Phonathon Numbers In

About 55 dental students, staff, faculty, and alumni raised $135,260 for the School of Dentistry during eight nights of calling, in late October. The majority of the funds raised are designated for the Dean's Fund for Excellence, which is used to support requests outside the School's annual budget. Fred Kreutzer, D.M.D. `64, assistant professor of operative dentistry, volunteered five nights. Third-year dental students Joe Jarman and Kelly Andrews volunteered every night. Kelly had the longest phone call, over 30 minutes.

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Dr. Beemsterboer Receives Award

Phyllis Beemsterboer, M.S., Ed.D., associate dean for academic affairs, was named a Golden Rose recipient in November, the School of Dentistry's first such award winner. Dr. Beemsterboer was one of five Golden Rose recipients university-wide for November. She was nominated by **Judith Baggs**, Ph.D., R.N., F.A.A.N., professor and *(continued at right)*

senior associate dean for the School of Nursing, with application contributions from **Mark Mitchell**, M.A., associate dean for student services.

"During her tenure, she has brought the [dental] curriculum up to contemporary standards," said the nominating form. "In some areas of curricular *(continued on page two)*

Dental Students Present At PROH Conference

Three dental students recently were selected to present their research at the annual PROH (Practice-based Research Network) conference in November.

Second-year dental student **Brittany Fox**, third-year dental student **Katie Marsh**, and fourth-year dental student **Jason Walker** teamed this summer for research on the effect of smoking, periodontal disease, and bisphonate therapy on implant performance. They, along with two other dental student teams, presented their research findings and search strategy in early November to a panel of basic science and clinical faculty. Based on their presentation, the team of Fox, Marsh, and Walker were chosen to represent the School at the Nov. 13 PROH conference, alongside five OHSU faculty teams.

"This was an excellent opportunity for dental students to refine research skills, and to teach others about applying evidence to dental decisions," said **Ron Sakaguchi**, D.D.S, M.S., Ph.D., M.B.A., associate dean for research and innovation. *(continued at right)*

Jason Walker

To assess the impact of the evidence, the audience voted electronically and anonymously, before and after the summary of literature was presented.

"I feel that this experience has helped me become a better dentist," said Jason. "To provide quality care to our future patients, we need to make sure that we support our clinical decisions with strong clinical evidence. I don't believe that every patient that comes through our doors will require a literature review. However, knowing where to look for answers to unfamiliar problems will be a valuable skill.

"The dentist's role in the broad scheme of health care is evolving and we need to embrace these changes and apply them in our day-to-day patient interactions."

DS1 Profile – Richard Bohnstedt

***Age**: 22*

***Degree/School**: Bachelor of Science in General Sciences, Portland State University*

***Why Dentistry**: I like the profession. I used to assist my dad (Stanley Bohnstedt, D.M.D. `85) in his office.*

***Why OHSU**: I like the school. It is close to home. I respect the amount of clinical experience required.*

Beemsterboer *(continued from page one)*

development, [the School of Dentistry] is [now] considered a national leader."

Dr. Beemsterboer, who has been with the School for more than 10 years, also was recognized for guiding two recent national accreditation processes, and serving on national association committees that are driving the future of dental education, policy, professionalism, and ethics. She is also highly visible on the OHSU campus, particularly in the realm of education, coordinating monthly a group of associate deans from all schools to boost interprofessional relations.

Phyllis Beemsterboer, M.S., Ed.D., associate dean for academic affairs (center) at the November Golden Rose ceremony with Mark Mitchell, M.A., associate dean for student affairs (left), and Judith Baggs, Ph.D., R.N., F.A.A.N., professor and senior associate dean for the School of Nursing. (Photo courtesy Mark Mitchell)

Dental Students Reach Out

Four dental students attended the Family Resource Fair at the Beaverton City Library on Oct. 17, educating children and their families about oral hygiene, nutrition, and how to handle dental emergencies.

"We provided information to parents about how to take care of their kids' mouths, and we passed out pamphlets," said fourth-year dental student **Vicky Chen**, who coordinated the School's participation for the ASDA (American Student Dental Association). "We also passed out oral hygiene supplies to families present."

