancement of Medical Instrumentation, which are setting today's standards for use of sterilizers in offices throughout the country. In 1989 Dr. Miller was asked by the American Association of Dental Schools to chair the committee that drafted curriculum guidelines on the principles of infection control and on equipment and facility design.

Since 1980 Dr. Miller and Professor Palenik have rendered a sterilization monitoring service to more than 2,200 dentists in Indiana and elsewhere.

The two oral microbiologists have also closely monitored infection control activities here at the school; they offer infection control awareness programs and update training, publish an infection control manual and periodic newsletters on the topic, and provide the leadership needed to assure that Indiana University's dental faculty, students, and staff comply with guidelines and regulations issued by the school, the state of Indiana, OSHA, and the CDC.

In July all faculty and staff members were required to attend

an infection control/hazardous waste materials update program as part of IUSD's ongoing commitment to standardize procedures and keep everyone in the system informed of changes as they happen. At that time the oral microbiology department's new Division of Human Health and Safety was announced. Headed by Professor Palenik, who also chairs the IUSD Infection Control and Hazardous Materials Committee, the division is currently located in Room 309A of the dental school and staffed by Jeff R. Wilson, a certified dental assistant formerly working in dental diagnostic sciences whose title within the division is inspection control technician. "As the on-site member of our inspection team, Jeff will be available to answer questions and provide certain supplies," says Professor Palenik. "He'll be able to solve problems that arise in a timely manner. We expect Jeff's participation to make the compliance process go more smoothly for everyone." Also joining the department is Ora L. Wade, formerly of the office of clinical affairs. Ms. Wade will be responsible for preparation and distribution of the surface covers used in the clinics. (The division will be permanently housed in a portion of the graduate operative dentistry clinic as soon as remodeling of the area is completed.)

Centralized systems for handpiece sterilization and for preparation and distribution of surface covers and general clinical supplies have already been initiated, and the Infection Control-Hazardous Materials Committee plans to finalize a standardized clinical

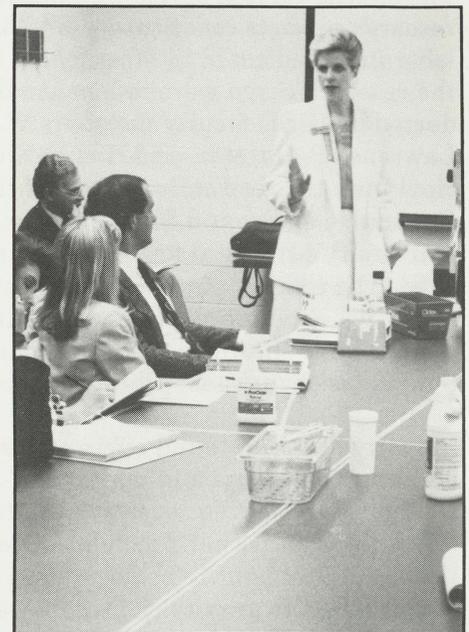


*Conference workshops and demonstrations were held at the dental school, including this on-site review of infection control measures conducted by Kathy Eklund, a dental hygiene faculty member at Forsyth dental center in Boston, Massachusetts.*

asepsis protocol by fall semester.

The most visible change in the school's infection control system, targeted to begin August 15, will be the addition of disposable gowns to the protective gear worn by all clinicians during treatment and/or diagnosis of patients. "Current Indiana law and OSHA regulations require the school to provide employees with gowns that help prevent contact with body fluids," says Professor Palenik. Worn over street clothing, the gowns are fluid resistant and light weight; they must be changed at the end of each clinic appointment, or immediately if they become soiled with body fluids. Students and staff will wear yellow gowns, and faculty will wear blue. The gowns will be distributed by Mr. Wilson.

Professor Palenik says he won't be surprised if there is some initial resistance to "gowning up," just as there was to "gloving up" when the



*Conference participant Annamaria Phillips, of Cottrell Limited, Englewood, Colorado, leads a workshop on the use of surface disinfectants.*

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**"Current Indiana law and OSHA regulations require the school to provide employees with gowns that help prevent contact with body fluids," says Professor Palenik.**

dental profession made the transition from "wet finger" to gloved dentistry in the early '80s. "With a bit of understanding, however, I think the program will be quite successful," he says.

