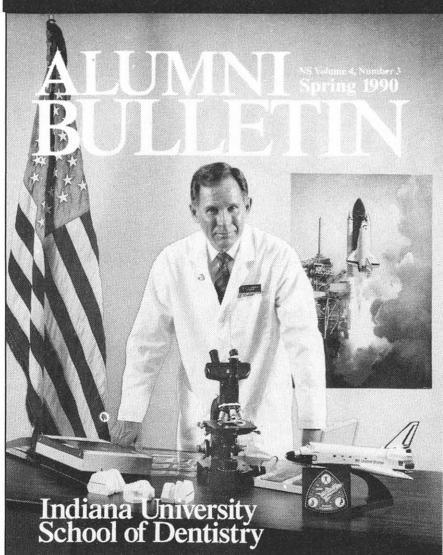


# ALUMNI BULLETIN

NS Volume 4, Number 3  
Spring 1990



Indiana University  
School of Dentistry



## On The Cover

*Now nearly two years into his tenure as chairman of the Department of Orthodontics at Indiana University, Dr. W. Eugene Roberts has launched a wide ranging variety of clinical and research programs aimed at exploring the field of orthodontics from a broader scientific perspective. As a senior research associate for the National Aeronautics and Space Administration (NASA), Dr. Roberts and his research team at Indiana University are preparing a project on the musculoskeletal system that will travel aboard NASA's space shuttle Columbia this summer. For a full report on Dr. Roberts and the new Department of Orthodontics, see page 2. (Cover photo by Rick Baughn, IUPUI Office of Learning Technologies)*

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# Smooth Liftoff into the 1990s

***New research and clinical programs taking flight in the Department of Orthodontics offer extraordinary learning opportunities to students and faculty at Indiana University***

**O**n August 29, when NASA's space shuttle Columbia is launched from Kennedy Space Center in Cape Canaveral, Florida, the first space laboratory dedicated to life sciences research will be aboard, including a project being co-investigated by Dr. W. Eugene Roberts, Indiana University's chairman of orthodontics. More than 10 years have gone into the planning of this flight. "It's a big moment for space biology," Dr. Roberts says, "and IU is right in the middle of it."

But August 29 is a date that still belongs to the future. Today is February 21, and Dr. Roberts has another important mission to pursue: helping the Department of Orthodontics pull off a surprise party in honor of front office secretary Dottie Hollins, who has reached her five-year anniversary as an employee of the dental school.

On pretense, dental assistant Ladeana McCormick has coaxed Dottie down the hallway to one of the labs, where faculty, staff and grad students (not to mention a sizable feast) await her arrival. When Dottie steps through the doorway, there follows the usual surprise-party hoopla. Genuinely caught off guard, Dottie looks momentarily baffled. A little embarrassed. Very pleased. While Dr. Roberts presents her with a five-year pin, grad student Brenda Stenftenagel shoots some photos.

The party comes as a pleasant surprise not only to Dottie, but to this outside observer as well. Orthodontics, after all, is a department undergoing massive restructuring affecting all phases of the program—a monumental task that's kept faculty and staff in a perpetual state of overdrive since Dr. Roberts took over the reins in 1988. It's easy to see how an employee's five-year milestone with the university might slip by unnoticed in the current parade of dramatic departmental events.

Easy for some to see, maybe. But not for Dr. Roberts.

Best known for his work in space biology and bone physiology, Dr. Roberts is first and foremost an

orthodontist who enjoys being close to the people—and the action—in his department.

Asked to name the greatest satisfaction in his work at Indiana University thus far, the former faculty member of the University of the Pacific answers without hesitation: "The people." He then swiftly names the department's staff and faculty members and defines each person's unique contribution to the program. Clearly, this is not a group that is taken for granted. "When I arrived at IU I set up a whole new series of standards, which has made everybody's job more difficult," he acknowledges. "Anytime you're dealing with change, it's traumatic. To succeed you've got to have stability and people who are willing to knuckle down—and that's exactly what we've got with our staff. I'm very happy with all of them."

Now, nearly two years into Dr. Roberts' tenure as department head, there has been remarkably little employee turnover. Several new faces in the department belong to personnel hired to staff the newly created Bone Research Laboratory.

Although commitments to a variety of collaborative research projects—often calling for his participation in dental and medical meetings and congresses all over the world—keep Dr. Roberts on the road more often than he would like, when he is in the department he is very much in the thick of things. During several random visits to the second floor of the dental school we spot him just about everywhere: in the clinic, in the labs, in the department's weekly journal club, in the office of a colleague, in consultation with Karla Newman, his assistant. He seems to be continually in motion, a man well on his way (with the help of everyone in the department, he is sure to remind you) to establishing for students and faculty a comprehensive clinical and research program in orthodontics unlike any other in the country.

**G**ene Roberts had his first brush with the city of Indianapolis when he fleetingly passed through it, at the age of nine weeks, on a train ride with his mother. (Mrs. Roberts was returning home to Bay

Village, Ohio after having journeyed to Lubbock, Texas to be with her mother during the last weeks before Gene's birth.) The Roberts family moved frequently when Gene was a child—from Bay Village to Fort Worth, Texas and then on to several more small southwestern towns before finally taking root in Denver, Colorado, the place he refers to as his hometown.

**A**s a youngster Gene seemed to know intuitively what he wanted to do with his life, and then stuck confidently to the dream as he grew up. Dentistry had been the career of choice ever since he was a five-year-old tagging along on Saturdays with his mom, a dental assistant who went in to the office on weekends to catch up after a busy week of oral surgery. "The dental office looked like a place where you could be relatively independent—where you could do your own thing—and I already liked that when I was little," says Dr. Roberts with a smile. "By the time I was 10 I had committed myself to becoming a dentist."

After attending college in Denver, Gene moved on to dental school at Creighton University in Nebraska. It was the final hurdle separating him from a rewarding career in dentistry—or so he thought. In his first year there, a kink appeared in the career plan: Gene found, to his own bewilderment, that he didn't *like* dental school.

"The only courses I enjoyed were gross anatomy and histology," he recalls. "All the technique courses—carving plaster teeth and setting teeth in wax, didn't appeal to me that much. I was more interested in scientific things. At that point I thought seriously of not continuing."

Visiting home in Denver after freshman year, Gene spent the summer rethinking his position and looking into alternative courses of study before deciding finally to give dental school one more try. When he went back to Creighton as a sophomore, things began to look up. "We started to get into more of the basic sciences—pathology, biochem, courses I really liked," he says.

During that academic year, however, a note on the school's bulletin board caught Gene's eye, and ultimately put a new spin on the direction of his career.



*Members of the Department of Orthodontics gather in the clinic shortly after the weekly journal club for faculty and graduate students adjourns. Seated in center is Linda K. Shields, first-year student and University of Iowa dental graduate ('89).*

**MIDDLE ROW, FROM LEFT:** Gayle E. Massa, dental assistant and auxiliary supervisor (seated in dental unit); Caroline Jennermann, senior dental technician; Karla J. Newman, principal secretary; Patsy A. Dunn, histotechnologist; Janet L. O'Neal, dental assistant; William F. Hohlt, assistant professor and director of undergraduate program; Connie S. Blake, dental laboratory technician; Dorothy A. Hollins, secretary; Ladeana A. McCormick, dental assistant; Rebecca A. Bolon, second-year student (DDS, IU '88); Brenda K. Stenftenagel, first-year student (DDS, IU '89); and W. Eugene Roberts, professor and chairman of orthodontics (School of Dentistry) and professor of physiology and biophysics (School of Medicine).

**BACK ROW, FROM LEFT:** Todd Z. Wentz, second-year student (DDS, IU '88); James J. Baldwin, part-time associate professor; Gordon R. Arbuckle, assistant professor and director of graduate clinic; Richard D. Burns, second-year student (DDS, IU '88); Michael E. Child, second-year student and University of Kentucky dental graduate ('88); David L. Harris, first-year student and University of Texas Dental Branch graduate ('89); Kirt E. Simmons, assistant professor of orthodontics (School of Dentistry) and adjunct assistant professor of pharmacology and toxicology (School of Medicine); David A. Lehman, first-year student (DDS, IU '87); Lawrence P. Garetto, assistant professor and director of bone research laboratory; Robert D. Colter, first-year student (DDS, IU '89); and James R. Miller, part-time assistant professor. A full-time employee not pictured is secretary Laurie Chen.

The sign said DENTAL RESEARCH. The National Institute for Dental Research was looking for dental students to spend their summers working on research in basic science programs associated with medical schools. The idea was to put individuals in dentistry on the path to PhD degrees in the basic sciences that would complement their dental education and provide a rich background in research to be applied within the dental environment. Still searching for his own place within the dentistry scene, Gene applied for and was accepted into the NIDR-sponsored fellowship in anatomy at the University of Utah.

**T**he summer program involved cell physiology, how bone cells work," says Dr. Roberts. "I was excited —I really liked it! I went back to dental school in my junior year with a whole new purpose as to where I was going." The following summer he returned once again to Utah as a special research student. "First I had to get all of my dental school clinical work done so that

I could leave again—I worked like crazy and got way ahead on my requirements." Before long, he was hooked. He decided that a dental career in academics and research was the route for him, by way of the doctoral track at Utah.

After receiving his DDS degree from Creighton in 1967, Dr. Roberts officially entered what was supposed to be a three-year PhD program in anatomy at Utah. But with the war in Vietnam heating up, the U.S. Navy informed him early in the second year of graduate study that his military deferment would not be extended beyond two years. Summoning up the same determination and drive that had seen him through in the past, Dr. Roberts faced this new quandary by devising a game plan and then putting his energy to the test. He completed three years of research in a little over two, earning a diploma in 1969 after defending a dissertation entitled *Effects of Cortisol on the Cellular Kinetics and Cell Population Dynamics of Periodontal Ligament Bone Cells*.

Dr. Roberts admits to having received a little help along the PhD trail—from his wife, Cheri, a University of Nebraska at Omaha home economics major he had married after dental school. "She started going to the lab with me in the evenings," he says, "and it wasn't long before I decided to teach her how to use the microtome to cut specimens."

Cheri quickly emerged as a natural expert at specimen sectioning, especially the extraordinarily thin, plastic-embedded variety used in microscopic study of cell nuclei. She began helping out regularly on week-

ends and evenings, until Dr. Webster Jee, major professor of Gene's research committee, called a halt to the informal arrangement after paying an unexpected visit to the lab.

"Web saw Cheri working on the microtome and hit the ceiling," Dr. Roberts remembers with a laugh. "But as he was ranting and raving he finally looked over at some of the sections she was cutting. He picked one up. 'Did you do this?' he asked. When Cheri said yes, his next question was: 'Do you want a job?!" And that's how Cheri got started as a technician." Dr. Roberts credits his wife with invaluable contributions to his research efforts throughout his career. (The couple has two children: Jeff, 20, a junior studying predentistry at IU-Bloomington; and Carrie, 12, a sixth-grade student attending Park Tudor School.)

**W**hile serving in the Navy from 1969 to 1971, much of the time in Vietnam, Dr. Roberts contemplated the next career goal: tying his research aspirations to the field of dentistry. "I was interested in the mechanical manipulation of bone," he says. "In dentistry, that's orthodontics; so it was research that led me to orthodontics rather than the other way around."

And it was Dr. Roberts' desire to enroll in a strong, academically oriented orthodontic program that nearly led him to Indiana in the early '70s. "As I began to inquire into the better orthodontic programs in the country," he says, "I learned about Dr. Charles Burstone, chairman of orthodontics at Indiana University at that time. I had been told of his interest in the physical sciences and biomechanics."

With his background in biological sciences, Dr. Roberts thought an orthodontics program emphasizing biomechanics was exactly what he needed. "I was applying to IU's graduate school because of Dr. Burstone, but in the meantime he had moved to the University of Connecticut. So I applied for a position in his first class there instead." He was accepted, and Dr. Burstone even postponed the start of classes for a few weeks until Dr. Roberts completed his stint in the Navy. "It turned out to be a good orthodontic program. Con-

necticut had a strong academic faculty and there was good interaction with the medical school."

Although he had no way of knowing it then, by training under Dr. Burstone—the man who had taught so many of Indiana's orthodontists—Dr. Roberts was establishing an important link to Indiana that would be of great value to him many years later when he himself assumed the IU chairmanship.

In 1974 Dr. Roberts landed a position on the faculty of the University of the Pacific in San Francisco, where he served in the departments of orthodontics and anatomy and as director of the Pacific Bone Research Laboratory. During his tenure there he was the recipient of more than a million dollars in research support from a variety of sources. In 1982 he was named a senior research associate for the National Aeronautics and Space Administration-Ames Research Center, Moffett Field, California. Since the move to Indiana he has continued as a research associate of Dr. Emily Morey Holton at NASA-Ames, and has transferred several NASA-supported research projects from UOP to IU. His special areas of interest cover a considerable number of topics: cell kinetics of bone cell differentiation, skeletal adaptation of applied loads, biomechanics, space biology, implantology, and orthognathic surgery, to name a few.

Dr. Roberts is widely published in the field of bone physiology, a noted authority in the international arena of bone research, and a familiar face at gatherings of experts in bone metabolism, orthopedics, and biomechanics. However, anyone getting the idea that his

research efforts are esoteric in nature or remote to dentistry should take a closer look.

Behind all the "bone" talk is an orthodontist whose research goals are aimed squarely in the direction of the clinic.

"I am interested in treating patients—treating people—that's what it's all about," Dr. Roberts stresses. "I do all kinds of research, but nothing that doesn't have some kind of clinical application. Even the space flight stuff—it's all related to studying the mechanical effects on bone cells—that's what orthodontics *is*. We want to develop innovative means of treating patients, concepts that go beyond the usual and traditional sense of clinical treatment. To achieve this, we need to look at orthodontics from a broader scientific perspective."

Dr. Roberts has been a hands-on orthodontist for 16 years, first as a part-time practitioner in California and now as a member of IU's dental service plan for professional development. In 1987 he attained diplomate status in the American Board of Orthodontics. "People may think of me today as primarily a researcher, but I don't plan to give up anything in the area of clinical practice."

IU initiated its search for a new chairman of orthodontics after Dr. LaForrest D. Garner, who had headed the program since 1970, was appointed IUSD Associate Dean for Minority Student Services. When Indiana's advertisement for a new chairman appeared in dental publications around the country, Dr. Roberts did not respond at first. Having already answered many similar ads for posts at other dental schools, he decided

*Janet O'Neal (right), a dental assistant in orthodontics for five-and-a-half years, works with Dr. Linda Shields, one of the nine full-time graduate students currently enrolled in IU's orthodontics program.*



Rick Baughn

there was little opportunity for the kind of clinical/research program he had hopes of developing. "After visiting a number of dental schools, I had made up my mind to continue my clinical practice and become affiliated with a medical school where I could interact with an oral surgery department, since I've always been interested in facial deformities and orthognathic surgery. There are a lot of opportunities in medicine right now because of a shortage of people in anatomy who have been trained in gross anatomy, histology, and cell biology, which is the type of classical training I received at Utah."

But then, a letter from part-time IU faculty member Dr. James Baldwin arrived, urging him to consider Indiana. "Of course I knew of Dr. Baldwin, who has been very well known around the country," says Dr. Roberts. "With his master's degree in physics, Jim is the one who brought physical sciences into the clinical practice of orthodontics in the beginning. When a well respected orthodontist like Dr. Baldwin writes you a letter, you have to take note." Dr. Roberts found from speaking with others that IU's dental dean H. William Gilmore was indeed on the crest of developing new programs and broadening many others within the dental school, including those in orthodontics. After two visits to IU, Dr. Roberts concluded that the dental school administration and faculty, as well as the IUPUI administration, shared a commitment to expand the school's role within the medical center, the university, the state of Indiana, and the dental community at large.

He also concluded that he wanted to be a part of it.

When an offer of the chair was extended by IU in December of 1987, Dr. Roberts accepted—and instantly put into motion a mammoth agenda of plans that included, among a hundred other details, recruiting faculty and remodeling the department from a distance of 3,000 miles!

"It's been quite a transition," Dr. Roberts understates.

