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SPECIAL EDITION

Innovations in First-Year Chemistry Education

Editor's Preface

Remember your days in General Chemistry? You would still recognize the classrooms, but much else has changed. Our lead article describes General Chemistry lecture and laboratory, and the SUPeR Chemistry tutoring available for students needing individual help. Following are short descriptions of some of the other resources available to entering students: Introductory Chemistry, Pathways, the Chemistry Resource Center, and the Teaching Effectiveness Program. Space limitations preclude coverage of many additional resources provided by the university, such as counseling and special services for students with disabilities, all of which contribute to making the freshman experience a positive one. General Chemistry has been described as the gateway to the sciences. For students with no high school chemistry background, our one-term course Introduction to Chemical Principles is the gateway. Many departments in the College of Arts and Sciences require or recommend their students take chemistry. These courses are not "gatekeepers" or hurdles. The emphasis now is on student retention and providing personal help and counseling to assist each student to reach his or her goals. Thanks to Deborah Exton, Julie Haack, Cathy Page, Randy Sullivan, and Greg Williams for contributing text and ideas for this special section describing the entry-level chemistry courses. Elsewhere in this newsletter you will find the usual features of the newsletter, and even a new one: a look at an unusual career opportunity for chemistry students in patent law. —Ed.

What's New in General Chemistry Lecture and Laboratory?

It has been said that the more things change, the more they remain the same. Students still doze in lecture halls, Avogadro's number is still 6.022×10^{23} , and PV still equals nRT. So, what could possibly be new in General Chemistry? It turns out that while much remains

the same, there have also been plenty of changes. Just read on . . .

The last ten years have seen huge advances on the UO campus in terms of access to technology and students' familiarity with its use. Gone are the days of

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General Chemistry

► CONTINUED FROM 1

trudging through the rain to check the hallway bulletin boards for announcements, answer keys, and grade postings. Students can now gain access to course information from home via Blackboard, a web-based course information delivery system. Some instructors prefer to use Blackboard for posting all class information, including class notes, announcements, and up-to-date grades. Other instructors use the anonymous grade posting feature of Blackboard but create their own personalized web pages to deliver other course information. David Herrick's site for his recent CH 223 class (<http://eechem.home.att.net>) illustrates some of the features he has developed to engage students in nontraditional ways. "It used to be cutting-edge to use color pens for lecture transparencies," said Herrick, "but students now respond to a more visual experience including course websites and animated graphics, in addition to e-mail questions and online grades. It's rewarding to hear from so many students and parents who say it's made a difference." Deborah Exton uses her course site to provide information to students who are motivated to dig deeper into the subject matter, with links to sites ranging from periodic tables to orbital models. When websites are used or referenced in the classroom, links to those sites are included with her daily lecture notes.

The advent of the Internet has provided students with a wealth of learning resources, with many sites available for online drills and tutorials. General Chemistry textbooks now come with access to textbook websites where students can take practice quizzes, link to current material, and ask questions of experts. Students this year will have the option of using GradeSummit™, an online diagnostic quizzing tool that allows students to identify and focus their studies on subject areas where they are weakest. All of these Internet-based features offer students the benefit of being able to study on the schedule they prefer, rather than a schedule dictated by an instructor's office hours. Through the use of e-mail, students can send a question to their

instructor at 2:00 am and have an answer waiting for them when they awake in the morning.

With the ability to do so much from home, one might wonder what motivation there is for students to attend class. The answer to that remains the same as ever. Despite the many out-of-class resources that are available, it still takes an instructor to help put the pieces together. As in previous years, today's students are fortunate that the General Chemistry courses continue to be taught by a dedicated group of outstanding instructors such as Deborah Exton, recently named a Williams Fellow in recognition of her commitment and contribution to undergraduate education at the University of Oregon. Students these days will also tell you that they attend due to the added incentive of not wanting to miss one of Randy Sullivan's popular demonstrations. Randy joined the department as a lecture demonstrator in September 2001 and quickly became one of the most popular members of the General Chemistry team (perhaps because he doesn't write the tests!). Randy has developed innovative new demonstrations and found methods to make the older ones more visible and safer to perform. His latest addition to the lecture demonstration department is a video projection camera that is used to project demonstrations onto the overhead screens to make even the smallest demonstrations visible to all students, even those in the back rows of the lecture hall. While aiding in visualization, use of this camera also allows demonstrations requiring hazardous materials to be performed on a small scale, thus minimizing the production of toxic waste.