Questions regarding the Division of Human Health and Safety are welcomed by Professor Palenik (274-4561) and Mr. Wilson (274-5448).

# —and (Finally) Away!

# Up, Up,

*With a successful launch of space shuttle Columbia now complete, IU's bone researchers lift the next phase of their project off the ground.*

It was bumped from the schedule last summer, scrubbed on May 22, and halted once again 10 days later.

But when NASA's space shuttle Columbia finally lifted off from Cape Canaveral, Florida, on June 5, it soared 184 miles into space, performing a nearly flawless nine-day biomedical research mission aimed at helping scientists determine the effects of micro-gravity and long-term space travel upon seven systems of the human body.

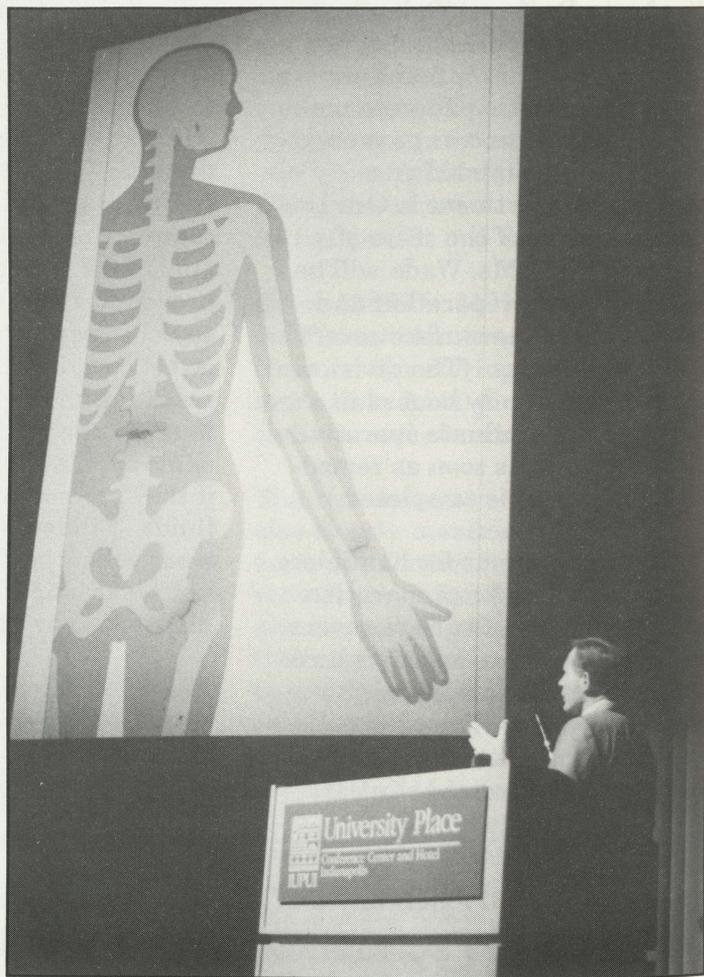
The shuttle carried seven astronauts and a series of research projects constituting NASA's first space laboratory dedicated to life sciences (SLS-1). Among the research cargo were rodent studies being conducted by IUSD faculty members W. Eugene Roberts, Lawrence P. Garetto, and Kirt E. Simmons, with principal investigator Emily Holton, of the NASA-Ames Research Center, and Stephen Doty, of Cornell University's Hospital for Special Surgery in New York City. The team is studying the effects of weightlessness on the inhibition of bone formation. Previous studies have shown that both humans and animals tend to lose bone mass while in space.

"Gravity has a profound effect on the human body's ability to form bone and maintain skeletal strength," Dr. Roberts reported recently. "Many diseases, deformities and other problems of dental and skeletal tissues are thought to be aberrations of how our bodies adapt to gravity. The only way we can study the absence of gravity is to fly in space. We believe our research will enhance long-term space flight capability and have important health benefits for the public." Problems associated with bone maintenance must be solved before NASA can move ahead with plans to send astronauts on a lengthy voyage to Mars.