The new chairman was delighted by the team of faculty members he acquired at IU. (*Details on each of the full-time faculty members and their programs begin on page 13—eds.*) His appraisal of his Indiana colleagues is emphatic: "You won't find better clinicians in the whole United States." He was particularly pleased when Dr. William Hohlt and Dr. Gordon Arbuckle, two part-time faculty members whose contributions to orthodontics have been highly valued at Indiana for many years, accepted full-time appointments to fill critically important positions within the newly designed department (Dr. Hohlt, as director of undergraduate orthodontics, in the fall of '88; and Dr. Arbuckle, as director of the graduate clinic, one year later).

One of the first challenges Dr. Roberts faced was



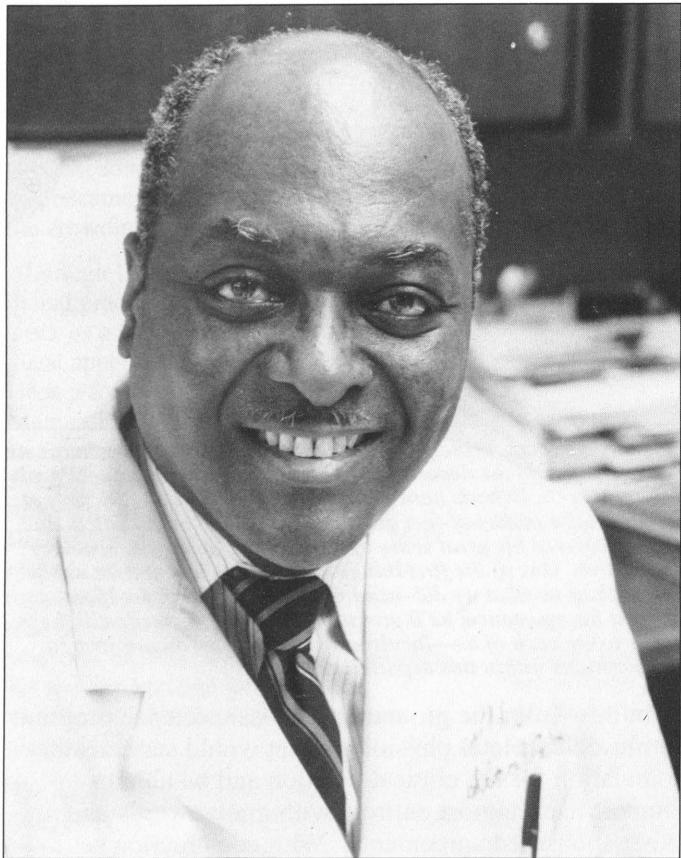
Susan Crum

*Karla J. Newman, principal secretary in orthodontics for almost six years, has found the department's transition a smooth one. "People ask me, 'Is Dr. Roberts hard to work for?'" she says. "He isn't at all. He has a matter-of-fact demeanor, but he's easy to talk to and I've discovered his great sense of humor. Dr. Roberts is also very supportive. One of the first things he did when he got here was to ask each of us what we did—and what we wanted to do. If we request his assistance, he'll give us all the help we need; still, he is eager to see each of us—faculty and staff—grow on our own in our positions within this department.*

to build—from the ground up—a basic science program in musculoskeletal physiology that would serve as the foundation for the clinical division and be able to support itself almost entirely with grant awards and other sponsored agreements. With construction set to begin on the bone research laboratory, Dr. Roberts searched for a scientist to run it.

**H**e found the person he was looking for in Lawrence P. Garetto, PhD, a muscle physiologist who was finishing a five-year postdoctoral fellowship in the Department of Biological Chemistry at the University of California, Davis. Dr. Garetto accepted the offer, and was appointed, like Dr. Roberts, in the fall of '88.

The area adjacent to the orthodontics reception room, formerly housing the dental school's TEAM clinic, was chosen as the site for the bone research laboratory. As with most major remodeling jobs around campus, turning TEAM clinic into a sophisticated research facility complete with computers and other state-of-the-art equipment was slow going. Down on



*Although Dr. LaForrest D. Garner gave up the chairmanship of orthodontics when he was appointed IUSD's associate dean for minority student services in 1987, he has remained an active member of the orthodontics team because, he says, "I like working with grad students. They are inquisitive, and usually very appreciative of what you have to show them." Contributing more than 30 years' service to the department (17 as chairman) and more than 25 years to the medical center's Craniofacial Anomalies Team, Dr. Garner continues to teach graduate classes in cephalometrics and cleft lip and palate rehabilitation, and he also instructs in the clinic.*

the other end of the department, renovation on a suite of offices for Dr. Roberts and his assistant also was under way. Drs. Roberts and Garetto spent their first year at Indiana trying to settle in amidst the chaos and the physical plant workers. With the remodeling came an ample assortment of frustrations, set backs, and thwarted plans. But work on the office complex was finally completed (it is splendid) and all but the biochemistry portion of the bone research area is up and running today, including histology and microscopy laboratories, an autoradiographic darkroom, and faculty offices.

**S**oon after arriving at IU Dr. Roberts began recruiting for another scientist, this time someone who could lend a neural point of view to the department's bone and muscle research. In the fall of '89, Kirt E. Simmons, DDS, PhD, entered the picture. A dental graduate of the University of Texas Health Science Center, San Antonio, Dr. Simmons was completing an orthodontic residency at the University of North Carolina when he was interviewed for the job. "His PhD is in pharmacology," says Dr. Roberts, "but Dr. Simmons is interested in nerve factors, a very important area that has hardly been touched in orthodontic research."

The department's final research component—biomechanical engineering—is still on the drafting board. Plans are in the final stages to appoint an engineer to the faculty for the fall of '90, and to create a laboratory for biomechanical research. Dr. Gordon Arbuckle is expected to play a valuable liaison role in this area. "He is an outstanding clinician who also has a background in engineering," says Dr. Roberts. "He will coordinate projects with the IUPUI School of Engineering."

To make room for the facility, the Department of Orthodontics will expand further down the hallway toward the oral surgery and pediatric dentistry departments, taking in the area formerly used by the Department of Dental Illustrations, which has been relocated to the basement.

Dr. Roberts is pleased with the way the research division has been shaping up. "We've also got a good working relationship with the dental school's biomaterials department, which is another area where we need major support," he says.

With its triad of bone, muscle, and biomechanics, the orthodontics research program is similar to programs found in orthopedics departments. Dr. Roberts looks forward to an ongoing exchange of ideas and collaborative efforts lying ahead with the schools of medicine, engineering, and other departments within the dental school and the university, as well as with other institutions elsewhere in the state and around the country. There is currently an informal bone study club

composed of scientists from the IU schools of dentistry and medicine, Purdue University, Eli Lilly Company, and the Veterans Administration Hospital.

"There are so many things happening all around the IUPUI campus that we need to know about and, in some cases, help with," Dr. Roberts says. "Take something as simple as moving a tooth around, for example. When we put force on a tooth, we get all kinds of bone reaction; we can study what's happening to bone cells without creating inflammation, without performing surgery, without breaking the bone. To an orthopedic surgeon, that's amazing! The sharing of information goes both ways. Orthodontics at IU will have a broad research focus that will let us study materials and almost anything that has to do with bones and musculoskeletal physiology."

Research currently in progress by faculty and graduate students within the department includes projects originally undertaken while Dr. Roberts was on the faculty at UOP as well as new ones developed at Indiana. There are wide-ranging studies involving various aspects of implantology, including several small grants and a recently awarded five-year NIDR grant being used to study endosseous implants and their use in moving facial bones orthopedically.

Several pilot programs, funded chiefly by IU, concern the differentiation of osteoblasts—the process in which precursor cells become mature, functioning bone cells; the data will be used to further the understanding of ways in which the growth process is stimulated (e.g., by forces such as those created with orthodontic appliances, by hormonal or neural activity, etc.).

A third branch of the research effort, funded by individual investigators, involves studies of specimens sent to the school by clinicians around the country. "Specimens from human patients are sent to us by clinicians who have used various materials to augment bone, to increase alveolar height, for example," says Dr. Garett. "They want to know how these materials integrate with bone. We are not a biopsy service, but if a specimen interests us and relates to our research, we will do biopsy work for the investigator."

The department has recently completed application for yet another major grant proposal, this one involving, among other factors, the healing process of titanium and hydroxyapatite-coated implants. If funded, it will represent a multifaceted consortium agreement between IU and research teams at two other universities.

Dr. Roberts' affiliation with NASA plays a fundamental role in the broad scope of the department's research activity. The NASA grant comprises a body of research with several components, all of which deal with the effect of weightlessness on the musculoskeletal



Rick Baughn

*Histotechnologist Patsy A. Dunn uses one of the department's bone saws to slice a section of bone for a periodontal disease study being conducted by Dr. Cecil White, Jr., a second-year graduate student in periodontics. Patsy has an associate degree in veterinary technology from Purdue University and is certified as a laboratory animal technician by AALAS (American Association for Laboratory Animal Science).*

system of rats. Several NASA space biology projects are sponsored in a cooperative agreement with the Soviet Union.

**G**round-based modeling studies account for a crucially important part of the NASA grant. In these studies, methods to be used in analyzing specimens in space are designed and then tested in experiments conducted in labs on earth. The models provide valuable answers to many questions before the actual specimens take a costly trip into space. Other portions of the grant pertain to studies of pre- and post-flight specimens.

When the Columbia space shuttle leaves earth next August, carrying NASA's first Spacelab, it will do so under the watchful eyes of IU faculty and staff who have assisted Dr. Roberts with one of the projects on board.

Columbia's science payload will incorporate rodent, space biology, and habitat studies to investigate six body systems, and will include one of Dr. Roberts' projects on the musculoskeletal system. Principal investigator is Dr. Holton, of NASA-Ames, and Dr. Stephen Doty, of the Hospital for Special Surgery in



*The frozen microtome in IUSD's bone research laboratory was the first one of its kind in the country (there are now four). It allows researchers to study mineralized bone that is still metabolically active.*

New York City, is co-investigator. The group will analyze data from the project to determine how bone formation is inhibited by weightlessness.

The study is a continuation of earlier projects that have orbited aboard the Soviet Union's Cosmos series of Biosatellites. Data gathered from the Soviet flights suggest that bone formation in rats ceases after several days of flight; objectives of the current experiment will be to calculate more precisely the length of time required to significantly inhibit bone formation, and to determine to what extent, if any, bone formation is restored following one week of recovery from space flight.

Drs. Garetto and Simmons will be assisting Dr. Roberts with pre-launch specimen preparation at the Kennedy Space Center launch site, and with post-flight experimentation at the Dryden Space Facility recovery site, Edwards Air Force Base, California.

The type of NASA and Soviet research now being conducted at IU is important, Dr. Roberts says, because it contributes to a basic understanding of bone function. "Initially, we determined how bone forming cells are produced in response to orthodontic forces," he says of his earlier collaborations, "and our method is being used for NASA and Soviet space flights to determine how bone formation is inhibited. We have noted, for example, that jaw growth decreases during space flight, perhaps because in weightlessness it isn't necessary to use repetitive muscle forces to keep the jaw closed. Repetitive muscle forces are thought to promote normal jaw growth. Our research is an example of how space biology helps us understand health problems here on earth."

Orthodontics at IU has taken a dramatic turn on the international stage of bone physiology, but the research division is only one facet of

the department to undergo significant change under the direction of Dr. Roberts. He is equally excited by other events transforming the pre- and postdoctoral areas.

One of the most rewarding aspects of his job at Indiana, Dr. Roberts says, has been his interaction with first-year dental students. A longtime teacher at the postdoctoral level, he finds teaching students who are new to dentistry a refreshing challenge. He is working hard to beef up his portion of the predoctoral physiology course, which is taught by the medical faculty. (After the two lectures he presented in 1988 were well received, he was asked to present four in 1989.) "A big advantage of coming to IU was the opportunity it gave me to offer first-year dental students a foundation in physiology that I think they should have in order to understand the fundamental processes," he says. "I lecture on bone and metabolism—things every dentist needs to know. There is almost nothing in dentistry that doesn't in some way involve the bones, the fundamental structure supporting the teeth."

**W**ith the department's new clinical adult orthodontics program for predoctoral students scheduled to begin in the fall, didactic classes have been pushed back so that dental students will begin to learn about orthodontics soon after they matriculate. Dr. Roberts is steadfast in his determination to bring students into the clinic exceptionally well prepared. "We have to give students a much broader perspective of what's going on physiologically with their patients," he insists. "Not just the patient's teeth, but the whole person. Does this patient have osteoporosis? Osteomalacia? You have to know if you're going to start moving the patient's teeth around. There are a lot of problems you can create with orthodontics if you've learned only the technical side of things."

Dr. Roberts regards the new predoctoral clinical training program as a win-win situation for orthodontists and general practitioners in the future.

"The clinical program presents a limited scope of orthodontics," he says. "There are times, for example, when a patient could benefit from some type of orthodontics in preparation for prosthodontic treatment. Our program relates to cases general dentists *should* be doing, based on the restorative needs of their patients. General practitioners usually see patients before the orthodontists do. If general practitioners have been trained to recognize orthodontic problems and have become much better aware of their own limitations, I think they will refer patients who are beyond their training and skills. If this happens, we've got an interaction between orthodontists and general dentists that will work very well. Rather than competing with specialists, general dentists will be able to fulfill a new, unmet need for their own patients."

On the postdoctoral front, Dr. Roberts has worked

with the IUSD graduate committee to establish a unique four-year "double degree" program targeted at graduate students with an interest in combining orthodontics training with one of three other dental specialties. Students will spend the final two years in orthodontics after completing training in pediatric dentistry, periodontics, or prosthodontics; research projects will involve collaborative efforts between departments. One student thus far has been accepted for a double degree track in orthodontics and pediatric dentistry; he begins in the fall.

Dr. Roberts and Dr. Garett are also looking for predoctoral and postdoctoral PhD students. The postdoctoral program (for dentists) includes an option for orthodontics as a clinical specialty. The predoctoral program is for current or future dental students interested in a double degree program. A special course of study is arranged leading to a PhD in physiology or dental sciences as well as a DDS degree. "This is an outstanding opportunity for students who are interested in an academic career," says Dr. Roberts. "There is a severe shortage of dentists, particularly orthodontists with PhD degrees. Career opportunities are available at



Susan Crum

*Full-time private practitioner Dr. James J. Baldwin has been a member of the orthodontics faculty for 33 years. Encouraged by the department's new research program, he recently increased his teaching commitment to the school from one to two days. In addition to the dental training he received at IU (DDS '54, orthodontics certificate '56, MSD '60), Dr. Baldwin holds a master's degree in physics from Yale University ('48).*

*Senior dental technician Caroline Jennermann was a biology major at Purdue University before joining the bone research laboratory staff last January. Here she uses a vacuum desiccator to prepare tissue specimens that orbited aboard the Soviet Union's Cosmos Biosatellite last September. The specimens will be embedded in plastic and cut into extremely thin sections (about 3  $\mu$  thick) so that individual bone cells can be studied.*



Rick Baughn

dental schools all over the country."

Despite significant strides made within the Department of Orthodontics in the last two years, there are many more projects under development and other areas still requiring attention. The department's evolution, it seems, is only just beginning. When Dr. Roberts gazes out into the orthodontics clinic, he sees a room full of dental units that are now almost 20 years old. "The chairs are for pedo patients, and that's not appropriate for modern orthodontics, especially now that the undergraduate students are seeing adult patients," he says. "The units also lack high-speed handpieces, although we are trying to come up with some way to add them on. Our setup is not convenient for bonding and all the other modern techniques that we use."

**D**r. Roberts is grateful for the support the dental alumni has given orthodontics and hopes to keep the ties strong between the department and Indiana's grads. "We certainly desire—and need—their help, both morally and materially," he says. "A number of people have been very generous in making donations to the department, which gives us an enrichment fund to use in developing new ideas."

Alumni funds also have been particularly helpful in sending graduate students to scientific meetings that they would not otherwise be able to afford. "Students have been able to see the exhibits, hear presentations by people they've read about, and find out what's available for orthodontists going into practice," he says. Another way that alumni can assist students is by alerting the department of practices for sale and orthodontists who wish to bring associates into their practices.