In addition to Vicky, dental students participating included second-year dental student **Orrin Mackey**, third-year dental student **Tim Carpenter**, and fourth-year dental student **Allison Hallin**.

On Sept. 26, second-year pediatric dentistry resident **Elizabeth Palmer**, and first-year pediatric dentistry resident **Spencer Campbell**, along with a handful of Pacific University dental hygiene students, and other volunteers, helped screen and conduct oral hygiene instructions at the state's Special Olympics Special Smiles. Dozens of athletes and their families were screened at the annual event, held this year on the Nike campus in Beaverton. **Phyllis Beemsterboer**, M.S., Ed.D., was the faculty supervisor.

Second-year pediatric dentistry resident Elizabeth Palmer, D.M.D. `08 (right) screens a young athlete at the state's Special Olympics Special Smiles event Sept. 26. (Photo Phyllis Beemsterboer, M.S., Ed.D.)

Research Profile: John Mitchell, Ph.D.

If you want to talk bones, **John Mitchell**, Ph.D., is happy to oblige.

"I could wax about bones all day," said the associate professor of biomaterials and biomechanics, with a laugh. "Bone is the unheralded part of dentistry."

Bones and their surrounding tissue, as well as compatible materials, are the focus of Dr. Mitchell, who joined the School's department of restorative dentistry in 2001. He also is a joint associate professor in the department of biomedical engineering at the OGI School of Science and Engineering.

Dr. Mitchell became interested in bone and bone tissues during his undergraduate years in the biological sciences at the Ohio State University. During college, he worked as a student researcher in the College of Dentistry at Ohio State in the Department of Oral Biology.

After graduating from Ohio State, Mitchell was a laboratory scientist for the Orthopedic Division of a large Indiana company and helped to create a process for the production of a material used for bone grafting. The company was ultimately purchased by Johnson and *(continued on page four)*

School Calendar

Jan. 4	Start of 12-week term
Jan. 18	School holiday (MLK's birthday)
Feb. 5	Celebration of Smiles, 5 to 8 p.m., Portland Children's Museum
Feb. 6	Celebration of Smiles, 9 a.m. to 4 p.m., Portland Children's Museum
Feb. 15	School holiday (President's Day)
Feb. 26	Give Kids a Smile day at OHSU, 9 a.m. to 1 p.m.

It's a Good Year for School's Continuing Education Program

The School's continuing education program continues to flourish.

According to figures provided by continuing education program manager **Debbie Reaume**, between July 1, 2008, and June 30, 2009, there were 2,447 registrations for 60 one- and two-day lectures (including two 50-hour oral radiology certification courses), co-sponsored courses, and individuals receiving credit for viewing taped courses. In addition, there were 2,167 enrolled participants in the 26 regularly scheduled study clubs. Continuing education accommodated more than 151 sessions for study clubs during the School's fiscal year.

There were also 774 participants in functions offered by other School departments. The continuing education department co-sponsored eight events in conjunction with dental organizations or individual instructors. "And we recorded credits for other departments at the School and university, totaling 26 programs," said Debbie.

Goodbye to Longtime Friends

Several School employees are retiring, including:

***J. Craig Baumgartner**, D.D.S., Ph.D., who has chaired the endodontology department for 18 years (see November *Dental Bites*).

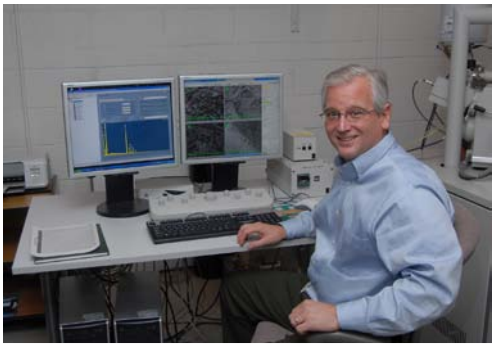
***Tom Coleman**, custodial services manager, who joined the School in summer of 1992 as a custodian. Tom and his crew recently helped prepare the building for its Commission on Dental Accreditation visit.