Dr. Garetto represented the IU team at the Florida launch and also at the recovery site at Edwards Air Force Base in California. Post-flight preparation of the specimens began within hours of the landing. "Six primary investigators and a technical support staff of about 60 persons were all looking at various physiological systems in the same group of animals," says Dr. Garetto. "The cooperative effort among the group was remarkable." The specimens pertaining to certain aspects of the musculoskeletal studies have been shipped to IU's Bone Research Laboratory,

where they are now being prepared for analysis by orthodontic staff members Patsy A. Dunn, Caroline Jennermann, Jeff Roberts, and Cheri Roberts. Preliminary results from the study are anticipated within the next year.

Four more flights associated with life sciences are on NASA's agenda for the near future. A flight tentatively on the books for September 1992 will carry an experiment by IU's researchers as part of that mission's secondary payload; and mission SLS-2, a follow-up to the most recent launch, is scheduled in 1993. "Judging from the intensive activity ahead, I think the next few years in space life sciences research will be tremendously exciting," says Dr. Garetto.



Susan Crum

*Dr. Roberts describes IU's role in the NASA research mission during a pre-flight briefing held for the public at University Place Conference Center.*

## April Adventures in Acapulco

*Dr. Rosario Potter, IUSD director of dental biometry and research computing, joined other IU researchers in Acapulco, Mexico, for the annual session of the International Association for Dental Research in April. Aside from the intellectual enrichment gained from the meeting, Dr. Potter had a few other experiences as well. With emotions vacillating from the swaggering high of a "millionaire" to the dizzying low of an intestinally-troubled traveler, Dr. Potter enjoyed most of her adventure—and jotted down a few of her memories when she returned home:*

. As expected, just about everyone was sick in the beginning. We eventually got over the stomach cramps that are common to border-crossing travelers, except for one colleague from the University of Australia, who, to calm his "tummy" troubles, simply stopped eating altogether! We also got used to the humidity by adhering to a simple tenet: "Don't wipe your perspiration. It doesn't come off."

. I never got used to the conversion of 3,000 Mexican pesos for every U.S. dollar. On my first day I ate a 50,000 peso meal, and developed a mental block thereafter! However, it was fun for once in a lifetime to feel and act like a millionaire. When I went shopping for gifts at a department store, the items came to a half-million pesos! I doled out the payment IN CASH. To my dismay, the balloon of my millionaire fantasy soon burst when a mental exercise revealed to me that the total was less than 170 U.S. dollars.

. In department stores you are spared the agony of bargaining. But in the market place, mastering this art is a must. Witness the painful testimony of my IU col-

league, Dr. K.C. Park. He was interested in two lovely Mexican blankets that were selling for 75 U.S. dollars each, but the vendor told K.C.: "For you, only 100 U.S. dollars for both." After purchasing the blankets K.C. met another vendor just outside the door, who asked him how much he had paid. When K.C. told him, the vendor said, "I would have sold them to you for \$18 each." I won't mention K.C.'s reaction.

. On our way home, I was on a flight to Dallas with IU faculty member Charles Palenik and his wife, Lynne. About 15 minutes out of Acapulco, the big jet lost pressure and was forced to fly *low and slow*. The temperature in the cabin rose to nearly 100 degrees! We "limped" our way to an emergency landing at San Antonio, where two passengers had to be whisked to the hospital by ambulance. After an improvised immigration system checked us into the States, a plane was dispatched from Dallas to pick us up. Of course, all of us missed our connecting flights. But there was one consolation: fleeting fame, when we learned that our flight had made the San Antonio TV news!

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## Student volunteers boost dental school toward goal of "Sealants for 700"

When fourth-year student Jennifer L. Satterfield put the call out for student clinicians to take charge of a pit and fissure sealant clinic in pediatric dentistry, she found a wealth of volunteers from the Student American Society of Dentistry for Children.