Balancing his administrative responsibilities with commitments to teaching, research, and practice, Dr. Roberts—like most department heads—finds time

management the biggest headache of the job. He is still jetting back to California every three months to follow up on patients whose treatment was started while he was on the UOP faculty, and there is one UOP research contract with NASA that calls for his attention periodically. Every time he leaves town to present a paper at one of the scores of meetings he attends during the year, he is well aware that a desk weighed down with paper work will greet him upon return.

Academic juggling acts and hectic schedules aside, Dr. Roberts knows that his move into the chairmanship has been an extremely productive one. "I came to Indiana University because of the opportunities and the resources here," he says. "It's been an enriching experience for me so far, particularly because of the department's interaction with other divisions throughout the IUPUI campus."

"We are fortunate to count Dr. Roberts and his orthodontics team among our faculty and staff," says Dean Gilmore. "They have taken impressive steps toward joining other prominent researchers on this campus to conduct studies of mutual interest and benefit to all. This outstanding network of scientists is fast emerging into a position of national leadership in bone science. It is exciting to see the dental school entering into research partnerships that will in time have an important bearing on directions taken by the entire educational program at the School of Dentistry."

## **Lawrence P. Garetto, PhD** *Director of the Bone Research Laboratory*

Had you told him three years ago—when he was in the midst of an enzyme study as a University of California “postdoc” in biological chemistry—that he would soon hold a faculty appointment at a dental school in Indiana, Larry Garetto would have assumed you had taken leave of your senses.

With his five-year fellowship in biochemistry at UC Davis drawing to a close at that time, the young PhD grad was pursuing a number of job prospects, both at NASA-Ames Research Center and within private industry. A professorship in dentistry, as one might expect, had never crossed his mind.

But then again, the orthodontist who was building a bone research facility at Indiana University had not yet crossed Dr. Garetto’s path.

When he finally did, in January, 1988, Dr. Garetto found Dr. Gene Roberts and the type of research center he was planning to create in a dental school environment intriguing. As Dr. Garetto saw

it, the job of running the bone research laboratory had two pluses. “There was the connection to NASA and its highly focused research on the physiological effects of space flight that I myself had been interested in for a long time,” he says, “and there was to be a basic science research slant to the work that would let us focus not just on orthodontics, but on bone in general.”

What appealed to Dr. Roberts was Dr. Garetto’s background in muscle physiology and his research credentials. Prior to his appointment at UC Davis, where he studied the regulation of skeletal muscle carbohydrate metabolism, Dr. Garetto was associated for eight years with Boston University in Massachusetts, earning an MS degree in applied physiology and a PhD in physiology, as well as completing a short fellowship in the Division of Diabetes and Metabolism. He had also spent several years working in an orthopedics department during his baccalaureate days at UC San Diego.

A second-generation Southern Californian (his grandfather, a foreman in a champagne factory,

moved to California from Italy in 1917 to escape World War I), Dr. Garetto knew next to nothing about Indiana. “I had heard of Bobby Knight and that’s about it,” he laughs. Feeling a bit uncertain about the upcoming interview at IUSD, he remembered vaguely an article he had read in *National Geographic* that was favorable to Indianapolis. Dr. Garetto located the piece and reread it on the plane trip to Indiana. “It gave me a positive attitude about the potential move. Everything the article said about this city turned out to be true.” (Dr. Garetto made the move in August, 1988, with his wife, Denise, who is a respiratory therapist at Humana Women’s Hospital in Indianapolis.)

Fully anticipating that the pace at Indiana would be grueling at first, Dr. Garetto has yet to notice any slack in the schedule. In addition to coordinating all of the activities within the bone research laboratory—including technical production of specimens and data analysis—Dr. Garetto supervises the lab’s two full-time staff technicians, directs the graduate student research studies, coordinates a weekly departmental journal club for faculty and students, and teaches a graduate-level statistics laboratory coinciding with a course taught by Dr. Brad Beiswanger, of the Oral Health Research Institute. Keeping abreast of progress within the lab (while maneuvering through the maze of day-in, day-out interruptions and distractions that come with it), Dr. Garetto also does a substantial amount of writing for grant proposals and publication.

The work is difficult. The days, long. But it’s all beginning to pay off.

A five-year grant proposal submitted last year to the NIDR received funding on March 1. It represents the department’s first major investigation in bone physiol-

Rick Baughn



**Dr. Lawrence P. Garetto**

ogy to be initiated at Indiana University. The researchers are using the grant to study endosseous implants as a means of moving facial bones orthopedically. "These experiments will look at how implants heal, how long it takes for them to heal, what the interface is composed of and how the interface responds to orthodontic and orthopedic forces," Dr. Garetto explains. "Specifically, we will be looking at undesirable implant sites—the palate, for example, where an implant might go to repair a cleft palate."

Long-term grants such as this one and competitive grant renewals form the foundation of the research program in orthodontics. "The dental school has made an investment in us by providing the start-up funds," says Dr. Garetto, "but researchers can't expect schools to provide research funds throughout their careers. You need external funding to keep a lab like this going, and it's up to us to go out and find it."

The bone research laboratory is indeed equipped with some of the finest and newest research instruments in the country:

- The system for microscopic slide preparation of histologic sections is capable of cutting mineralized tissue and metal into extremely thin sections ( $10-20 \mu$ ); it is of great value to studies relating to bone, implants, and artificial joint replacements.
- The frozen microtome cuts equally thin sections of fully mineralized bone that has been frozen instead of fixed (and is therefore metabolically active); the microtome will be invaluable in hormonal binding, metabolic, and enzyme studies.
- The computer-integrable microscope has both light- and darkfield illumination; polarized light capability necessary for mineralized tissue work; epifluo-

rescent lighting for use in studying fluorochrome bone labels; and a phase contrast system for studying cells. Researchers can photograph data with a variety of film by using the scope's two 35 mm cameras and one large format camera.

Of primary importance to the department's grant-based research program will be contributions made by postgraduate students. All students in the department are now on a mandatory degree track, and each is strongly encouraged to pursue bone-related projects (four of five first-year students are doing so). "In order to produce publishable research that doesn't stop after one paper, graduate students need to be routed into their department's research instead of being allowed to go off and do projects on their own that don't relate from year to year," says Dr. Garetto. "Ortho students are primarily working within the department on projects that will ultimately lead to other projects and other funding."

While the push in orthodontics research is definitely in the direction of bone, Dr. Garetto hopes to maintain a balance in the types of studies being conducted. "Historically, this department has had a very good relationship with the dental materials area, and I don't want to lose that. Our studies with dental materials are specific, applied research and are very important to clinical orthodontics." In addition, the bone researchers are currently working on a project with the periodontics department and Dr. Garetto envisions on-going joint research efforts with faculty and students in such areas as dental diagnostic sciences, oral and maxillofacial surgery, and the Oral Health Research Institute's Cell Culture Laboratory.

In the meantime, Dr. Garetto attempts to wait patiently for the long-overdue completion of the bone laboratory's biochemistry

division. "It's a big frustration not to have this part of the lab finished," he admits. "There are a lot of things we should be doing right now that we can't get to until the lab is done. I'm excited about bringing a biochemical slant to Gene's histological work—we want to be able to describe chemically as well as visually what is going on. When the engineer eventually joins us, we'll get a description of what's happening in our research from a structural point of view as well."

Temporomandibular disorders—another area targeted for research in the Department of Orthodontics—provides the best example of how experts in the bone research laboratory will pool their ideas and resources in the years ahead to help dentists find answers to problems they have been battling for years. "We need to understand, from a basic science perspective, just what a TM disorder is," Dr. Garetto says. "We know there is a muscle component. We know there is a bone component. There is probably a neural component, too; so we will try to approach the problem from an integrated point of view. This is a line of research that takes best advantage of the expertise in muscle, nerve and bone that we have to offer."

## Gordon R. Arbuckle, DDS Graduate Clinic Director

When Gordon Arbuckle discovered that his career in construction engineering was long on paper work and short on creativity, he took a serious look at his father-in-law's career as a dentist and decided to pursue dentistry himself.

Now, two IU dental degrees and 25 years later, the highly-regarded Hoosier orthodontist jokes: "I refer to engineering as my 'misspent youth.'"

Not really misspent, as Dr. Arbuckle well knows. In his new position on the full-time faculty he draws not only on his experience as a private practitioner and part-time teacher of orthodontics, but also on the knowledge he gained during his early venture into engineering. He will play a key role in the department's collaborative research efforts with the IUPUI School of Engineering (and has, in fact, been teaching the dental school's graduate course in bio-mechanics since joining the part-time faculty two decades ago).

"The basic mechanics of orthodontics—basic spring design, basic analysis of tooth movement, requires some fundamental knowledge of engineering and physics," Dr. Arbuckle says. "I've tried to make it more clinically oriented so that students can understand what is really going on in the field of statics, which is the study of forces acting on bodies at rest."

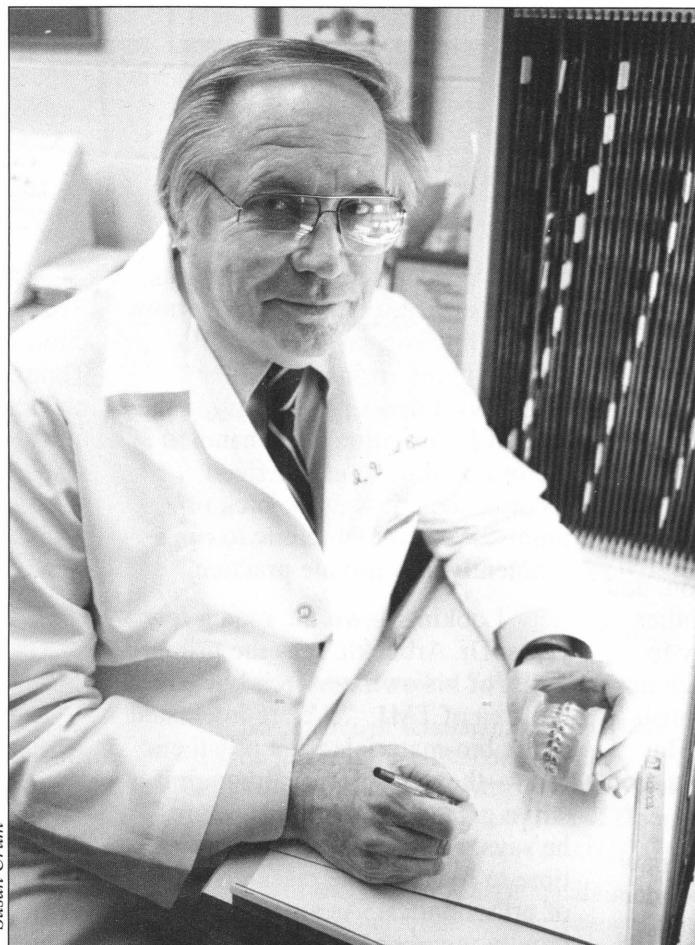
"Dental school orthodontics programs with an emphasis on biomechanics are somewhat scarce around the country, but it's always been a very strong part of our program primarily because of Dr.

Burstone and Dr. Baldwin," Dr. Arbuckle continues. "After completing their orthodontic training at IU one year apart they came up with

parts to, in this case, the human mandible."

With the finite element modeling technique, the mandible is divided into many tiny discrete elements, each with its own properties. "We are using this technique to look at forces applied to the mandible," Dr. Arbuckle says, "and how the mandible reacts to those forces. Three-dimensional modeling will help us address health problems such as those associated with the temporomandibular joint. We'll also be looking at orthodontic wires, springs and other devices to achieve a better understanding of how they work. A lot of our understanding in this area in the past has been 'by guess and by gosh'—we need to understand the mechanics better, and finite element modeling is going to be one way to do it."

*Dr. Gordon Arbuckle*



*Susan Crum*

the segmented arch idea, a whole new system of moving teeth around. Drs. Baldwin and Burstone are the ones who brought statics into orthodontics. They began touring the country with their new system when they were both still wet behind the ears. They are great thinkers."

Dr. Arbuckle is gearing up for the challenges ahead. "We have some exciting projects going on with the Purdue engineers," he says. "For example, we have started to experiment with an engineering research method called 'finite element modeling,' which offers a three-dimensional, computer generated analysis of all sorts of objects—anything from airplane

The orthodontics department accepts five postdoctoral students each year from an international applicant pool of more than 200. The new goal is to take two candidates directly out of dental school, two with some experience in private practice, and one who has been trained at a foreign dental school. The final five are chosen from two dozen candidates who are granted interviews, and it is often a tough process to narrow down the field. "The 24 people interviewed each year are always well qualified," says Dr. Arbuckle. "Any of them would be a delight to have in the class. I think it's interesting that at IU we get many fine students, even though some schools offer their students a handsome stipend while our stu-

dents still have to pay for their training."

As director of the graduate clinic, Dr. Arbuckle oversees all activity relating to case analysis, treatment planning, and clinical procedures. During the two-year program each graduate student begins about 25 new full-treatment cases involving mixed dentition, and assumes responsibility for another 35 full-treatment cases already in progress. "Our case load is lighter than what you would find at most other universities," he says. "But we are pressing for quality here, not quantity."

Dr. Arbuckle refers to his new full-time teaching job as a "wonderful change of pace." He is also at times a bit overwhelmed by the work load. "I wasn't quite aware that as a full-time faculty member you could get assigned so many new things to accomplish," he says with a laugh. In addition to supervising the graduate clinic he lectures on the principles of orthodontics to predental students, assists part-time orthodontics faculty member David Clark with a seminar for periodontics students, and presents a grad course in orthognathic surgery with orthodontics colleague Kirt Simmons and oral and maxillofacial surgery professor Charles Nelson.

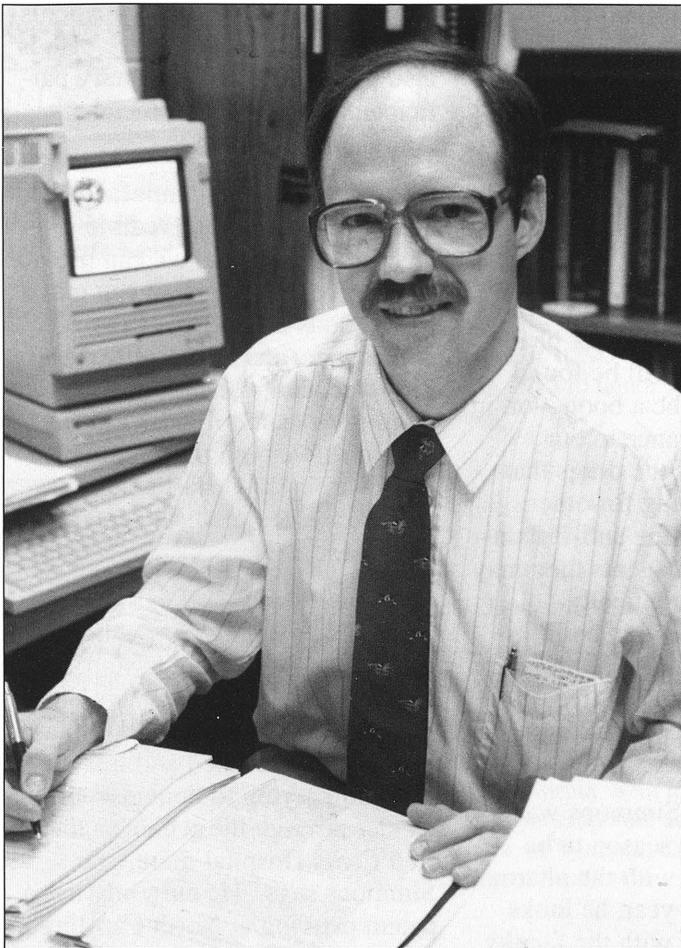
Another big task falling to Dr. Arbuckle is the computerization of the department's billing system and all of its records. "With the new computer system, we hope to be able to produce weekly reports on

student productivity, track patients and document treatment much more thoroughly," he says. With Dr. Hohlt's clinic for undergraduate students on the verge of tripling the load of information to be handled in the ortho clinic, computerized records come just in the nick of time. "We want the clinic to run as efficiently as a private practice."