Dental Bites is the School's monthly internal newsletter. If you have a story or photo submission, please contact Sydney Clevenger (clevenge@ohsu.edu, 503-418-1792) by the 25th of the month prior to each monthly publication.

Dr. Mitchell *(continued from page three)*

Johnson. “After that experience, I decided to get my doctorate in engineering and implant biomaterials science,” said Dr. Mitchell. He received his doctoral degree from Ohio State in 1999.

Dr. Mitchell said he “never envisioned conducting research in a dental school,” but after his doctoral degree, he began doing just that at Ohio State, teaching in the Biomedical Engineering Center, the Department of Consumer and Textile Sciences, the Department of Geology, and in the College of Dentistry.



John Mitchell, Ph.D., in one of his School labs. (Photo Dan Carter)

“The projects were very diverse,” said Dr. Mitchell. “One of our projects was to dig in Native American burial mounds, sifting through dirt to isolate crystals left after the deceased’s clothing disintegrated. These would enable us to see what type of plants the clothing had been made from, and whether they were indigenous to the area,” he said. “This also enabled us to hypothesize trade and migration routes.”

For another project, Dr. Mitchell and his colleagues obtained clothing from the U.S.S. Central America that shipwrecked off Charleston, South Carolina, in 1857, to conduct a study on fabric restoration. The goal was to develop a technology to preserve and restore old fabrics that “had been sitting on the bottom of the ocean floor.”

It was at a professional meeting in 2001 when Dr. Mitchell met **Jack Ferracane**, Ph.D., chair of restorative dentistry, eyeing research posters. The two began chatting and Dr. Mitchell was recruited to OHSU later that year.

“It’s collegiate here at OHSU,” said Dr. Mitchell. “I can go into anyone’s office for a polite conversation and not worry about competition. Our dental student group is excellent. Our student population is here to learn and we get very bright students.”

Dr. Mitchell’s lab is productive, with dozens of research publications and abstracts in refereed journals and invited lectures and presentations.

He has several patents pending. One is for a new thin layer substrate coating that may be useful for more durable – and flattering -- crowns.

Right now, said Dr. Mitchell, if a child has two or more diseased tooth surfaces, the standard of care is to put on a crown to protect the incoming teeth from disease. The current crowns for children are made of stainless steel, which do not blend in well with the other teeth, creating a range of problems. In addition, a high percentage of the U.S. population (an estimated 12 to 30 percent) is allergic to the nickel in stainless steel, which can cause irritation and swelling.

Dr. Mitchell and his team have developed a method of coating the stainless steel crowns with a special, thin – about 100 nanometers – coating that alleviates the attractiveness and allergy issues.

“Other researchers have tried coatings with other materials and the materials either don’t bond with the crown, or if they do, they ultimately crack,” said Dr. Mitchell. “We are using a technology that was previously available only in the electronics industry. This technology produces a *(continued on page five)*

Dr. Mitchell *(continued from page four)*

coating that is incredibly hard and durable and accurately matches the pigment of teeth.

"Our coating completely covers the crown surface without destroying the texture of the "tooth" and is so thin that you can't discern the coating from the crown."

A new grant from the Oregon Bioscience Innovation Program (BSIP), managed by the OHSU Office of Technology & Research Collaborations, now will enable Dr. Mitchell to apply his new thin coating technology to orthopedic implants for hips and knees. BSIP fills a critical gap in the funding of technologies that do not qualify for traditional federal funding, yet are deemed too "early" for corporate partnerships.

Typically, hip and knee implants are metal with the joints -- the gliding surface between the two opposing surfaces -- made of polyethylene (plastic).

"Current implants have a lot of wear issues," said Dr. Mitchell. "Over time, little pieces of the plastic can wear off and cause inflammation. Since bones are always in flux, the body ends up trying to break down and assimilate (resorb) the plastic components of the implant and ends up resorbing the surrounding bone instead. This in turn leads to failure of the implant. Generally, orthopedic implants last only about 10 years.

"Instead of plastic joints in metal implants, some companies have tried metal on metal, or ceramic on ceramic," noted Dr. Mitchell, "but those implants are too stiff to keep the bone healthy."