As president of the Society's local component, Ms. Satterfield and pediatric dentistry staff member Jean Kegeris coordinated the clinic to coincide with the 20th anniversary meeting of the IU Pediatric Dentistry Alumni Association, held on campus June 21-22. Alumni were invited to observe the clinic, which offered dental examinations and sealants to children from the Atkins and Keenan/Stahl boys and girls clubs. The event was supervised by Drs. Jeffrey A. Dean, Hala Z. Henderson, and Ana H. Vazquez.

"The students saw 33 patients, took radiographs on 18 of them, placed sealants on the teeth on 24 children, and sealed 78 teeth altogether," said Elizabeth A. Hatcher, special projects coordinator for the department. The clinic was part of a two-year outreach project funded by the Indianapolis Foundation last summer. The program will enable 700 children in the city to have protective sealants placed on their teeth.

Student volunteers were Theresa Gonzalez, Piper Clark, Kathleen Beache, Kenn Kaneshiro, Diane Garrison, Denise Fisher, Cliff Martin, Corina McNicholl, and Tonya Stewart, Class of '94; Delia Driscoll, Matt Pate, Bev Harrison, and Sue Strong, Class of '93; and Mary Sheehan and Holly Wentz, Class of '92.

FACULTY BELONGING TO a unique research team on the IUPUI campus are looking forward to breaking new ground in the area of bone and muscle research—but first, they have had to break through an old wall at the dental school!

Researchers from the schools of dentistry, engineering and technology, medicine, and science are launching a number of collaborative investigations in the new IUPUI Biomechanics and Biomaterials Research Center, the first research facility of its kind in the country. Coordinated by Dr. George K. Stookey, IUSD associate dean for research and director of the Oral Health Research Institute, the team will strive to identify improved treatment procedures and materials for various types of musculoskeletal disorders such as arthritis, bone deformities, and TMJ problems.

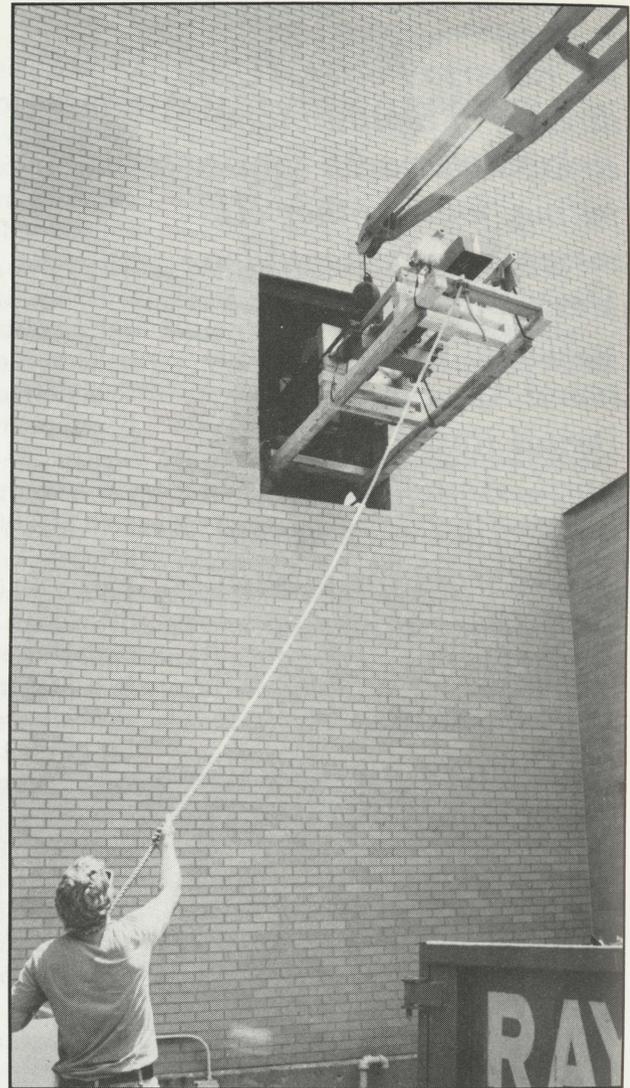
On July 2, one of the team's key research instruments, a Material Testing System (MTS) costing about a quarter of a million dollars, arrived from Minneapolis, Minnesota, for installation in the Biomechanics Research Laboratory, which is one of the divisions of the Center housed at the dental school.