Looking down the road a few years, Dr. Arbuckle sees the primary thrust of his own research lying in the area of TMJ. "We are interested in the bio-materials for a prosthetic joint—the design of it, although it is still a great distance in the future," he says. "I've wanted for a long time to focus on the research aspects of orthodontics. As a part-time faculty member I was on the periphery of research activity but never had the time to pursue it. The program has undergone quite a metamorphosis in the last year or two—it's exciting to collaborate with these fine people from engineering and to see the whole bio-materials research area under development here."

Dr. Arbuckle seems to be adapting well to his full-time role in academics (he continues to practice one day a week). "Our goal is to complete the transition between theory and clinical orthodontics," he says. "I'm very pleased with the attitude of the whole faculty—the people I associate with are bright, energetic. Dr. Roberts has brought a team-effort philosophy with him and I'm delighted to be a part of it."

Dr. Arbuckle and his wife, Roxie, are the parents of three children: Pam, whose husband, Dr. Thomas Dugan, is finishing specialty training in radiation oncology at Massachusetts General Hospital; Christopher, a chemistry major at IU-Bloomington; and Alisa, an elementary education major at Fort Lewis College, Durango, Colorado.



**Kirt E. Simmons, DDS, PhD**  
**Assistant Professor of Orthodontics (School of Dentistry)**  
**and adjunct assistant professor of pharmacology and toxicology (School of Medicine)**

It was one of those beyond-the-call-of-duty assignments typically awarded to grad students.

The chairman of Kirt Simmons' orthodontics program at North Carolina asked him to "volunteer" as host for a couple of guest speakers who were arriving in town the night before their presentation at the school. When Kirt drove to the airport to pick up Dr. Vincent Kokich, of Seattle, and Dr. Gene Roberts, of San Francisco, he expected at most to have a nice dinner and interesting conversation with these two experts in bone and implant research. He had no idea, of course, that he would be spending the evening sitting across the table from his future employer.

for an orthodontics faculty member and I learned that Dr. Roberts had come to IU, I decided to apply."

An orthodontist with a PhD degree in pharmacology, Dr. Simmons lends a unique perspective not only to the research conducted in the Department of Orthodontics at IU, but also to courses taught to students at the pre- and postdoctoral levels.

Having at first no aspirations in dentistry, Kirt wound up being the first student to go through a combined PhD/DDS program at The University of Texas Health Science Center at San Antonio. "What appealed to me about pharmacology was the broad background it offered in anatomy, physiology, and biochemistry in addition to pharmacology," he says. "You must have a good working knowledge in those areas in order to study how drugs affect the body."

The link to dentistry came about by serendipity. "First-year

"I was quite impressed with both men," recalls Dr. Simmons, who was unaware at that time of Dr. Roberts' impending move to Indiana University. "They gave a good C.E. course about bone and dental implants and I could tell that Dr. Roberts was really excited about it. I remember sitting through the whole seminar thinking, 'This is great stuff—it's a good direction to be going in orthodontics.' When a year later I saw Indiana's ad

pharmacology graduate students had to teach pharmacology to dental assistants and dental hygienists at San Antonio," he says. "Like the other pharmacology students, I didn't know *anything* about dentistry, and I didn't know what dental auxiliaries needed to know. So I started to talk to them and their faculty to find out what a dental auxiliary does, and what is really needed in terms of pharmacology. I was beginning to get interested in dentistry before I myself decided to go into that area. I was struck by the fact that many basic science people in medicine who have to teach a course to students of dentistry haven't a clue as to what these students need. The classic pharmacology courses for dental students are watered-down medical school courses. Typically in big health science centers, the teachers come over to the dental building, give their lecture, and then are gone. They have trouble relating to dental students and consequently the dental students have very little regard for the subject."

Midway through his pharmacology training, Kirt—always intending to find a career in academics—began to look twice at jobs in the basic sciences that demanded long days confined to the office or lab and that offered little contact with people outside of classes. "My father is a retired physician who taught half-time and practiced half-time," Dr. Simmons says. "I started thinking maybe I should get some type of clinical degree to broaden my horizons and my knowledge base. I looked at medicine and dentistry and decided that dentistry was a lot more promising and more what I was interested in."

His request to work toward joint degrees in pharmacology and dentistry received enthusiastic approval from Dr. Dominick De-Paola, then new dental school dean at San Antonio, since it coincided with the school's plan to broaden the scope of the research mission in

part by creating double-degree programs. "I went through as the guinea pig, reporting back to the dean periodically to give him my feelings about how the program ought to be handled in the future."

After earning the DDS degree in 1986, Dr. Simmons—hoping to avoid employment in an amorphous science department and eager to gain further clinical training which related to his research interests in growth and development—moved on to the University of North Carolina, where training in orthodontics would enable him to secure a position within a specialty area of dentistry.

Today, he is pleased to be playing a part in the research effort at Indiana. "My contribution in the area of bone physiology and metabolism will concern the use of some of the newer molecular biology techniques," he explains. In one study being conducted in conjunction with the Eli Lilly Company, nucleic acid probes are being used to find clues to the processes involved in the formation of bone. "These probes work in a way similar to the kind sent out into space. They go out and look for information and when they find it, they allow us to receive a signal or message. In this study, Dr. Roberts and Dr. Garetto are concentrating on the anatomy—the histomorphometrics of the system. How does the cell change in appearance? I'm interested in what's going on *inside* the cell that can't be seen. What kind of message did the cell receive? *How* did the cell receive it?"

Orthodontic research from a pharmacological standpoint will forge into new territory. "If you look at the major changes and improvements in orthodontics over the last 100 years, they have virtually all been related to technology," says Dr. Simmons. "We haven't developed many more insights into the basic science of what we are doing. There is still so much that we don't know about orthodontics.

We can have two similar patients and treatment will go great with one and poorly with the other. It's hard to figure out why. We move teeth through bone all the time but we don't really know what tells the bone to resorb on one side and form on the other. The very essence of what we do every day we don't fully understand. Once we start figuring these things out, then I think pharmacological agents will be found which are going to be a boon—or, in some cases, a hindrance to our treatment. Some of the drugs that patients may be taking for other reasons, or some of the anti-inflammatory or analgesic agents they may be taking for orthodontically-induced pain, may in fact be influencing the bone in undesirable ways. We've just now started, in the last couple of years, to look into all of this."

Although Dr. Simmons was hired too late in the season to be able to be involved with the pharmacology courses this year, he looks forward to working with the faculty in the medical school's pharmacology department to develop material for the 1990-91 academic year. During his first year here he taught growth and development classes to undergraduate students, participated in an orthognathic surgery seminar series for graduate students, served as course director and primary lecturer for a graduate-level growth and development course, and provided instruction in the orthodontics clinic.

One important career component still missing for Dr. Simmons is treatment of orthodontics patients. As soon as all of the paper work settles, Dr. Simmons will be practicing part-time with Dr. Roberts through the University's dental service plan for professional development. Drawing on his research background in craniofacial anomalies acquired during studies at North Carolina, Dr. Simmons intends to step up the department's involvement in this area by devoting half of

his practice time to seeing patients with craniofacial anomalies. He is also the department's primary participant on IU's Craniofacial Anomalies Team.

"People with craniofacial anomalies need an incredible amount of help, and we can provide it," he says. "Treatment can make a tremendous difference in their appearance, and in their life. And it is appreciated. Dr. Roberts is treating as many of these kids as he can, too. We both feel a commitment within the department, the school, and the medical center to treat these patients."

Two years ago Dr. Simmons served as a dental staff member in an "Operation Smile Mission" to Manizales, Colombia, where more than 500 children with cleft lip and palate were screened and treated. "I'm now trying to donate a surplus welder through the school to the Red Cross Hospital there," Dr. Simmons says. He currently has a patent pending at North Carolina for a device to calculate facial proportions.

Dr. Simmons and his wife, Rosa Maria, a research assistant at Eli Lilly, have two children—James, four, and Christopher, two. Larry and Denise Garetto live near by, so the men have formed a car pool. They can also be found with other members of the orthodontics department working out at the Fitness and Sports Center down the street from the dental school. "It seems like a nice city, even though I didn't expect the *smell* that hits me when I walk out of the building some nights," Dr. Simmons laughs. (He is referring to the odor that routinely wafts over to the school from the corn processing plant across White River Parkway). "It brings back memories of my college days in Sherman, Texas, where there was a mayonaise plant close by."

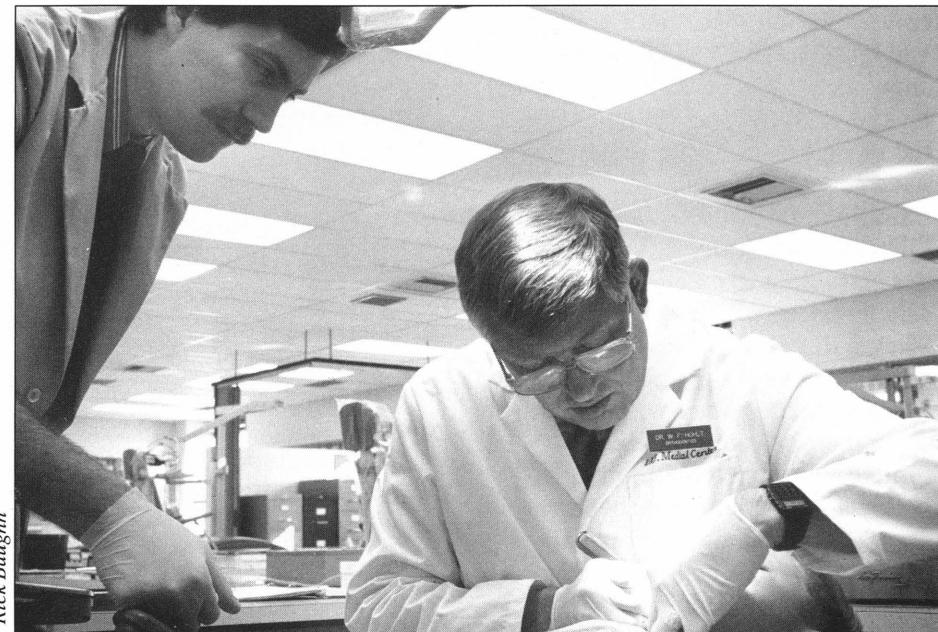
meantime, the orthodontic faculty is looking and I've got department chairmen and directors throughout the building on the lookout for these patients as well." So far, the search has been promising, but Dr. Hohlt is prepared to assign one patient to two students if necessary. "Our goal is for every member of the class to spend two years working with one patient—an older teenager or adult—who requires single tooth or segmental arch tooth movement by means of bonded brackets and bands."

With a two-year predoctoral pilot program in clinical orthodontics involving 20 volunteer students now drawing successfully to a close, the department is gearing up for a full-blown program that will involve every student in the Class of 1992. The undergraduate clinical experience will complement the department's excellent predoctoral didactic program of long standing, including courses in craniofacial growth and development, principles of orthodontics, orthodontic diagnosis and treatment planning, and orthodontic laboratory experience. To make room in the curriculum for a two-year experience in the clinic, the two years of lectures and labs now begin as soon as the students arrive at the dental school instead of in the second year—a change that has required some adjustment in the way material is presented. "On day one of dental school, students don't know mesial from distal, or incisal from gingival," Dr. Hohlt says with a smile. "They haven't been exposed to these terms yet, so we must deal with the problem of giving them too much information too fast. But we have to start early if we are going to provide adequate time in the clinic."

The clinical portion of the undergraduate program has been created in response to recommendations from the accrediting body of the American Dental Association.

The ADA Commission on Accreditation first noted during a

*Dr. Hohlt (right) and first-year graduate student Dr. David A. Lehman in the orthodontics clinic*



*Rick Baughn*

### **William F. Hohlt, DDS Director of Undergraduate Orthodontics**

Closing the gap between two front teeth. Rotating a tooth. Correcting a cross bite.

When fall semester arrives in August, more than 80 third-year dental students will be ready to learn how to perform some of these limited orthodontic procedures. Bill Hohlt's job—finding enough patients to go around—is just one of many difficult challenges he faces as director of the new undergraduate program in orthodontics.

"At the last lecture in the spring of their second year, students will be charged with finding a patient in need of limited orthodontics," Dr. Hohlt explains. "In the

site visit in 1976 that Indiana University offered no clinical experience in orthodontics for undergraduate students. "When a second site visit in 1983 found the same deficiency, it became paramount to address this problem before the next site visit, which comes in 1992," Dr. Hohlt says. Reading from the pages of the Commission's *Standards for Accreditation for Dental Education Programs*, he quotes in part: "Each graduate must be exposed to active participation in single tooth or segmental arch tooth movement utilizing active appliance therapy." It doesn't say 'should.' It says 'must.' We consider clinical experience for predoctoral students to be a mandate from the ADA, and I think IU's predoctoral orthodontics program is probably being watched very closely by other schools. I am hopeful that our program will be seen as the way to go."

When Dr. H. William Gilmore, dental school dean, asked Dr. Hohlt to accept the challenge of implementing the clinical program, it required his assuming a full-time position on the faculty. He did so in 1988, although he continues to practice part time. He and his wife, Peggy, have four children: Ann, a surgical nurse at Community Hospital North in Indianapolis; Eric, who is employed with NCR Corporation; Aaron, a business major at IU-Bloomington; and Heather, a seventh-grade student at Meridian Middle School.

A well-respected Indiana orthodontist with ties to IU spanning more than three decades, Dr. Hohlt realizes that the school's new program for undergraduates does not have the full support of every dental professional in the state. "I'm sure there is some concern that graduates will leave here thinking they can treat any orthodontic case that comes through their door. But that is not our goal. We have designed a program that we think will help students recognize their

limitations and at the same time give them more latitude in treating their patients."

Dr. Hohlt feels deeply committed to doing whatever he can to help dental specialists and generalists maintain good relationships—it is a big part of what lured him into teaching full time. "I believe that it's important for this clinical program to be directed by someone who has been out in the trenches, who is recognized as having received proper orthodontic training, and who has the interest of both specialists and generalists in mind," he says. "We're not trying to pull the rug out from under those who have spent two or more years in training to be orthodontists. When DDS students leave here they will *not* be trained to place head gears or functional appliances on young kids. They will *not* be trained to make dynamic changes in occlusion. What we expect they will be able to do in their private practices is limited tooth movement on older patients for esthetic improvement or for reasons relating to crown and bridge or periodontal treatment. We expect that once students know more about orthodontics, they will better understand their own limitations."

Designing the program was neither inexpensive nor easy. In addition to bringing Dr. Hohlt onto the full-time faculty, about \$100,000's worth of equipment, instruments and supplies had to be purchased. With infection control a main priority, trial studies first had to be conducted on instruments to see if they could withstand a daily sterilizing regimen. (After nearly two years in the pilot program the instruments are holding up nicely, and Dr. Hohlt speaks with pride of the comprehensive infection control system now in place.) With more than 80 additional students soon to be added to the traffic within the department, finding time and space for clinical appointments was the next obstacle to overcome. Begin-

ning in the fall, the clinic will be reserved every Monday for the undergraduate patient load. Most of the faculty and second-year graduate students will participate in the teaching.

Preparing for a predoctoral clinic has been hard work, but Dr. Hohlt feels strongly that the effort is well worth it. When the call went out for 20 student volunteers for the pilot program, more students responded than could be placed. And Dr. Hohlt was pleased when he learned that all 20 of the student volunteers scored higher in orthodontics on Part II of the National Boards than everyone else in their class.

"Feedback from a dental school survey recently sent to IUSD graduates from the past five years indicated that these dentists believed they were most lacking in an orthodontics background when they got to private practice," says Dr. Hohlt. "I'm hopeful that the next exit survey will show that orthodontics is no longer the number one problem in the eyes of our former students. If the National Board scores mean anything, that's already started to happen."