As in the past, incoming students have a menu to select from when choosing which chemistry course is appropriate for them. The Honors General Chemistry course and advanced laboratory have been designed for students with a strong background in high school chemistry and math. Students in these classes enjoy the smaller class



Deborah Exton

atmosphere and the intellectual challenge presented by the greater depth and breadth of material presented. On the other hand, students who haven't had high school chemistry, or returning students whose chemistry is a little rusty, can enroll in Introduction to Chemical Principles (see accompanying article) to either fulfill their requirements or get up to speed before taking General Chemistry. But for the majority of students, General Chemistry provides the right fit and a solid foundation for their future science courses.

General Chemistry classes still meet in large lecture halls, but what goes on in those classrooms may be a bit different than one would have encountered twenty years ago. For example, Julie Haack has developed PowerPoint presentations to accompany all of her lectures. Following class, students are able to download the slides to augment their lecture notes. Other instructors are still fond of colored pens and overhead transparencies but scan their lecture overheads after class and place them on the web in PDF format. Classrooms have been equipped with state-of-the-art digital projection systems, allowing instructors to use the latest technology to bring in current topics from the web, animate reactions, demonstrate molecular modeling calculations, and perform spreadsheet data analysis. Of course, it isn't all about technology. Students in some sections routinely break up into lively discussions for group problem solving sessions. These small group sessions within a large class of 100 to 300 students are one example of the efforts being made to make the large impersonal classes feel a little smaller and welcoming. Many entering freshmen choose to join a Freshman Interest Group (FIG), a cadre of twenty-five students with a common interest who take one or more classes together and have weekly meetings with a professor. Because FIG students begin meeting together before classes start, they already have acquaintances and study partners in class on the first day. Two of the FIGs that will be taking General Chemistry this year will be allied around the themes of Forensic Science and The Chemistry of Skiing.

CONTINUED ON 3 ►

Modern General Chemistry textbooks typically contain more than 1,000 pages of text, incorporating all of the familiar General Chemistry topics along with many new, cutting edge applications. A quick look through these books uncovers sections on modern instrumentation, polymers and plastics, nanotechnology, liquid crystals, ceramics, environmental chemistry, biochemistry, and more. Today's General Chemistry students are challenged to master more material than ever, and instructors face the daunting task of finding ways to teach the old as well as incorporating the new. To help with this process, many students attend SUPeR (Success Utilizing Peer Resources) Chemistry study sessions. This program was developed to supplement the existing General Chemistry curriculum in a manner that would promote content mastery, enhance critical thinking and problem solving skills, and generate enthusiasm for the subject. SUPeR Chemistry operates as a voluntary, proactive program to provide assistance for students before academic difficulties occur. The key personnel in the program are undergraduate peer learning assistants (PLAs). These student leaders are trained in learning and study strategies and operate as "model students," attending all course lectures, taking notes, and reading all assigned materials. Each PLA conducts two or more out-of-class SUPeR study sessions per week during which he or she integrates the concepts of "how to learn" with "what to learn."

Some of the most noticeable changes in the General Chemistry program have occurred in the laboratory. Lab instructor Deborah Exton recalls that the laboratory space looks about the same as when she was a General Chemistry student in 1970. Of course, in 1970, one didn't see computers on the bench top and digital data acquisition systems being used by students. Working from a manual written by Exton, students use this equipment to gain an understanding of modern data acquisition and analysis techniques. Using Vernier™ data probes and software, students are able to quickly collect large amounts of data and perform numerical and statistical analyses with Microsoft Excel™.

While students still build molecular models out of ball and stick modeling kits, they also use the molecular modeling program Spartan™ to perform structural modeling and strain minimization calculations. This is not to say that students aren't still performing classic General Chemistry wet labs. However, the chemicals that they are using today have changed somewhat since 1970. The curriculum has been developed with an emphasis on green chemistry or, in other words, experiments that are benign by design. As a result, most of the laboratory waste is now safe to go down the drain or requires a minimal amount of treatment before disposal.