The MTS is very large—and also very sensitive. Because the 1,700-pound machine's internal components are laser aligned, the MTS could not be dismantled for shipment. And, because the unit is too big to fit through the dental school's doorways, a hole had to be punched in a second-story outside wall on

the west side of the building to create a pathway. It took a crane and a crew of 10 men a little over an hour to lift the MTS to its permanent destination, an area of the building formerly used by Dental Art and Illustrations.

The MTS will play a critical role in helping dentists and physicians understand the manner in which bone, ligaments, and joints respond to mechanical forces. Correcting dental and orthopedic deformities with implants and special devices will be important applications of this research. The Center's researchers will employ scientific technology commonly associated with engineering studies for the past 30 years but relatively new to dentistry and medicine.

The dental school's contributions to the center will come primarily from the departments of orthodontics and dental materials and the OHRI cell culture laboratory. The dental school's key "hands-on" MTS operators will be Dr. Thomas Katona and Dr. Jie Chen, orthodontic faculty members with joint appointments in the IUPUI Department of Mechanical Engineering.

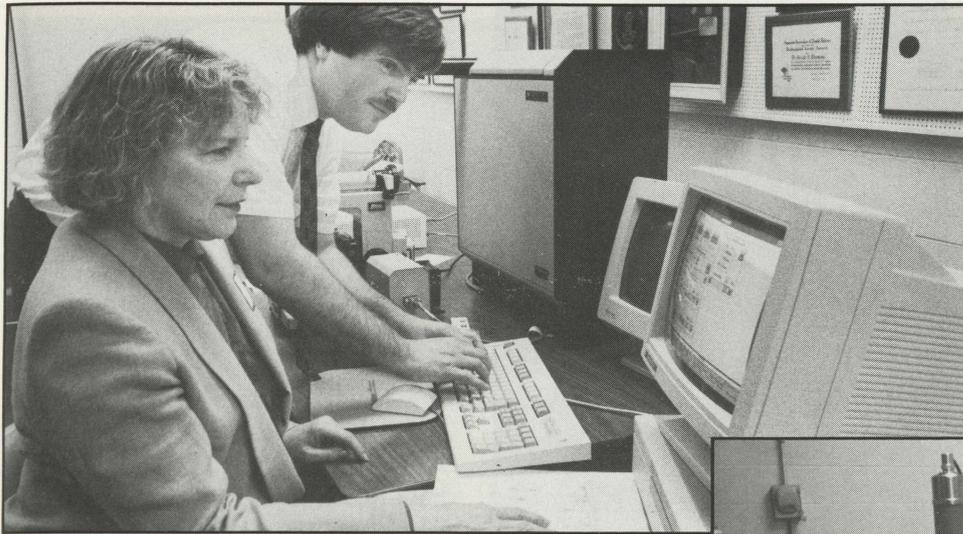


## Going out 'on a ledge' to bring new research program to IUPUI



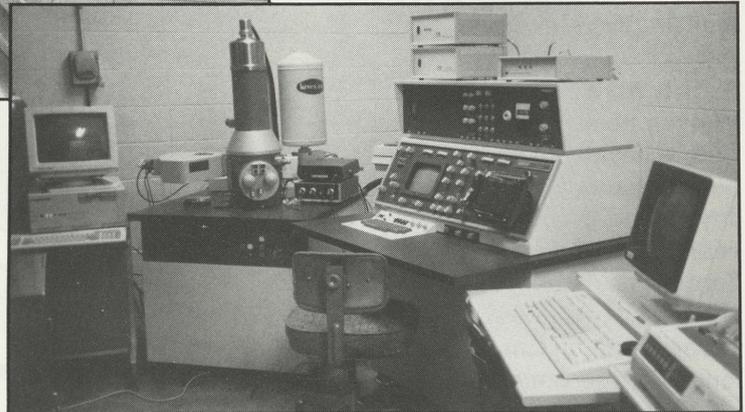
**TIGHT SQUEEZE.** *The moving team had just a few inches to spare in maneuvering the machine through a makeshift "doorway," which has since been turned into a window. It took six men to hoist the instrument into its upright position.*

Top photo by Susan Crum; bottom photo by Mike Halloran



**LEFT:** Dr. Schoknecht tries out a laser scanning confocal microscope, with a little help from Mr. Jamie Collier, of NORAN Instruments. The NORAN scope, unique in its ability to study living tissue, was demonstrated during a regional meeting of electron microscopists held at the IU School of Dentistry and coordinated by Dr. Schoknecht.