# Dental School Students Receive Annual Scholarships, Awards

Photos by Susan Crum



## Robert J. Alber Memorial Scholarships

Recipients of Alber scholarships must be residents or former residents of Noble, Elkhart, LaGrange, or Kosciusko counties. Elkhart residents, clockwise from left, are fourth-year student Madelyn C. Zeitler, daughter of Dr. and Mrs. P.S. Zeitler; William R. Flora (second year), son of Jack L. Flora and Sue A. Flora; Steven A. Douglas (third year), son of Mr. and Mrs. John Grove; and Thomas E. Lantz (first-year), son of Mr. and Mrs. Lamar Lantz. Not pictured is second-year student Peter J. Brown, son of Dr. and Mrs. Richard D. Brown, Ligonier. Peter's father graduated from the IU dental school in 1971, and his uncle, Dr. Thomas Brown, in 1983.

The scholarship is named for a graduate of the IUSD Class of 1947 who was a dentist in Ligonier. Dr. Alber died in 1970.

*During the 1989-90 academic year 32 students of dentistry and dental hygiene at Indiana University received scholarships and other types of awards presented in 14 categories. They include:*



## Sigma Phi Alpha Scholarships

Theta Chapter of Sigma Phi Alpha national dental hygiene honorary society awarded two scholarships during the 1989-1990 academic year. Recipients are, from left: second-year dental hygiene students Cindy Seale, daughter of Mr. and Mrs. Hugh Smith, Connersville; and Katie Lazard, daughter of Mr. and Mrs. Jack Lazard, Marion.



#### **Cyril S. Carr Dental Research Scholarship**

The 1989 recipient of the Carr scholarship is third-year dental student Valerie Haughtington, daughter of Richard Haughtington, Westville, and Merhth Haughtington, Michigan City. Valerie was cited for research funded by a short-term research training grant from the National Institutes of Health. Her paper was titled, "Examination of Verruciform Xanthoma for the Presence of Human Papillomavirus."

The Cyril Carr scholarship is named for a 1916 graduate of the Indiana Dental College who was a lifelong resident of Indianapolis. He practiced dentistry for 50 years and died in 1975.

#### **Howard K. and Shizuko Maesaka Award**

Third-year student Julie Boyd (holding plaque) is the 1989 recipient of the Maesaka award, which is presented to a student demonstrating excellence in preclinical technique. It is named in honor of a 1926 IUSD graduate and his wife. Dr. Howard Maesaka died in 1975; Mrs. Maesaka resides in Oahu, Hawaii.

Participating in the presentation at the dental school last fall were, from left: Dr. Ray K. Maesaka ('60), IU professor of prosthodontics and Howard and Shizuko's son; fourth-year dental student Eugene A. Margiotti, last year's award recipient; Mr. and Mrs. Ken Boomer, Julie's parents, of Indianapolis; Dr. Charles J. Goodacre, chairman of prosthodontics; Mr. Kenneth Boyd, Julie's husband; Julie; Dr. Clifford T. Maesaka, Jr. ('86), Eagan, Minnesota, Howard and Shizuko's grandson; and Dr. and Mrs. Clifford T. Maesaka, also of Eagan (Clifford is Ray's brother and a 1961 graduate of IUSD).



#### **A. Rebekah Fisk Memorial Scholarships**

Receiving awards for academic achievement in dental hygiene are, from left: first-year student Cherisse D. Moore, Richmond, daughter of Charles C. Moore, Auburn, and Rosemary Dance Moore, Ligonier (Cherisse is also the cousin of 1978 dental graduate Dr. Jeffrey W. Rhonemus); and second-year students Katie Lazard; Kelley Martin, daughter of William M. Martin and Mary Linton, both of Russiaville; and Denise Will, daughter of Mr. and Mrs. Dale Will, LaPorte (Denise's sister, Stephanie Boesche, is an IU dental hygiene graduate from the Class of '84).

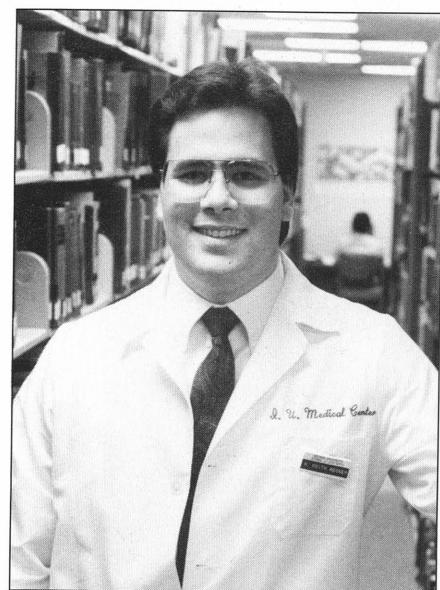
As Indiana University's first director of dental hygiene, Miss Fisk established the program in 1950 and served as its director until her retirement in 1970. She died in 1982.



#### **Johnson Public Health Dentistry Scholarship**

This year's recipient is fourth-year student Rebecca J. DeLaRosa, daughter of Mr. and Mrs. Reynaldo DeLaRosa, East Chicago. Rebecca has participated in a number of public health activities and events in Indianapolis and elsewhere, including Senator Richard Lugar's Health Awareness Day, and dental health programs and exhibits sponsored by Black Expo and the Indiana State Board of Health. She also has completed three dental school extramural assignments at the Indiana Youth Center, Plainfield.

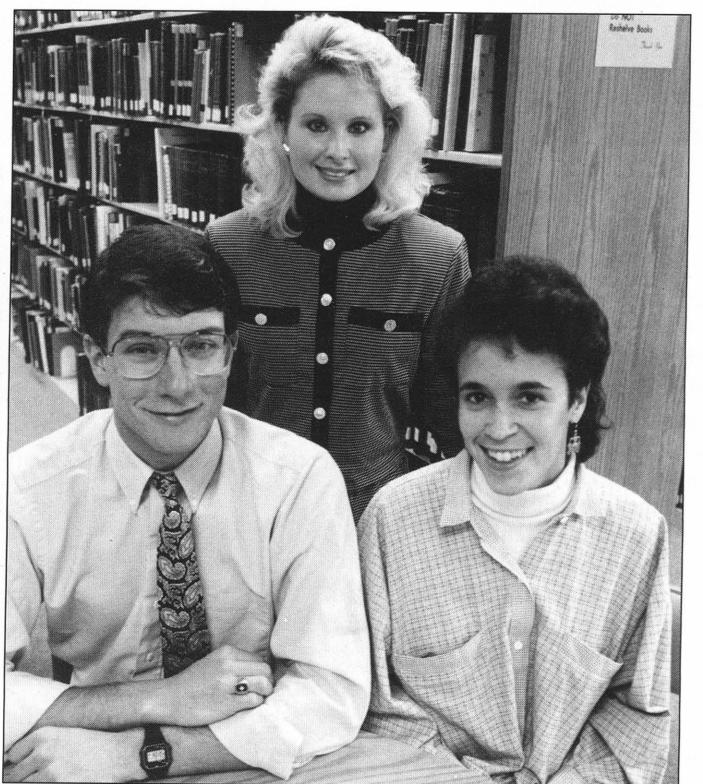
Dr. Donald W. Johnson, a 1956 graduate of IUSD residing in Carmel, created the scholarship in 1975 to honor his parents, Frank R. and Jessie B. Johnson.



#### **Harvey G. Levinson Memorial Scholarship**

Receiving the third annual Levinson scholarship is fourth-year student R. Keith Rooney, son of Mr. and Mrs. Robert E. Rooney, Evansville.

The scholarship perpetuates the memory of a 1960 graduate of the IU dental school who died in 1986. Dr. Levinson had been in practice in Sherman Oaks, California, with his uncle, Dr. Irving S. Newmark ('45) since 1961. Given in part for academic achievement, the award was established in 1987 by Dr. Newmark, of Tarzana, California, and Dr. Levinson's brother, Mr. Steven N. Levinson, of Studio City, California.



#### **Indiana University School of Dentistry Alumni Association Scholarships**

These annual awards for academic achievement were given to, from left: second-year student Darin Ashcraft, son of Mr. and Mrs. Boyd Ashcraft, Kokomo; Julie A. Boyd; and second-year student Myriam E. Hudicourt, daughter of Drs. Georges and Edith Hudicourt, Petion-ville, Haiti.





#### **Milo V. Smith Dental Student Scholarships**

Smith scholarship recipients in 1989 are (top) first-year student Bart L. Poer, Indianapolis; (middle, from left) second-year student Scott A. Terry, son of Carole A. Terry, Richmond; fourth-year student Catherine L. Byrne, daughter of Mr. and Mrs. Louis Byrne, Bicknell; and first-year student Joe Majka, son of Mr. and Mrs. Joseph Majka, Valparaiso; (front, from left) second-year student Steven L. Hodges, son of Mr. and Mrs. Vere Hodges, Cassopolis, Michigan; first-year student Susan M. Strong, daughter of William Strong, Indianapolis, and Lois Lehman, Mishawaka; Rebecca J. DeLaRosa; and fourth-year student Behzad Azimi, son of Mr. and Mrs. Ali Azimi, Tehran, Iran.

The scholarship is named for an 1896 graduate of the Indiana Dental College who was a dentist in Winchester. Dr. Smith died in 1943.

#### **Martha Louise Kutka Memorial Scholarship**

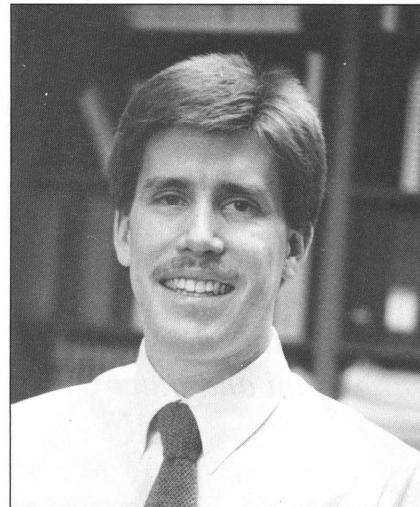
This scholarship was awarded to fourth-year student Carrie A. Zimmerman (below), daughter of Mr. and Mrs. Louis Zimmerman, Portage. The scholarship was established in 1981 by family and friends of Mrs. Kutka, who was the mother of Dr. Laura Kutka Hannon, Portage, an IUSD graduate of the Class of 1980. The award is presented to women in dental and medical school and is given in part for academic achievement.



#### **Michael T. Wilson Memorial Scholarship**

The 1989 recipient is second-year student Linda A. Hicks (left), daughter of Dr. and Mrs. Alphonse Armbruster, Lima, Ohio.

The scholarship is given in memory of Michael T. Wilson, who was a third-year dental student at the time of his death in 1984. The award was established by Michael's family and friends.



### **Guthrie Pullman Carr Academic Achievement Award**

Recipient of the Carr award is third-year student Brian D. Waggoner, son of Dr. and Mrs. Gordon D. Waggoner, Flora. Brian's father is a 1976 graduate of IUSD.

The Guthrie Pullman Carr award honors the memory of a Lafayette dentist who was a 1915 graduate of the Indiana Dental College. Dr. Carr died in 1960. He was the father of IUSD graduates Dr. Guthrie E. Carr ('54) and Dr. W. Kelley Carr ('55, MSD '61), and the grandfather of Dr. Guthrie P. Carr ('87).

### **Omicron Kappa Upsilon Scholarships**

Recipients of scholarships from Theta Theta Chapter of Omicron Kappa Upsilon national dental honorary society are fourth-year student R. Todd Bergman, son of Mr. and Mrs. Robert C. Bergman, Kokomo; and second-year student Susan E. Draheim, daughter of Dora M. Draheim, Royal Oak, Michigan.

Todd was recognized for maintaining the highest grade-point-average in his class after completion of three years of dental school, and Susan for earning the highest GPA in her class during her first year of dental studies.



### **Omicron Kappa Upsilon Loans**

Theta Theta Chapter of OKU annually recognizes students who demonstrate outstanding scholarship by providing them with interest-free loans. This year's recipients are, from left: fourth-year student Kathy M. Patmore, daughter of Mr. and Mrs. Charles Kimmel, Evansville; second-year student Janet M. Dombrowski (ASDH '84), daughter of Mr. and Mrs. Daniel Dombrowski, Valparaiso (Janet's uncle, Dr. Theodore Mager, Jr., is an IU dental graduate from the Class of '69); fourth-year student Thomas C. Abrell, son of Mr. and Mrs. Clinton Abrell, Freedom; Julie Boyd; and third-year student Grant S. Bailey, son of Dr. and Mrs. George R. Bailey, Bountiful, Utah (Grant's father earned a certificate in orthodontics from IU in 1966).

# A Word of Thanks from Danny Dean

*IUSD Director of Development looks back on 1989—another year at the dental school in which many projects in need of funding were made possible through the generous donations of the dental alumni and other supporters.*

One of the most frequently asked questions of a fund raiser is: "How do you ask people for money?" I usually respond by saying, "Asking someone for money isn't the hard part—finding out who has it is!"

I'm sure many professional fund raisers do have a difficult time asking members of their constituency for contributions. It may be that their prospective donors don't believe in the project or in the mission of the organization. Or possibly, there is an inability for some potential donors to make a contribution.

I feel I am fortunate to be Director of Development at the School of Dentistry because I believe the members of our alumni are committed to the dental profession and to seeing that our students are provided a quality education. In many cases our alumni show their support for students, faculty and staff by making an annual gift to IUSD. (Many of our donors make several gifts during the year while others choose to volunteer their time in a variety of ways, which is also very important.)

I am often impressed by donors who stop by or call to apologize because they forgot to make a contribution. (It takes a special person to apologize for forgetting to give you something to help *your* cause.)

I wish I could show our alumni all the improvements we've been able to make at the school over the past several years because of their gifts—improvements that wouldn't have been possible without their support. We appreciate all contributions to IUSD no matter what the amount. As the old saying goes, "Every little bit helps!"

I have been very pleased with the growth of our development program over the past four years. We have



*Mr. Danny R. Dean*

*Susan Crum*

increased our donor base each year. I believe we have a progressive development program, and one that I hope our alumni will continue to support.

IU administration, faculty, and staff have worked hard to secure the School of Dentistry's place among the highest ranked dental schools in the world. We encourage you, the alumni, to share with us your ideas on how we can continue to improve the dental education offered to our students. We, in turn, remain committed to supporting your efforts through continuing education programs and by serving as a resource to assist you in private practice and your other professional endeavors.

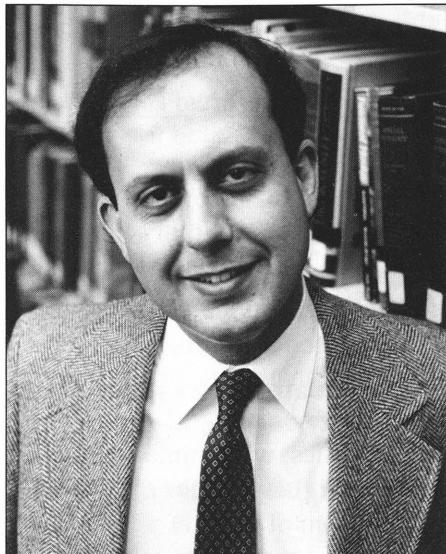
We believe that a student's diploma signifies the beginning of a relationship with IUSD, not the end. And we do our best to keep in touch in every way possible—through the pages of the *Alumni Bulletin*, through the annual Fall Dental Conference in Bloomington, and through presentations made by the faculty at component dental society meetings around Indiana.

To everyone who made a contribution to the dental school in 1989, I say "thank you."\*

To the rest of our alumni and friends, I invite you to lend your support in 1990. Help us keep up the momentum! Individually, donations to the IU dental school help to cover the cost of a remodeling job, a computer, a handpiece or a scholarship. Collectively, they serve as a valuable investment in the future of dentistry. We welcome your participation.

\*A list of gift givers will appear in a special edition of the *Alumni Bulletin* to be published in the fall.