As in the lecture courses, the Internet is used in the laboratory course to aid students after they have left the laboratory. Course websites have been developed that feature help from the Virtual TA and responses to FAQs, or "frequently asked questions," for many of the laboratory exercises. Students can also find resources such as exten-

sive safety information, nomenclature tutorials, and tips on using calculators for statistical analysis. Another advantage provided by the Internet is that for certain experiments, students are able to enter their data into a class data bank and also access data from the entire class. With this feature, students have the benefit of studying a large data set, rather than being limited by their minimal amount of personal data.

Today's General Chemistry students are still required to master much of the same material as previous generations of students, but the tools and techniques available to them and their instructors have changed dramatically to reflect the era they are living in. So yes, when it comes to General Chemistry, one could say that the more things change, the more they stay the same, but at the University of Oregon, faculty and staff are combining chemical knowledge with modern applications and new technology, and are keeping a keen eye on the future.

Message from the Department Head

It is exciting to view the Department of Chemistry in a time of transition and progress. In the past three years we have added four new faculty members who bring fresh viewpoints and



Tom Dyke

new research ventures. These add to the wonderful new instructional programs and research efforts ongoing in our department. At the same time, we celebrate the contributions of four colleagues who have recently retired and consider their impact on the programs you will read about in our newsletters. And we also mourn the passing of Professors Virgil Boekelheide, LeRoy Klemm, and Frank Reithel. They were each major forces in helping to shape and build the department starting in the 1960s and afterwards.

The teaching and research programs of a great university are always two sides of the same coin. Our goal

is to train scientists and produce new knowledge through creative teaching and research. The process starts with General Chemistry, which is the vital pipeline of students into our department. As you will read in the special focus articles within, this is also a time of transition and wonderful new programs woven into these introductory courses.

I am pleased to note two new endowments this year that will assist us in developing our new programs: The Charles J. and M. Monteith Jacobs Instructional Endowment, which provides peer tutoring for entering students, and the LeRoy Klemm Endowment, which establishes a new seminar and undergraduate award. We have also received a number of contributions, which, regardless of size, are invaluable in supporting special activities and programs in the department: We are grateful for your continued support!

As you consider your experiences at Oregon, I hope that you will see the creative energy that comes out of transitional periods in the life of a department and that you feel that you are part of it. Let's stay in touch! —Tom Dyke

Charles J. and M. Monteith Jacobs Instructional Endowment Breaks New Ground in Support of Undergraduate Education in Chemistry

Charles J. Jacobs, Class of 1934, has made a major gift to support an advanced undergraduate student to serve as a peer tutor in chemistry courses. The Jacobs endowment of \$100,000 established in 2003 will fund a peer tutor all year, every year, in perpetuity. The Jacobs endowment is the first of its kind in chemistry. It is also the first of its type in the entire College of Arts and Sciences. Being the first, it blazes a new trail. This is a win-win situation. Entering students from diverse programs throughout the college receive the individual help they need, and the advanced chemistry majors earn money for textbooks and supplies. Graduate students are available to provide free tutoring in some departments. In chemistry, essentially all of the graduate TAs are needed in the laboratory courses for safety reasons, so the department relies on undergraduate peer tutors for the introductory courses.



Charles Jacobs and Deborah Exton shaking hands. Jacobs has provided the first source of permanent funding for peer tutors (peer learning assistants) to help students struggling in General Chemistry and other courses. Deborah Exton pioneered and tested the concept of peer learning assistants in General Chemistry. Photo taken at the June 2003 Chemistry Commencement. Klamath Hall is in the background.