**BELOW:** IUSD's new instrument for identifying elements in research specimens was manufactured by Peak Instruments. It is housed in the Oral Health Research Institute.



Top photo by Susan Crum; bottom photo by Jean Schoknecht

## IUSD broadens scope of its research by broadening capability of its 'scope'

FOR A FEW DAYS IN MAY, THE first-floor hallways of the dental school could have passed for the corridors of a museum of abstract art. Gigantic posters displaying blown-up designs of undetermined subject matter kept more than a few of us guessing.

But for Dr. Jean D. Schoknecht, such puzzling pictures aren't peculiar at all. These images are part of her daily routine. As supervisor of the IUSD Scanning Electron Microscope Facility, she assists dental researchers by analyzing various types of specimens that have been magnified hundreds, and sometimes thousands of times larger than their true size.

The posters were part of the Electron Microscope Society of America's traveling exhibit, displayed by Dr. Schoknecht in her role as coordinator and host of the spring '91 meeting of the Electron Microscope Society of the Ohio River Valley. More than 50 society

members representing EM users in many scientific fields participated in the meeting, which included presentations by Dr. Phil Vinson, of Procter & Gamble Co., and several other experts in electron microscopy.

Two state-of-the-art instruments were demonstrated during the meeting, including a laser scanning confocal microscope. The other instrument, a combination Wavelength Dispersive X-ray (WDX) and Elemental Dispersive X-ray (EDX), was purchased by IU to expand the dental school's research facility. The system identifies elements within a given specimen, indicates where they are located and how much of the elements is present. The WDX can detect trace amounts of fluorine, oxygen, calcium, sodium, magnesium, phosphorus, and potassium. The EDX portion of the system identifies elements with higher atomic numbers than sodium and includes image analysis.

The new system will work in tandem with the school's SEM—a 10-year-old Hitachi S-450—but the instruments will not be working side by side. Because of space limitations in the dental school's SEM facility, the WDX/EDX system has been attached to an analytical SEM housed in the Oral Health Research Institute.

"The instrumentation has already been used to characterize amalgams," Dr. Schoknecht said recently, "and it's also being used to characterize chemical changes in test samples of dentin and enamel." Dr. Schoknecht is pleased to answer any questions related to the SEM facility's new equipment. She can be reached at 317/274-7158.

“We’re not looking for someone who will last just three or four months.”

Joy Warren clearly remembers the words, spoken to her by Dr. Melvin Lund, head of operative dentistry at the time. Having come to the job interview as a homemaker with limited work experience outside the home, Joy also recalls thinking: Well, I hope I can make it *six* months, anyway.

As it turns out, Dr. Lund and Mrs. Warren need not have worried. Before deciding this summer to join her husband, Gene, in retirement, Joy wound up devoting a dozen years to her position in operative dentistry’s dispensing room (which, she recently pointed out with an ironic laugh, is finally getting its long overdue remodeling now that she won’t be around to enjoy the results).

As an employee in operative dentistry, Joy spent her days in the oldest part of the building, which her father, Gus Schoenewey, worked on as a carpenter in the 1930s. Years ago Joy had an opportunity to escort her dad on a tour of the school he helped erect (he died in 1987, a month before his 100th birthday).