# Postdoctoral Profiles



**Jorge Alberto Velasco Turati**

**Hometown:**  
Mexico City, Mexico

**Dental Degrees:**  
DDS, Universidad Tecnologica de Mexico, 1976  
DDS, Indiana University, 1985

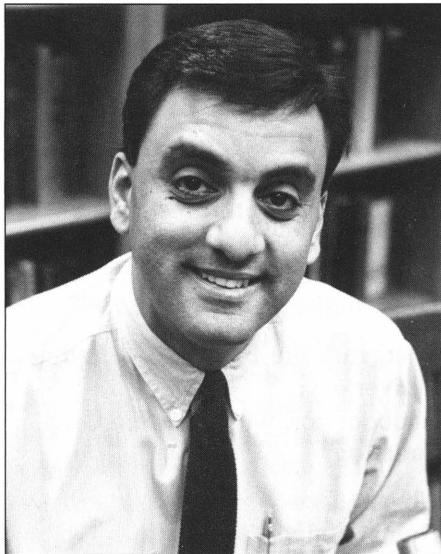
**Postgraduate Program at Indiana University:**

Prosthodontics, with minor in Dental Materials  
(off-campus research student)

**Thesis:**  
Retention of Castings and Tooth Preparation: A Study of Angles of Convergence on Human Teeth

**Degree:**  
MSD, March 1990

**Plans after graduation:**  
Will continue in private practice in Zionsville, Indiana



**Rafik A. Abdelsayed**

**Hometown:**  
Cairo, Egypt

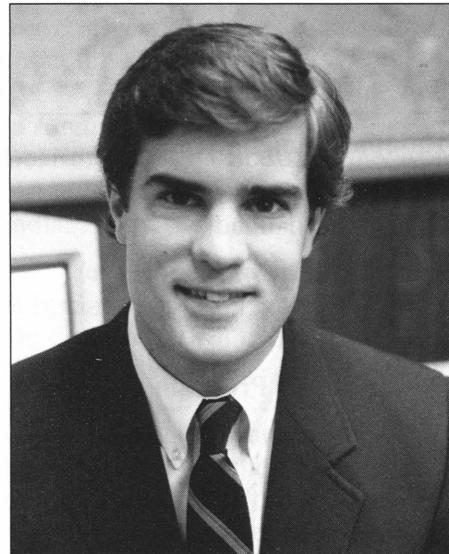
**Dental Degree:**  
BDS, Cairo University, 1980  
Certificate degree for Advanced Program of Oral Pathology, Washington University, St. Louis, Missouri, 1984

**Postgraduate Program at Indiana University:**  
Oral Pathology, with minor in Oral Radiology

**Thesis:**  
Detection of Human Papillomavirus in Oral Epithelial Dysplasia and Epidermoid Carcinoma in the Absence of Tobacco and Alcohol Use

**Degree:**  
MS, March 1990

**Plans after graduation:**  
Will enter the advanced standing program in dentistry at Indiana University



**Bruce B. Wiland**

**Hometown:**  
Richmond, Indiana

**Dental Degree:**  
DDS, Indiana University, 1987

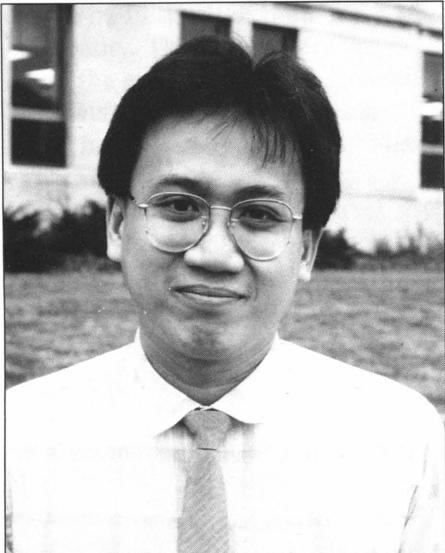
**Postgraduate Program at Indiana University:**  
Periodontics, with minor in Oral Pathology

**Thesis:**  
Effect of Polyacrylic Acid on the Root Surface

**Degree:**  
MSD, May 1990

**Plans after graduation:**  
Private practice of periodontics on southside of Indianapolis

*Photos by Susan Crum*



**Rajapas Panichuttra**

**Hometown:**  
Bangkok, Thailand

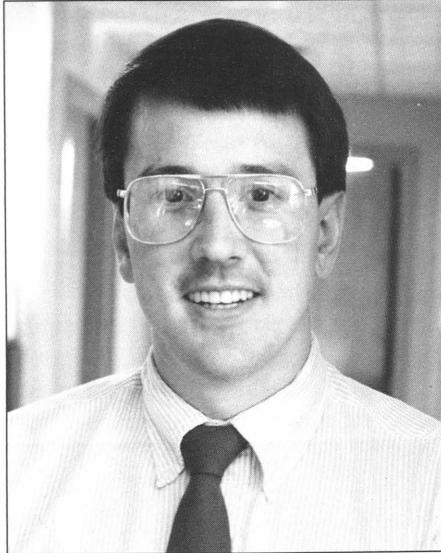
**Dental Degree:**  
DDS, Chulalongkorn University,  
Bangkok, Thailand, 1984

**Postgraduate Program at Indiana University:**  
Prosthodontics, with minor in  
Dental Materials

**Thesis:**  
A Study of Dimensional Accuracy  
and Gypsum Wettability of Hydrophilic Poly (Vinyl Siloxanes)

**Degree:**  
MSD, February 1990

**Plans after graduation:**  
Appointed to full-time faculty,  
Department of Prosthodontics,  
Chulalongkorn University



**Mark David Magura**

**Hometown:**  
Hobart, Indiana

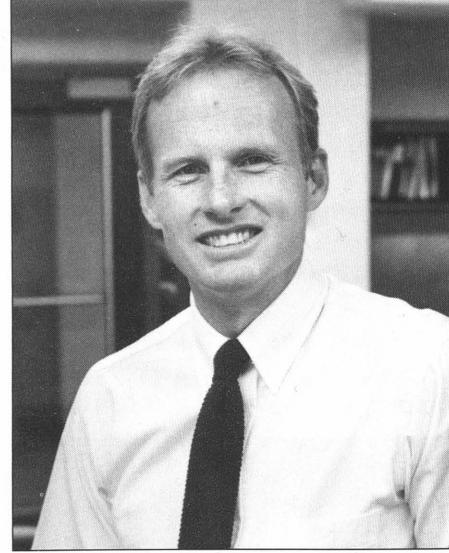
**Dental Degree:**  
DDS, Indiana University, 1987

**Postgraduate Program at Indiana University:**  
Endodontics, with minor in Oral Pathology

**Thesis:**  
Human Saliva Coronal in Microleakage in Obturated Root Canals: An In Vitro Study

**Degree:**  
MSD, May 1990

**Plans after graduation:**  
Private practice in the area of Merrillville and Valparaiso (and also plans to catch Indiana's state record Steelhead Trout)



**Val S. Cox**

**Hometown:**  
Ogden, Utah

**Dental Degree:**  
DDS, University of Washington,  
1982

**Postgraduate Program at Indiana University:**  
Endodontics, with minor in Oral Pathology (off-campus research student)

**Thesis:**  
Radiographic Interpretation of Endodontic File Length

**Degree:**  
MSD, January 1990

**Plans after graduation:**  
Will continue in private practice in Phoenix, Arizona



**Barry A. LaCombe**

**Hometown:**  
Las Vegas, Nevada

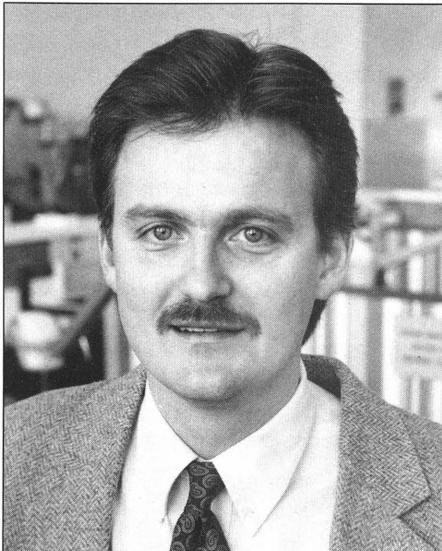
**Postgraduate Program at Indiana University:**  
Operative Dentistry, with minors in Dental Materials and Preventive Dentistry (off-campus research student)

**Thesis:**  
Patterns of Polymerization Shrink-

age of a Chemically and Light Activated Unfilled Resin in Class V Cavity Designs

**Degree:**  
MSD, January 1990

**Plans after graduation:**  
Will continue in position as Commander, Dental Corps, United States Navy; and Head, Materials Branch, Dental Division, Bureau of Medicine and Surgery, Washington, D.C.



**Michael E. Keller**

**Hometown:**  
Martinsville, Indiana

**Dental Degree:**  
DDS, Indiana University, 1982

**Postgraduate Program at Indiana University:**

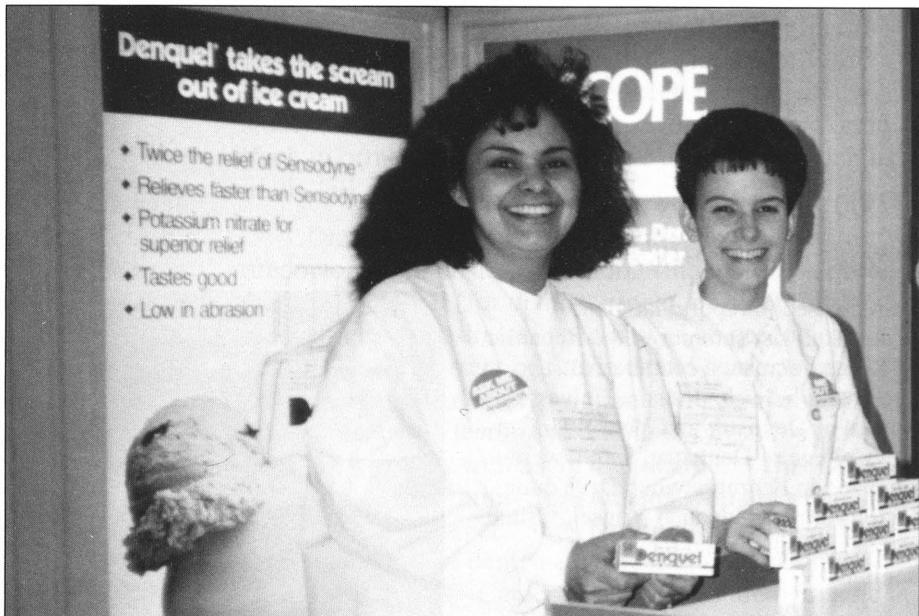
Endodontics, with minor in Oral Pathology

**Thesis:**  
A Clinical Evaluation of the Endocater—an Electronic Apex Locater

**Degree:**  
MSD, March 1990

**Plans after graduation:**  
Full-time private practice in Bloomington, Indiana, and part-time assistant clinical professor of endodontics at IU

## DAE Around Indiana



### IU-N Helps P&G at Chicago Midwinter

During this year's Chicago Midwinter meeting in February, second-year dental hygiene students at IU-Northwest were asked by Cherie Rippey, local representative for The Procter & Gamble Company, to help distribute samples of dentifrices at the exhibits session. The students had a great time and were nicely compensated for their participation. We would like to thank Cherie and Procter and Gamble for offering our students a chance to help. Pictured are second-year dental hygiene students Suzy Tovar (left) and Laura Pell.

*Donna M. Sharp  
Visiting Lecturer  
Dental Auxiliary Education*

### 'Thanks' from IUSB

We wish to extend a 'thank you' to the St. Joseph County Dental Society, which has made available \$500 in scholarship funds to be used for qualified applicants to IU-South Bend's dental assisting program in September 1990.

Also, we are grateful to the 50 North Central Dental Society dentists who donated \$5,079 to the NCDS-IUSB Dental Assisting Grant. They reached their goal of making \$750 available to a qualified dental assisting student at IUSB. They are: Drs. Robert Allen, Douglas Bateman, Larry Beachy, John Bond, James Buzalski, Stanley Carr, Terry Cunningham, James Davis, Gary Drury, Brian Eberhart, M. Gilbert Eberhart, Eugene Ellis, E.L. Geyer, W.C. Good, Michael Griffee, John Harrington, David Harris, C.E. Hassel, Russell Heyde, William Kimbriel, Edward Lawton, John Lehman, Jr., Daniel F. Lindborg, Theodore Mager, Shant Markarian, Ronald Melser, Sam Miller, Edward Molenda, William Mull, Edward Packard, Michael Rader, John and Marjorie Reuthe, Robert Riddle, Wayne Risinger, Gregory Robbins, Larry Roberts, George Schmitt, Paul Sergio, Donn Spilman, John Stewart, Richard Strait, Gene Stutsman, George Surguy, John Szakaly, Martin Szakaly, Thomas Tanner, S. Lynn Vance, C. Eugene Ward, and Gregory Winteregg.

*Shant Markarian  
Director  
Dental Auxiliary Education*

# Notes from the Dean's Desk

## IUSD establishes ties with Yonsei University

I am pleased to report that plans undertaken last summer in the Republic of Korea to create a cooperative agreement between Indiana University School of Dentistry and Yonsei University College of Dentistry, Seoul, were finalized in February when Dr. Young Kyu Ryu, dental dean at Yonsei, visited our dental school and the IUPUI campus.

On February 22, Dean Ryu and I signed an international agreement at the IU School of Dentistry that sets the stage for collaborative efforts between the two schools and complements the official Agreement of Friendship and Cooperation signed by Indiana University and Yonsei University in 1986.

The idea to strengthen ties between the dental schools was first presented to Dean Ryu last July by two of our faculty members, Dr. Kichuel K. Park, associate professor of preventive and community dentistry, and Dr. David R. Avery, professor and chairman of pediatric dentistry. Drs. Park and Avery, along with Dr. Susan Zunt, associate professor of oral pathology, were in Korea lecturing to several dental organizations and at various universities, including Yonsei University. The IU dental school has actively sought, through a series of projects we have initiated in the last year, to enter into agreements with highly respected dental schools overseas for the purpose of increasing faculty exchanges and collaborative research programs. Dean Ryu, working closely with the Indianapolis chapter of the Yonsei University Alumni Association, indicated that the request for closer ties was strongly supported by this group.

Accompanying Dean Ryu during his visit to the IU dental school were Dr.



Mike Halloran

*Present for the signing of the agreement between dental schools at Yonsei and Indiana universities are, from left: Dr. Lawrence I. Goldblatt, IU associate dean for academic affairs and for graduate and postgraduate education; Mrs. Han Won Paik; Dr. Han Won Paik, IUPUI associate professor of physics and president of the Indianapolis chapter of Yonsei University Alumni Association; Dr. Young Kyu Ryu, dean of Yonsei University College of Dentistry; Dr. H. William Gilmore, dean of Indiana University School of Dentistry; and Dr. Kichuel K. Park, IU associate professor of preventive and community dentistry.*

Han Won Paik, president of the Indianapolis chapter of the Yonsei alumni organization, and his wife, Chinok. Graduates of Yonsei University, Dr. Paik is an IUPUI associate professor of physics and Mrs. Paik has been an IUPUI part-time instructor in mathematics. Their daughter, Carol, received a DDS degree from Indiana University in 1985.

Dr. Kichuel Park, who grew up in Korea and graduated from Seoul National University in 1962, is well acquainted with our new friendship school. "Yonsei University is very proud of its rich tradition in higher education in Korea," he says. The College of Dentistry opened its doors in 1968. Current class size of 80 students

is similar to Indiana's. Dental students at Yonsei spend two years in pre-dental studies and four more in the regular program, including clinical training. There is also a three-year training program for dental hygiene students.

I am delighted to participate in the creation of this new bond between our School of Dentistry and Yonsei University's outstanding College of Dentistry. I look forward to meeting the Yonsei faculty during my own visit to Seoul, planned for later in the year, and to further developing our friendship and professional opportunities that will be of great benefit to both institutions.

Dr. H. William Gilmore

# With the Classes...

## Dr. Kossowan New President of AAWD

Dr. Anne C. Kossowan, a 1974 dental graduate of Indiana University, was elected president of the American Association of Women Dentists at its 68th Annual Convention, in Honolulu, Hawaii, in November.

Dr. Kossowan is an orthodontist in solo private practice in New York City. She received a certificate in orthodontics in 1976 from Tufts University School of Dental Medicine, Boston, Massachusetts.