Valley and founded the city of Albany in the 1840s. Charles Jacobs attended the UO in 1931 and 1932 as a

chemistry major, and his brother, Monty, attended the UO in the 1930s. Charles Jacobs participated in UO Chemistry Commencement exercises in June of 1999, 2001, and 2003, and he contributed an article to the Special Historical Edition of *UO Chemistry News* in 2003. Charles Jacobs knows about the value of tutoring first hand: He earned his way through the UO and Stanford, where he earned his B.A. and M.A. degrees, in part by tutoring students in chemistry. Following Charles Jacobs' example, already another donor has established a second endowment

that will start funding a peer tutor in 2007. The department is seeking four more endowments of this size, or a combination of smaller endowments, to fund the remaining four peer tutors in General Chemistry (e.g., \$25,000 will fund a named endowment for a peer tutor for one term per year, in perpetuity).

Following Charles Jacobs' example, already another donor has established a second endowment that will start funding a peer tutor in 2007.

This is Charles Jacobs' second major gift to the department. He established the Charles J. and M. Monteith Jacobs Endowment Faculty Fellowship Fund in 1999 to support faculty recruitment and retention. Both endowments are named for Charles and his brother Malcolm Monteith "Monty" Jacobs and preserve their mother's maiden name, Monteith. Charles Jacobs has connections with both the history of Oregon and the department: The Monteiths are descendants of an Oregon pioneer family who settled in the Willamette

Honors General Chemistry—The Gateway for Advanced Students

Honors General Chemistry is an accelerated General Chemistry course for students who have taken high school chemistry and have strong math skills (i.e., have had or are concurrently enrolled in calculus). It is geared toward students who anticipate majoring in one of the natural sciences and is also the designated course for students in the honors college. The honors sequence covers the same basic material covered in General Chemistry, but at an accelerated rate, allowing for a more in-depth study of difficult concepts and inclusion of additional topics pertaining to the application of chemistry in related fields. For example, chemistry related to environmental issues is emphasized in the fall term, and chemistry related to biological processes is covered in the winter term. Everyday applications of chemistry are brought into the classroom in a variety of ways. For example, in recent years Cathy Page has encouraged students to submit extra credit "Stump the Prof" questions. Examples of good "STP" questions include: How does sunless tanning lotion work? Why does an egg turn hard when you boil it? Why do fallen leaves stain the sidewalk? How do epoxies and other adhesives work? The idea is to encourage students to think about how chemistry is involved in all the facets of our daily lives. Judging from the fact that students have written Cathy Page with "STP" questions years after they have taken the class, it works!

Honors General Chemistry Laboratory— Something Special for the Advanced Student

The plaque on this lab reads "Richard Noyes and Donald Swinehart Instructional Laboratory for Honors Chemistry. Dedicated November 10, 2000. Renovation made possible by John J. Natt (Class of 1964) and Cathy M. Natt." The renovation has inspired changes in the laboratory offerings, as described below. In the university catalog this is the Advanced General Chemistry Laboratory, but around the department we call it the Honors General Chemistry Lab because it accompanies the Honors General Chemistry lecture course and many of the students are also in the honors college. —Ed.

The Honors General Chemistry Laboratory program is undergoing a major renovation this year. Greg Williams is working with Jim Long, John Hardwick, and Mary Dricken to design a new curriculum that expands the range of topics and changes the focus of the program.

The traditional introductory laboratory is often based on individual, three-hour, weekly activities designed to reinforce concepts from the lecture section of the General Chemistry course. The new honors lab curriculum will maintain a strong link to the honors lecture, but the objective of the lab sequence will be to prepare students for research. There are five sections, with fourteen students in each section, so the maximum number of student who can enroll is currently seventy. There are about sixty students enrolled this Fall Term 2003.

The revised curriculum will balance laboratory work in biochemistry and in inorganic, physical, and analytical chemistry. The group is developing experiments on sol gels and semiconductors, protein folding and enzyme kinetics, environmental chemistry, and inorganic synthesis and catalysis. In many cases, these new projects will extend over several laboratory periods and will involve collaboration among groups of students. The goal is to develop an honors lab program that emulates the environment of a research lab.



View of the Chemistry Resource Center. Shown is room 126 Klamath Hall. The picture was taken from the adjoining room, 127 Klamath, which is also part of the Chemistry Resource Center. These rooms are designed to present a friendly, informal atmosphere with tables, chairs, and blackboards. Room 126 has two networked computers that are used for such diverse activities as creating molecular graphics, running spreadsheet analysis, and checking email. Both rooms are filled with students during peak hours.