Joy’s “heaviest” dental school responsibility passed through her fingers one glittering pennyweight at a time. As the chief dispenser of gold used in dental procedures throughout the building, Joy weighed the gold before issuing it to students and then collected unused scrap, which was shipped back to the company for reprocessing. She also balanced the books for this precious metal as routinely as any bank teller does for cash. Modern technology—in the form of a digitized scale—helped turn this chore into a precision task. “I used to use an old-fashioned scale that



Photo by Susan Crum

## A JOY-ful Ending to a Dozen Years in Dentistry

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*There’ll be no more hand-outs from E. Joy Warren, who retired this summer from her post as operative dentistry’s dispensing room supervisor.*

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was balanced with weights,” Joy said. “If someone *breathed* on it, the weight changed.”

Another of Joy’s many responsibilities was to clean, package, and distribute the department’s handpieces—an assignment that often kept her under the gun. “A full clinic meant preparing a minimum of 60 handpieces in the morning and 60 in the afternoon,” she said. In the early ’80s she designed a sign-out system that made it easier to keep track of and retrieve the handpieces, but she was still relieved when the school’s sterilization facility assumed these duties this summer.

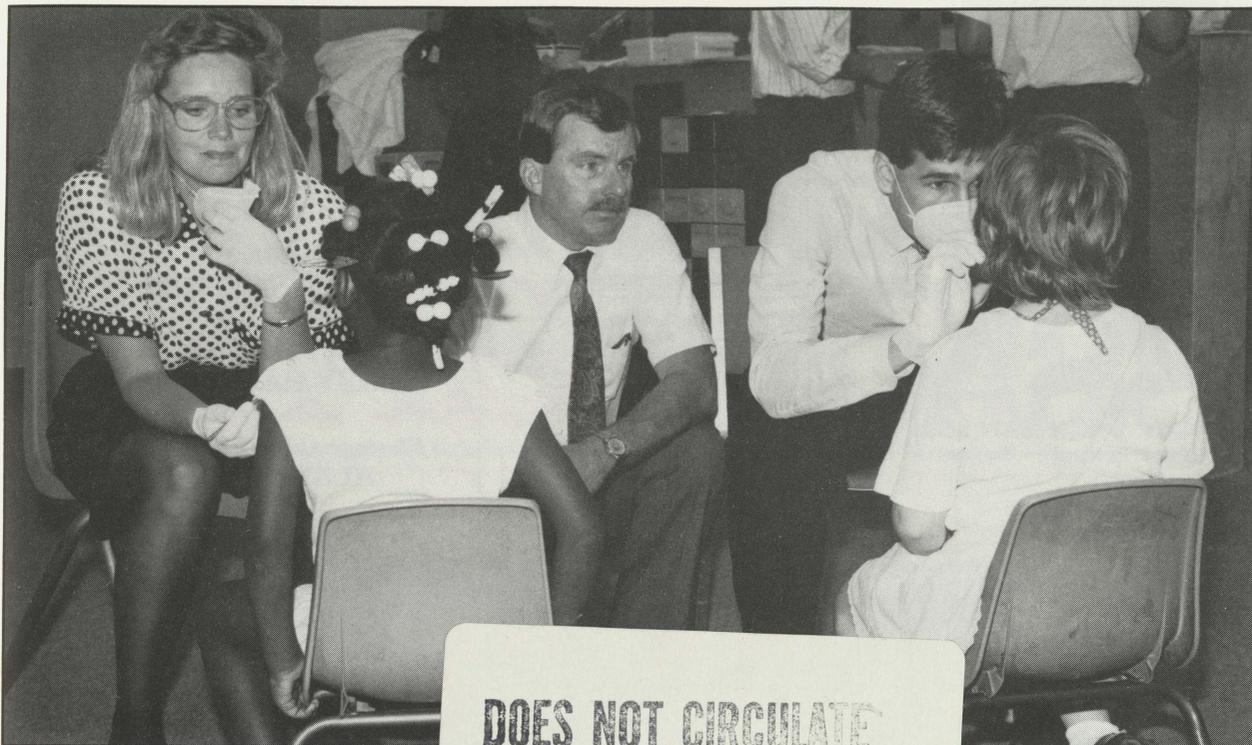
It may not break Joy’s heart if she never again sees another handpiece, but there’s plenty of other things about the School of Dentistry that she will miss.