Dr. Kossowan also serves as president-elect of the Midtown Dental Society, a component of the First District Dental Society, New York. In 1986 she chaired Children's Dental Health Month for the First District. She is a member of the Eastern Association of Strang-Tweed Orthodontic Study Club, the National Council on Women, the American Association of Orthodontists, and the Northeast Society of Orthodontists.

Her husband, Greg Blasi, is an attorney in New York City. They have a one-year-old daughter, Susan.



*Dr. Anne C. Kossowan is new president of the American Association of Women Dentists, a 2,000-member organization committed to supporting women in the dental profession.*

## Gies Foundation Award Goes to Dr. J.F. Helfrick

Dr. John F. Helfrick, professor and chairman of oral and maxillofacial surgery at the University of Texas Health Science Center at Houston, was chosen by the William J. Gies Foundation to receive the 1989 award for distinguished achievement in oral and maxillofacial surgery. A 1967 dental graduate of Indiana University, Dr. Helfrick completed the oral and maxillofacial certificate program at Sinai Hospital, Detroit, in 1971.

A member of the UT Dental Branch faculty since 1984, Dr. Helfrick also serves as the Center's director of the Cleft Palate and Craniofacial Clinic. He is the 1989 recipient of the American Association of Oral and Maxillofacial Surgery's Committeeman of the Year Award, given in recognition of his work as chairman of a special committee that developed standards of care for eight areas of the surgical specialty.

The author of numerous chapters, articles and videotapes, Dr. Helfrick has lectured extensively on cleft palate defects and temporomandibular joint reconstruction. He is a Fellow of the International College and the American College of Dentists and a member of numerous dental organizations.

The Gies Foundation's other award, given for achievement in periodontics, also went to a UT



IUSD alumnus Dr. John Helfrick (right) and UT Dental Branch colleague Dr. Raul Caffesse display their Gies Awards, given for the first time to faculty members at the same school in the same year.

Dental Branch faculty member—Dr. Raul G. Caffesse, professor and chairman of periodontics.

"For the first time ever," Dr. Don Allen, dean of the school at Houston, said recently, "two individuals from the same dental school have received the Gies Awards for distinguished achievement in dentistry in the same year." Dean Allen hosted a reception for Drs. Helfrick and Caffesse at the school.

The annual Gies Awards for outstanding achievement in a specialty are not always given to faculty, but may be awarded to

dentists in private practice as well. The Gies Foundation's board selects the winners from three candidates nominated by the boards of trustees of the American Academy of Periodontology and the American Association of Oral and Maxillofacial Surgeons.

The William J. Gies Foundation, established in 1950, is named for the founder of the *Journal of Dental Research* and the International Association for Dental Research and one of the organizers of the American Association of Dental Schools.

## 1928

Dr. William Aaron Harold Vanarsdall, Anderson, died January 16, 1990, at the age of 88. He had been in private practice for 53 years, until his retirement in 1981.

In 1930 Dr. Vanarsdall founded a dental clinic for elementary schools in Anderson. He was a member of Madison County Dental and East Central Dental associations. He also belonged to Mount Moriah Masonic Lodge, Rotary Club and First Presbyterian Church.

Dr. Vanarsdall is survived by his wife, Marian; son, David K.; daughter, Diane Schmadeke; eight grandchildren; and nine great-grandchildren.



Also, Dr. Delmar D. Curry, Indianapolis, has informed us that he has had a letter from the daughter of his classmate Dr. Emmett Tully, 4050 Spanish Trail, Fort Wayne 46815. She reports that Dr. Tully died February 14, 1990.

## 1929

We have learned that Dr. Myron J. Druley, Anderson, died August 27, 1989.

Dental Society and the Kentucky Dental Association. After serving in the Army Dental Corps during World War II, Dr. Lyddan, a native of Irvington, Kentucky, opened his practice as a children's dentist in Louisville in 1946. He also had been a part-time faculty member at the University of Louisville School of Dentistry.

Dr. Lyddan was a Fellow of the American College of Dentists and a member of the American Society of Dentistry for Children, Southeastern Society of Pediatric Dentistry, Philological Society, Beechmont United Methodist Church, and the Audubon Country Club.

According to Dr. King, Dr. Lyddan was also a past Supreme Grand Master and life member of Delta Sigma Delta fraternity.

For many years Dr. and Mrs. Lyddan had made annual visits to Sarasota to see Dr. and Mrs. King. Dr. Lyddan is survived by his wife, Leuna; a son, Michael; a daughter, Mrs. Ralph E. Manna, Jr.; and four grandchildren.

"I think Willy Damm and I are the only two still in practice of some kind," Dr. King says of the Class of '41, which he says originally had 19 members, "but hopefully some of us will make it to the 50-year reunion in 1991."

## 1935

Dr. Ralph E. Gieringer, Naples, Florida, has notified the school of the death of his classmate Dr. John W. Farley, Jr., Albuquerque, New Mexico. Dr. Farley died on October 21, 1989.

Also, word has reached us on the death of Dr. James Fitch Favorite, Sarasota, Florida, on November 16, 1989. He is survived by his wife, Vivian.

## 1943

A nice note from Dr. J.C. Zimmerman, who reports that he retired from his practice in Nappanee on January 31, 1990, and has a new address: 460 E. Marion, Nappanee, IN 46550-1439.

"We will continue to live in Nappanee and travel to Texas and Illinois to check on grandchildren," he says.

## 1924

We have a report from the IU Alumni Association that Dr. John R. White, Fort Wayne, died October 1, 1989. He is survived by his wife, Ruth.

## 1927

Dr. Mark Huber Rice, of Venice, Florida, died August 29, 1989. His wife, Lillian, survives.

## 1941

Dr. William D. King, 1920 South Tuttle Avenue, Sarasota, Florida 33580, has kindly sent us additional information regarding classmate Dr. Pat Lyddan, whose death on March 20, 1989, we briefly reported in the Summer Issue.

Dr. Lyddan, who was living in Seminole, Florida, at the time of his death, was a former president of the Louisville

## 1948

A new address for:

Dr. Philip C. Giltner  
5987 E. 71st Street, #105  
Indianapolis, IN 46220

## 1952

Dr. Dean M. Brubaker, the first dentist to practice in Shipshewana, has retired after 30 years as the town's practitioner

and handed over the reins to another IUSD alumnus, Dr. Douglas Whitehead, a 1987 graduate who is a native of Warsaw. Dr. Whitehead had been associating with a dentist in Indianapolis for the past two years.

The two men were featured in local newspaper stories last summer during the period of transition. According to an article by Wayne Steffen appearing in the *Times Sentinel*, Dr. Brubaker came to "Shipshe" in 1959 in search of a community that offered a less hectic pace. (He had been practicing in his native Flora before settling in at Shipshewana.) Thirty years later, it was the same small-town environment that attracted Dr. Whitehead. "The atmosphere is a little more relaxed," Dr. Whitehead told the *Times Sentinel*. "I just became tired in a short time of all the crowding of Indianapolis."

Although Dr. Brubaker has retired from dental practice, he plans to continue work as a Mennonite minister, making guest appearances at several churches. He is a former pastor at Locust Grove Mennonite Church in Sturgis, Michigan. In a recent letter to the *Alumni Bulletin*, Dr. Brubaker said: "Vivian and I have moved to a retirement center and are finding the pace much less hectic. Most of my career was bi-vocational, as the article indicates. In addition, Vivian was diagnosed as having multiple sclerosis in 1961, which was a challenge for me, for her, and for our three children!" The couple also has four grandchildren.

The Brubakers are now at home at 1801 Greencroft Blvd, Apt 121, Goshen, IN 46526.



Dr. Ernest H. Besch, of Boerne, Texas has been named secretary-treasurer of the Texas Section of the American College of Dentists.

## 1954

New address:

Dr. Theodore C. Clarke  
1841 Walker Lane  
Henderson, NV 89014

## 1976

*Alumni Bulletin* editor Jack E. Schaaf has received the following from Dr.

Samuel A. Passo, Dentistry Section, Periodontology, Guthrie Clinic Ltd., Guthrie Square, Sayre, Pennsylvania 18840:

*In your fall 1989 Alumni Bulletin, I loved your new "facilitator program." It is encouraging to see that some dental schools are beginning to have a heart, too! Your choice of "facilitators" is excellent. Many of these instructors were the "creme of the crop" in motivating and encouraging students when I went to the school. I am glad to see that they are still helping students.*

*Again, my congratulations and support of your new program!*

New address:

JoAnn Hermon (ASDH)  
47 Windridge Way  
Brownsburg, IN 46112

## 1978

Dr. David Breininger, 1521 Plantation Lakes Circle, Chesapeake, Virginia 23320, has recently shared with us an interesting what-are-the-chances-of-this-happening experience:

*Last fall our family went on a camping excursion to Winston-Salem, North Carolina, where we met my in-laws from southern Indiana. My father-in-law really wanted to go see Pilot Mountain, about 50 miles to the North. We drove up the mountain and hiked a short distance to a promontory, which overlooks the summit. My son became engaged in a conversation with someone who was formerly from Carmel, Indiana. Just then a figure appeared (from seemingly nowhere) over the side of the cliff—and said: "Dave Breininger!"*

*Was I surprised to see Erich Brewer, who used to sit two places away at the lab bench in SB05. Erich is an endodontist in Raleigh, about 125 miles away, and had brought his Boy Scout troop over for an afternoon climb. We enjoyed the beautiful autumn weather and got caught up on the news of classmates from '78. It seems that quite a few have become Tar Heel explants. The*

*world becomes a little smaller all the time!*



Also, the traditional Boitet missive arrived on Sarah Manion's desk in Dean Bogan's office during the Christmas season. Some of what Dayn and Judy and their four youngsters have been up to follows:

*January found Judy and me celebrating our 10th anniversary scuba diving in Bonaire off the coast of Venezuela. The coral and marine life were beautiful....In June we loaded the crew into the van and drove to Great Smoky Mountain National Park and rented a cabin on a beautiful stream....Judy and I became bicycling enthusiasts this year and rode in a couple of races this fall (one 50 miles and one 150 miles). Bicycling and scuba diving have been our sanity breaks. Our final major excursion for the year came in November when we headed to the American Dental Association meeting in Honolulu....Highlights included a 38-mile bike ride from the top of an extinct volcano on Maui, scuba diving off Kona, Hawaii and getting together with my dental school roommates Dan White and Bruce Blackburn and their respective wives, Nancy and Sue. It was great to see them....*



Dr. John Knapp, San Francisco, has been appointed associate dean for continuing dental education and alumni at the University of California, San Francisco. A member of the UCSF dental school faculty since 1979, Dr. Knapp is also assistant clinical professor of dental public health and hygiene. Last November he was elected a Fellow of the American College of Dentists in recognition of professional excellence, leadership, and advancement of the dental field. Dr. Knapp has a Master of Public Health degree from the University of California, Berkeley.

In his new position, Dr. Knapp will be responsible for all dental school alumni activities, with emphasis on developing long-term goals and projects. He also will continue as director of the dental school's Center for Continuing Dental Education, which each year sponsors



**Dr. John Knapp**

some 80 courses for dental professionals in California and the western region.

## 1980

New office address for:

Dr. Jeffrey A. Rouse  
350 East New York St  
Suite 246  
Indianapolis, IN 46204

Dr. Tillman E. Miller, 2601 E. Jackson Blvd., Elkhart, died from injuries suffered in a two-car accident occurring in Marshall County on February 18, 1990. Dr. Miller, whose car was struck broadside by the other vehicle, was pronounced dead at the scene. The driver of the other car and two passengers received minor injuries and were treated at Bremen Community Hospital.

Dr. Miller was born in Williston, North Dakota, and had practiced in Elkhart since graduating from dental school. He also held a bachelor of science degree from Goshen College, earned in 1976. Dr. Miller was a member of Elkhart Elks Lodge 425, Breakfast Exchange Club, and North Central Dental Society, and was a past president and current secretary of the Elkhart County Dental Association.

Dr. Miller's survivors include his wife, Shonne, whom he married in 1986; a son, Jason, of Indianapolis; his parents,

Dr. Galen R. and Carley J. Miller, of Millersburg, Ohio; two sisters and three brothers.

## 1988

Addresses for:

Dr. David L. Hayhurst  
1415 North Gladstone  
Indianapolis, IN 46201

Dr. Raffi Margossian  
15720 Ventura Blvd, Suite 301  
Encino, CA 91436

## 1981

Address:

Dr. Curtis N. Kamisugi  
99-128 Aiea Heights Drive, #201  
Aiea, HI 96701

## 1983

Address:

Dr. J. Kevin Harper  
639 Eastern Blvd, Suite B  
Clarksville, IN 47130

## 1989

Addresses:

Dr. John R. Kirkpatrick, Jr.  
8856 Major Run  
Indianapolis, IN 46256

## 1986

More addresses:

Dr. Kenneth L. Eades  
1912 Sussex Drive  
Bloomington, IN 47401

Dr. Thomas M. Pedavoli  
1117 Helmen Drive  
South Bend, IN 46615

## 1987

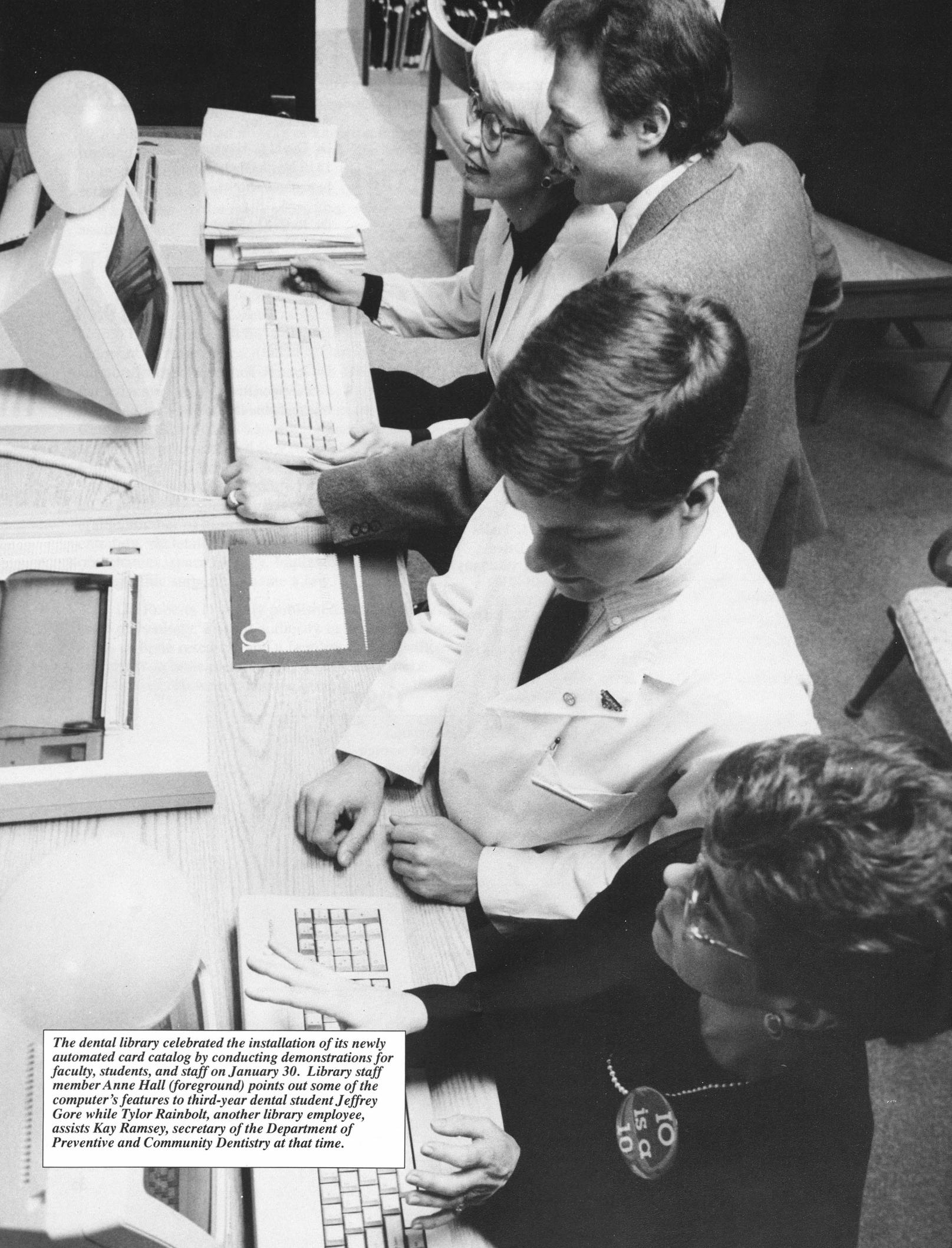
Drs. Linda Marie Brezausek and Thomas Paul Sodano, Jr., were married on December 25, 1989, in a private ceremony at Huntertown United Methodist Church. Dr. Linda Brezausek-Sodano passes along their home address: 819 1/2 Huffman Street, Fort Wayne, IN 46808.