The Chemistry Resource Center

The new Chemistry Resource Center was dedicated in 2003. This is the place where chemistry students can drop in for help on the lectures or lab. It is available to all students, but the General Chemistry and Organic Chemistry students are the most frequent users. The center is staffed by teaching assistants (TAs or GTFs) at times, and by undergraduate peer tutors (SUPeR Chemistry) at other times.

The doors are open and the lights are on all day, and helpful staff are present many hours every day. The Chemistry Resource Center replaces the former "Chemistry 911." The rooms were changed as part of a space shuffle on the first floor of Klamath Hall. The Chemistry Resource Center, together with faculty office hours, gives UO students many options for seeking individual help outside the classroom.

Can You Pass This Quiz on General Chemistry?

1. **How many students typically enroll in General Chemistry (including honors) every fall?**
a. 200–299 b. 300–399 c. 400–599 d. 600–800
2. **What is the most common major represented in the General Chemistry class?**
a. psychology b. biology c. physics d. undeclared
3. **How many different majors are represented in a typical UO General Chemistry class?**
a. 1–19 b. 20–29 c. 30–39 d. more than 40
4. **What percent of the students enrolled in General Chemistry class are chemistry majors?**
a. 1–10% b. 11–20% c. 21–30% d. more than 30%
5. **What percent of the General Chemistry class are women?**
a. 5–24% b. 25–49% c. 50–74% d. 75–100%
6. **What fraction of the General Chemistry class intends to become doctors (MD, DO, ND, DC)?**
a. 1/5 b. 1/4 c. 1/3 d. 1/2 or more
7. **What percent of students who enroll in fall term General Chemistry complete the full-year sequence?**
a. 1/4 b. 1/3 c. 1/2 d. 2/3

Answers are based on data taken from fall terms 2001, 2002, and 2003. Answers are given below. If you missed a few, you are not alone. There were some surprises even for faculty members teaching these courses. Thanks to Deborah Exton, Julie Haack, and Diane Lachenmeier for providing information used in this survey.

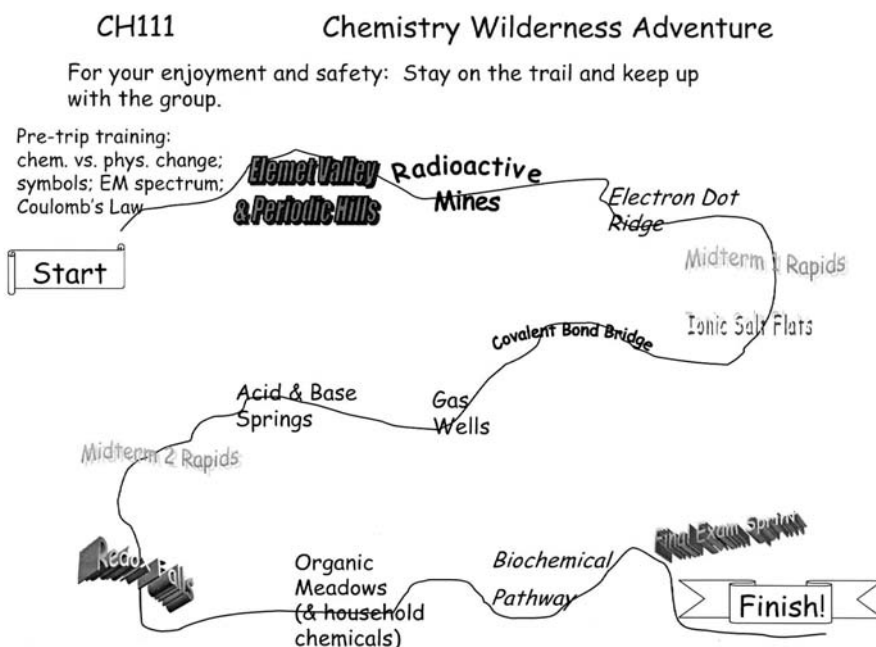
Answers: 1. d, 2. d, 3. d, 4. a, 5. c, 6. d, 7. d

Introduction to Chemical Principles—Gateway for Students Without High School Chemistry

Introduction to Chemical Principles (CH 111), a one-term course, is offered twice a year to meet multiple needs. This is not just a watered-down general chemistry course – it is a holistic approach that provides an overview of general, organic and biochemistry with special topics (e.g. drug and alcohol abuse, green chemistry) depending on the instructor. It serves a wide range of majors. Students who have not had any high school chemistry use it as preparation for General Chemistry. It is required for biology majors taking BI 211 and BI 212 and gives environmental studies and liberal arts majors the background to better understand the chemistry involved in their fields of interest, as well as science issues facing society.