“Dr. Cochran has always stressed to us that we are here because of the students,” Joy said of the department’s current chairman. “For me, the students were the easiest part of the job. At first it took awhile to realize how much pressure is on them, and how busy they are. But one of the things I’ll miss is seeing how students change from sophomore year, when we first meet them, to senior year—observing the growth of their personalities. I’ve really enjoyed that.”

Most of all she will miss the daily company of her daughter, Judy K. Young, a dental assistant in graduate operative dentistry who drove Joy to work every day. “Judy and I are very good friends. Our routine was to have a cup of coffee at my house before we came to work in the mornings. Judy’s the one who encouraged me to apply for this job, and she’s the main reason it’s hard to leave.”

A self-described homebody, Joy looks forward to having more time on the home front. She has two grandchildren by her son, Gary Warren, of Indianapolis. Joy plans to hit the highways with her husband, who shares her love of driving; they’ve also slated a trip for Dallas in the fall to visit her sister.

The School of Dentistry faculty, staff and students extend best wishes to Joy and Gene in their retirement, and welcome operative dentistry’s new dispensing room supervisor, Gloria J. Osterbur.



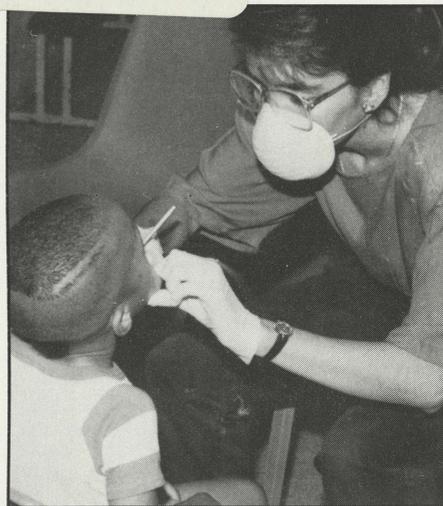
Photos by Mike Halloran

# Doing Day-care Dentistry

*IU dental class of '92 aims study at children in day-care centers*

The goal of an outreach program launched last spring by dental students Thomas R. Megar and Charles A. Hurst, and carried out as a group project by the Class of '92, is to assess the dental needs of preschool children in Indianapolis and to enhance each child's awareness of his or her own dental condition through educational programs offered on site.

Dr. Mark E. Mallatt, associate professor of preventive and community dentistry, is principal investigator of the year-long study, which was made possible with funds from the IUSD Community Outreach Program and the Class of '92, as well as donations from the Indiana State Board of Health. Over the past few months student volunteers have conducted oral



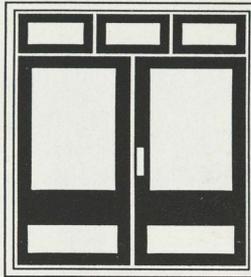
ABOVE: Principal investigator Dr. Mark Mallatt supervises screenings in progress by Dodi Pampel-Woolley and Chris Gall.

LEFT: Screening by Trusha Patel is one of about 300 the Class of '92 performed on children at five Indianapolis day-care centers.

screenings and dental awareness programs at five Indianapolis day-care centers. "We examined about half of the 600 children who are enrolled at these centers," says fourth-year student Jim Pierce, one of the project coordinators who participated in a recently held session at the Day Nursery on the IU Medical Center. Others participating in this clinic were Jim's classmates Christopher Gall, Bret Jerger, Dodi Pampel-Woolley, Trusha Patel, and Tim Williams.

Volunteers from the class have been meeting this summer to assess the information that has been gathered thus far and to determine how the data can be used to help identify funding sources for dental care for the youngsters.

# INSIDE PASSAGES



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*Editor*

**SUSAN M. CRUM**

*Chief Photographer*

**MIKE HALLORAN**

*Photographic Technician*

**ALANA BARRA**

*Staff Artist*

**MARK A. DIRLAM**

*Editorial Assistants*

**DREW BECK**

**LINDA JOHNSON**

**SARAH MANION**

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Indiana University  
School of Dentistry  
at Indianapolis  
(INSIDE PASSAGES)  
1121 West Michigan Street  
Indianapolis, Indiana 46202

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