"In our study, we are creating a hard, durable atomic layer coating on bearing surfaces using different types of metal implants in hopes of addressing some of the major wear issues." In particular, titanium alloys are a promising metal for atomically bonding with the thin coating application, he said.

Another project underway in the Mitchell lab is making biomaterials more biocompatible for tissue engineering, with the flexibility to tailor mechanical properties for a variety of applications. The project is made possible by a recent grant from the National Institutes of Health.

"We are looking at injectable materials that can be used for bone tissue engineering scaffolds," said Dr. Mitchell.

Since bone will undergo resorption if it doesn't receive the right amount of stress, the loss of a tooth, for example, can set up a biomechanical domino effect of: tooth loss, bone loss, tooth loss, bone loss, tooth loss, bone loss, until the entire arch of the mouth disappears, said Dr. Mitchell. To prevent this from happening, the gum tissue must be cut to open a flap, and grafting materials packed around the root surfaces.

"It's very traumatic," said Dr. Mitchell, "and there is a high likelihood of damaging surrounding tissues. The recovery time also is long and the cost extensive."

A less invasive approach to tissue and organ repair, he said, is to inject a biocompatible material through the skin that will stimulate repair of the tissues, and ultimately degrade at the right rate in the body, enabling the tissue to heal itself.

(continued on page six)

Dr. Mitchell *(continued from page five)*

"Bioactive glass is wonderful stuff," he said. "It's a material that can be loaded with proteins and glass is mechanically stiff so it can be used as a reinforcing filler material in a polymer composite. Because of the chemistry, when the material degrades, the ions released cause the body to up-regulate bone production. We want materials to slowly degrade at the same rate as new bone is formed, otherwise the bone will be overstressed."

Dr. Mitchell and his team will experiment with different kinds of polymers to see which offers the best control over the rate of degradation.

"We can change the chemistry by tweaking the polymer," he said. "We can control how fast the material degrades and make the products into which it degrades benign."

By tailoring the composition of the polymer and the composition of the glass, they hope to eventually be able to make personal, individualized tissue engineering scaffolds.

Education is important to Dr. Mitchell and he has mentored at least one postdoctoral fellow and/or graduate student each year since joining OHSU.

It is his role as advisor to pre-doctoral dental students conducting research that is most impressive. Dr. Mitchell revived the School's Dental Student Research Group. In the past six years alone, he guided 14 dental students in 19 research projects. Several of his current mentorees have won numerous fellowships and scholarships for their research and he has significantly increased the participation of student researchers at such meetings as the International Association for Dental Research (IADR) and the American Association for Dental Research (AADR). In 2009, four dental students won AADR research fellowships (for the second year in a row) more than any other dental school in the nation.

As of this writing, Dr. Mitchell *(continued, right column)*

New Student Scholarships

Willamette Dental Foundation recently pledged $75,000 for dental student scholarships. The gift will provide two scholarships annually: $5,000 for one third-year dental student and $10,000 for one fourth-year dental student. "Willamette Dental has long been providing scholarships to the School, but this is a new five-year agreement," said Alumni Relations and Development Director **Pat Regan**.
To qualify for the scholarships, dental students must be interested in a group practice arrangement after graduation. Students must complete an application (in the Office of Student Affairs) for consideration. The first scholarships will be awarded in spring 2010.

Dr. Mitchell *(continued from left column)*

has in his lab three postdoctoral students, seven dental students, four dental residents, and three undergraduates.

Dr. Mitchell is heavily involved in School activities, most recently serving on the academic rank and tenure committee, and he has served on a dozen OHSU committees, as well. He is immediate past president of the Implant Research Group for the International Association for Dental Research and on the board of the Columbia-Willamette Chapter of the Sigma Xi Scientific Research Society.

Dr. Mitchell gives back to his Beaverton, Ore., community, serving on the Beaverton school District's Science Curriculum Review committee, reviewing science fair projects for the local and state science fair competitions, teaching young people science for Saturday Academy, volunteering with his son's Cub Scout den and lacrosse team, and leading a math group in his daughter's school.

"I keep pretty busy, but it's a fun time. I feel very fortunate to be here, and to work here at OHSU with so many terrific people," he said.