Other address updates:

Dr. Jewel A. Barron-Weiss  
22-3 Horseshoe Circle  
Ossining, NY 10562

Dawn (Smudde) Stephani (ASDH)  
201 "K" Street  
LaPorte, IN 46350

For an update on the whereabouts of Dr. Douglas Whitehead, see notes under Class of 1952.



The dental library celebrated the installation of its newly automated card catalog by conducting demonstrations for faculty, students, and staff on January 30. Library staff member Anne Hall (foreground) points out some of the computer's features to third-year dental student Jeffrey Gore while Taylor Rainbolt, another library employee, assists Kay Ramsey, secretary of the Department of Preventive and Community Dentistry at that time.

# Michigan Street Memos

## I.O. Comes to I.U.

It took me four—five minutes tops—of work in the library to find out that books about one of my favorite photographers are sitting in Indiana University libraries all over the state.

And the best part of all is that I made this discovery without having to ask anybody in the library to help me. As of January, 1990, School of Dentistry employees and students have been able to search among the millions of books and other items housed in IU libraries without venturing beyond the doors of their own dental school.

On January 30, all IU libraries officially linked their systems together by means of *Information Online*—I.O. for short—a program that has computerized all of IU's card catalogs and the circulation of library materials.

The system takes an uncomplicated, user-friendly approach to helping library patrons locate books quickly and efficiently, according to Sara A. Hook-Shelton, IUSD head librarian. "If IU has the book you want in one of its many collections, the computer lets you know which campus has it."

Does it ever! When I typed 'S=' (for subject) and the word 'photographers' on the keyboard, the computer instantly flashed the happy news (for photo buffs, anyway) that IU has 694 entries on the topic.

To narrow down my choices, I simply typed 'A=' (for author) and the photographer's name—Henri Cartier-Bresson. Just as quickly the screen showed a total of 21 books—complete with Call Numbers—available in a variety of collections, including those at Richmond, Gary, South Bend, and New Albany; libraries in Bloomington (Lilly,

Fine Arts, Undergraduate, and Journalism); and stacks at Herron and University libraries in Indianapolis. The computer made the system-wide search so effortless, I almost wished I was still a college student with a term paper assignment to research. (Almost.) And for dental school students, the I.O. system means less trekking across campus to search for books at the med school library.

Other computer programs on Indiana University's horizon will provide library patrons with even more conveniences. "Before long, a computer program called ILIRN will enable library users to check such details as library hours for individual libraries, as well as any specific policies and rules they may have," says Ms. Hook-Shelton. "ILIRN also will enable users to request literature searches, even from their home computers if they wish."

Susan Crum  
IUSD Director of Publications

## IUSD and AARP Team Up to Help Older Patients

Adding yet another component to a rapidly expanding outreach program, the Indiana University dental school recently collaborated with the American Association of Retired Persons on a project aimed at determining in part the dental health status and treatment needs of economically disadvantaged older people within the community.

Faculty members in the IUSD Department of Dental Diagnostic Sciences performed free dental examinations on 75 persons from the Indianapolis area during a two-day program



Cards will continue to be added to the old card catalog until June, 1990, says head librarian Sara A. Hook-Shelton, so that the transition to a computerized system is a gradual one for library patrons.

held at the school in December. All of the patients were enrolled in the Senior Community Service Employment Program, a work-training effort sponsored by the AARP. Coordinating the dental screenings were Ms. Ellen J. Jackson, of the local division of AARP, and Dr. Paul A. Zitterbart, assistant professor of dental diagnostic sciences. Dr. Zitterbart also serves as the school's coordinator of geriatric dentistry through the Department of Preventive and Community Dentistry.

Results of a survey compiled from data gathered during the screenings will be published in an upcoming issue of the *Indiana Dental Association Journal*.

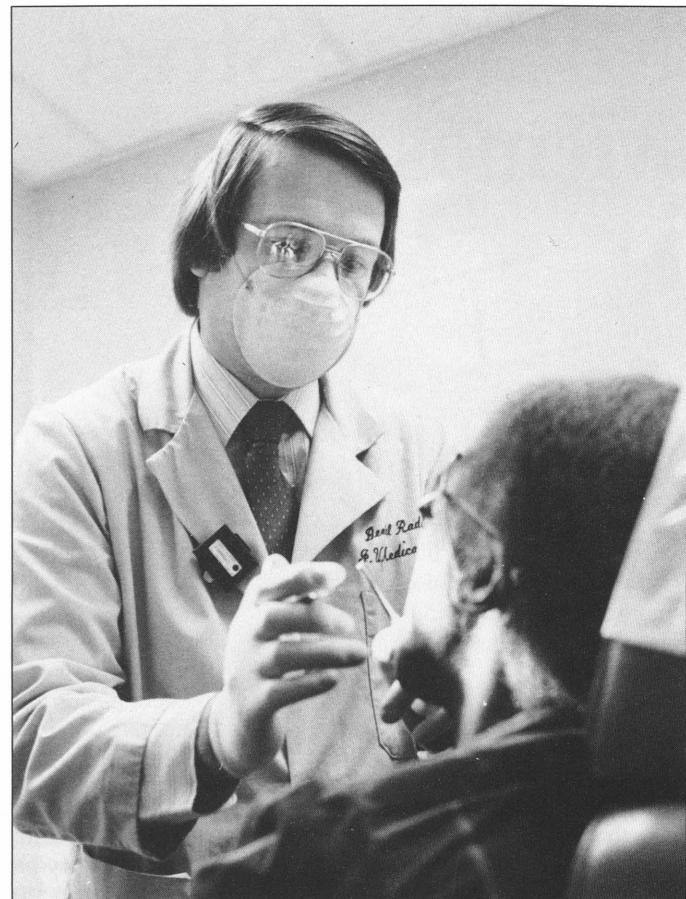
"The ultimate goal of programs

Photos by Susan Crum

such as the one we are currently working on in conjunction with the AARP," says Dr. Zitterbart, "is to help identify sources of funding that will assist older, economically disadvantaged persons in obtaining better medical and dental care."

For the past year the School of Dentistry has been expanding its involvement with the community at large through a number of projects focusing on individuals for whom dental services often are not readily available. An official IUSD Outreach Team, created in 1989, includes Dr. Arden G. Christen, chairman of preventive and community dentistry, as director; Dr. Larry D. Ryan, associate professor of dental hygiene, as project supervisor; and Karen M. Yoder, assistant professor of preventive and community dentistry, as coordinator.

*Dr. Paul Zitterbart examines patient during outreach program co-sponsored by IUSD and the American Association of Retired Persons.*



Mike Halloran

Susan Cram



**Dentists from USSR make quick stop in Indy.** Soviet dentists recently visiting the United States got their first look at an American dental school while touring the Indiana University School of Dentistry in Indianapolis on January 17. The group visited the IUPUI campus primarily to observe fluoride research in progress at IUSD's Oral Health Research Institute. Dr. H. William Gilmore, dean of the IU School of Dentistry (right), is shown here leading a tour of the operative dentistry clinic. With him, from left, are Dr. Edit Kuzmina, associate professor of preventive stomatology, Moscow Medical Stomatological Institute; Dr.

Eleanora Sakharova, chief of clinical research, department of stomatology, Central Research Institute of Stomatology, Moscow; Mrs. Anita Luste, chief of research, Riga Medical Institute, Riga; Professor Doctor Valery Leontiev, chief dental officer, Central Research Institute of Stomatology; Dr. George K. Stookey, IU's associate dean for research at the dental school and director of the Oral Health Research Institute; and Dr. Gennady Pakhomov, dental officer representing the World Health Organization, Geneva, Switzerland.

## 5 Teachers Join Full-time Dental Faculty

The newest members of the School of Dentistry's full-time faculty, appointed in January and February, include two teachers from IU's part-time faculty, a researcher from overseas, and two specialists who have retired from the United States Air Force. They are:

**JEFFREY A. DEAN, DDS,  
MSD, assistant professor of pediatric dentistry.** After earning a dental degree from Indiana University in 1983, Dr. Dean completed IU's degree program in pediatric dentistry in 1985 and was then appointed as a part-time faculty member in the dental clinic at James Whitcomb Riley Hospital for Children. He also holds a BS in biochemistry from Purdue University ('79).

For several years Dr. Dean was staff pediatric dentist for Peoples Health Center in Indianapolis, serving as director of health services and briefly as the Center's acting executive director. He also maintains a private practice in Indianapolis.

Dr. Dean is the recipient of Ralph E. McDonald awards for scholarship (1985) and research (1987), as well as the G.W. Baker Fellowship Award given by the 1985 pediatric dentistry graduating class.

Dr. Dean is active in the Indiana State Chapter of Healthy Mothers/Healthy Babies Coalition, having served on the board of directors for three years and as chairman of the Oral Health Subcommittee for the past two. He was the Indianapolis District Dental Society's co-chairman of Children's Dental Health Month for February, 1990. Dr. Dean is recognized as board eligible by the American Board of Pediatric Dentistry.

**SHAO LIANG JING, MS,  
visiting associate scientist, Oral Health Research Institute.** Mr. Jing is a former associate professor at the Institute of Laboratory Animal Science, Chinese Academy of Medical Sciences and Faculty of Laboratory Animal Science, Peking Union Medical College, in Beijing, People's Republic of China. He joins the IU faculty after having

spent last summer as a visiting scholar at The Jackson Laboratory, Bar Harbor, Maine.

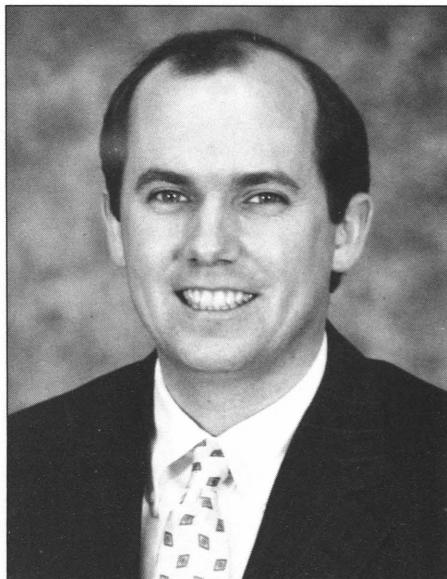
After earning a baccalaureate degree in biology from Nankai University, Tianjin, in 1963, Mr. Jing served for 15 years as a research assistant at the Chinese Academy's Institute of Epidemiology and Microbiology. Upon completion of a master's degree in biology from Beijing Normal University in 1981, he returned to the Chinese Academy as a research associate at the Institute of Laboratory Animal Science. He was promoted to associate professor after completing a one-year appointment as a visiting scholar at the University of Notre Dame, Notre Dame, Indiana, in 1985.

Mr. Jing is the recipient of a research award from the Ministry of Public Health in China. He is a former vice chairman of the Education Committee of the Chinese Association for Laboratory Animal Science.

**WILFRID M. KEATON, DDS,  
MS, associate professor of oral and maxillofacial surgery.** Dr. Keaton recently retired from the United States Air Force Dental Corps with the rank of colonel. He had been assistant director of dental services and chairman, Department of Oral and Maxillofacial Surgery at the Air Force Systems Command Regional Hospital, Eglin AFB, Florida, since 1986. During his military career Dr. Keaton served in a variety of capacities in the United States, West Germany, and Vietnam. He is former head of oral and maxillofacial surgery at David Grant Medical Center, Travis AFB, California, and at Ramstein AB, West Germany.

Dr. Keaton holds degrees from Allegheny College, Meadville, Pennsylvania (BS, '59); Georgetown University, Washington, D.C. (DDS, '64); and University of Texas, School of Biomedical Sciences, Houston (MS in oral and maxillofacial surgery, '73). He also completed his residency in oral and maxillofacial surgery at Wilford Hall USAF Medical Center, San Antonio, Texas.

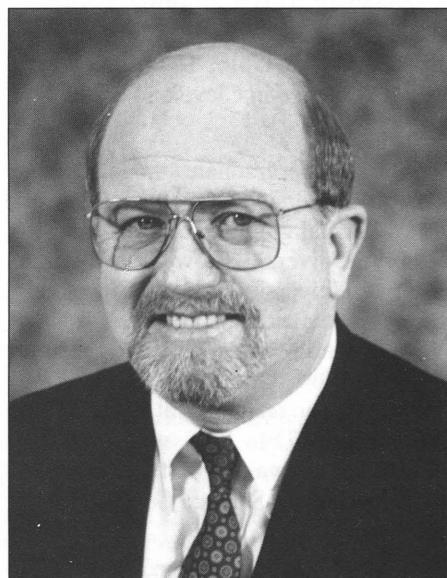
Dr. Keaton is a Diplomate of the American Board of Oral and Maxillofacial Surgery, a Fellow of the American Association of Oral and Maxillofacial Surgeons, and a member of Omicron



Dr. Jeffrey A. Dean



Mr. Shaoliang Jing



Dr. Wilfrid M. Keaton



*Dr. Joseph J. Legan*



*Dr. Carol G. McKown*

Kappa Upsilon honorary dental fraternity. His military awards include the Bronze Star Medal and the Air Force Legion of Merit, as well as an award from the USAF Surgeon General, to whom he served as consultant.

**JOSEPH J. LEGAN, DDS, MS, clinical assistant professor of endodontics.** Another new faculty member who is recently retired from the United States Air Force with the rank of colonel, Dr. Legan comes to IU from his most recent position as chairman of the Department of Endodontics, USAF Medical Center, Keesler Air Force Base, Mississippi. At various times in his career he served as the head of endodontics at Ramstein AB, West Germany; Vandenberg AFB, California; USAF Academy, Colorado; and Wright-Patterson AFB, Ohio. Dr. Legan was in private practice in Cleveland, Ohio in the mid-1960s.

An undergraduate student at John Carroll University, Cleveland, Ohio, and a 1959 dental graduate of Western Reserve University (now Case Western Reserve University), also in Cleveland, he completed a dental internship at Wilford Hall Medical Center, Lackland AFB, in 1960. Other training includes an endodontic residency at Lackland AFB from 1971 to 1973, with an MS degree being awarded by the University of Texas Health Science Center, Houston.

Dr. Legan is a Diplomate of the American Board of Endodontics. He

has lectured and presented continuing education programs throughout the country and in West Germany. He has received numerous military awards and decorations, including the Bronze Star and the Legion of Merit.

**CAROL G. MCKOWN, MS, DDS, assistant professor of pediatric dentistry.** Dr. McKown has been a part-time faculty member in pediatric dentistry at Riley Hospital since her completion of the pediatric dentistry certificate program in 1986. She holds three IU degrees: a DDS ('84); a master's degree in immunology from the Graduate School, Department of Microbiology and Immunology ('80); and a BA in biology and French ('74). In 1976 she earned a certificate in medical technology from St. Vincent Hospital, Indianapolis.

Dr. McKown maintains a private pediatric dentistry practice in Indianapolis and is recognized as board eligible by the American Board of Pediatric Dentistry. From 1986 to 1988 she served as a Fellow of the United Cerebral Palsy Research and Education Foundation. Dr. McKown was appointed to the IU Pediatric Dentistry Alumni Association's Board of Directors in 1989.

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