Here are some excerpts from what students wrote recently in the course evaluations:

"It gave a comprehensive and highly conceptual view of chemistry and related fields. I never took a chemistry class before this one in my life; now I'm thinking about pursuing it as a major." *"I really like how the course was applied to real life. It made everything more interesting in that respect."* *"The demonstrations were great. They really kept me awake and interested in class and made me want to learn more about chemistry."* *"Connecting chemistry with the real world is very valuable. I'm glad that was incorporated."* *"The notes were on the Internet everyday."* *"Having a peer TA was great. She was very helpful."* *"Class was also always exciting to attend. Many fun and interactive lectures and experiments. The course really applied everyday situations and other outside, real-life applications to what we were learning."* *"I feel that I have had exceptional preparation for courses that follow this one."* *"CH 111 is a great introductory course: concise, thorough, and challenging."* In the interest of full disclosure, the instructors do not win them all. Some comments in the course evaluations indicated little interest in chemistry before or after taking CH 111.



Chemistry as a wilderness adventure, as presented by Hayes Griffith in his "Indiana Jones" lecture. What does it take to survive and enjoy the adventure? An experienced guide, paying attention, and making the effort to keep together on the trail from the start to the finish—don't fall behind. Each name on the map was chosen for a purpose. For example "Redox Falls" alludes to the flow of electrons in the electron transport chain of oxidative phosphorylation—only briefly discussed in this class, but of importance in the biology sequence to which introductory chemistry is linked.

What's a FIG? Freshman Interest Groups

A FIG consists of twenty-five first-year students who take two general education courses together during fall term. FIGs create an atmosphere like that of a small liberal arts college but use the many resources of a major research university. This small group setting offers mentoring and further exploration of the course materials. These are regular university courses that satisfy group requirements and are also open to non-FIG participants at all class levels. The FIG students within these larger classes are linked through College Connections, a one-credit course typically taught by the professor responsible for one of the regular FIG classes. In addition to the faculty leader, each FIG has a teaching assistant, an undergraduate student who helps FIG members navigate the university. A recent innovation in the FIG program, Residential FIGs, offers students the advantages of a true collegiate community as they live in the same dormitory with their FIG TA. Some of the FIGs are designated Challenge FIGs. The group-satisfying classes included in Challenge FIGs are generally smaller than those in other FIGs, and, although the courses begin at an introductory level, students are encouraged to look into the subjects deeply. The teachers in the Challenge FIGs get to know their students early through shared summer reading on a topic related to the FIG.

This fall some first-year chemistry students are participating in one of four FIGs, three of which are lead by chemistry faculty members. The Chemistry of Skiing FIG leader is Julie Haack, the Forensic Science FIG leader is Deborah Exton, and the Challenge FIG, Stories of the Invisible, leader is Greg Williams. The students in these FIGs are all enrolled in General Chemistry. Carl Stiefbold, a member of the biology faculty, is leading a Residential Challenge FIG, Honors Science. Students in this FIG are taking Honors General Chemistry, Advanced (Honors) General Chemistry Lab, and Calculus. —Article by Carl Stiefbold

Pathways: *Extra Help for Elementary Education Students*

The Pathway for Elementary Education class (EDST 199) is leading the way for future teachers. The Pathway seminar offered by the chemistry department each fall term supports students with hands-on activities that complement the material presented in CH 111 Introduction to Chemical Principles. The seminar is led by Randy Sullivan and Cathy Page, and CH 111 is taught by O. Hayes Griffith.

Freshman Andrea Kari comments, "The class was helpful because it was a more personal lecture, and it was easier to ask questions." While sophomore Bryan Gamble adds, "This class gave me an in-depth look at how I could use the chemistry that I was learning in my elementary school classroom in the future."

The idea for Pathways originated with some of the University of Oregon's most outstanding teachers and researchers. Working together, they created Pathways with the needs of beginning students in mind. They know it can be difficult to enter a large research university without familiar faces to help students make connections. Pathways are meant to make sense of undergraduate general education while establishing relationships with fellow students and faculty mentors.

The program has been a popular option for students at the University of Oregon since 1999. Five Pathways



These smiling faces belong to future elementary school teachers enrolled in the 2002 Pathway for Elementary Education chemistry seminar. **First row (l to r):** Shaunna Wild, Bryan Gamble, Randy Sullivan (instructor), and Cathy Page (instructor). **Second row:** Christina Healy, Cristal Howard, Emily Perkins, Emily Campbell, Andrea Kari, Ashley Osborne, Amy Goeken, and Meghan McClellan. **Third row:** Heather Flori, Nicole Hunt, Katie Bryant, and Ashley Gilchrist.

were offered in the 2002-2003 academic year. In each Pathway, a different theme ties the courses together. These themes are Order and Law, Human Nature, Elementary Education, Monet's Garden, and America in Context.

The variety of core courses in each Pathway and the opportunity to individualize the schedule by adding other courses make Pathways a good choice for both declared and undeclared majors.

The Pathway for Elementary Education is a two-year program for freshmen and sophomores that creates a supportive environment for learning the mathematics and science that are required of all elementary teachers. Want to find out more about the Pathways Program? You can visit the website at <http://learning.uoregon.edu/pathways/>, send e-mail to pathway@darkwing.uoregon.edu, or call (541) 346-1330 or (541) 346-1241.

University of Oregon Chemistry Department Lecture Demonstrations

[Lecture
Demo
Menu](#)

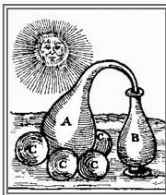
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Welcome to the University of Oregon Chemistry Department Lecture Demonstrations Web Site. This site has been developed as a resource for high school and college chemistry and physical science instructors. Come on in and look around! You will find many of the demos that we regularly perform at the U of O described in the [Lecture Demo Menu](#) section. If you're a UO instructor, that's where you can go to [order demos](#).

If you'd like to see more demos, check out the [demos](#) that participants in our [Chemistry for Educators Program](#) presented in the summer of '02. ('03 demos will be posted soon!) Or check out our new [Resource Section](#) with links to hundreds of demos and bibliography page.

If you work at a school or a non-profit organization in the Eugene-Springfield area and you would like a chemical demonstration program at your facility, check out our [ChemDemos](#) outreach program.

So come on in! Let's do some demos. But remember...be careful and WEAR YOUR GOGGLES!

Created by Randy Sullivan, University of Oregon Chemistry Department, 9/03

Chemistry Demonstrations

The Chemistry Lecture Demonstrations home page is shown at left. From this website, chemistry faculty may choose a topic, or a list of demonstrations, and schedule the dates and times. Instructors may either perform the demonstrations themselves or ask Randy Sullivan to perform them. The website, maintained by Randy, contains useful suggestions on how to perform some of the demonstrations, and both general and introductory chemistry classes make extensive use of the website. If you want to take a look at this website, the URL is <http://darkwing.uoregon.edu/~smrandy/>

The Teaching Effectiveness Program— Where Faculty Improve Their Skills for Teaching General and Introductory Chemistry

Where do new instructors and GTFs (teaching assistants) go to learn *how* to teach large classes such as General Chemistry? The UO supports the teaching endeavors of its faculty and graduate students through the Teaching Effectiveness Program (TEP), a division of Academic Learning Services located in 65 Prince Lucian Campbell Hall. Georgeanne Cooper, the director of TEP, and her staff offer a variety of activities and services to engage the academic community in viewing, assessing, and improving undergraduate instruction. TEP services are free to faculty members, graduate teaching fellows (GTFs), and university departments.

Each term TEP focuses on common issues and concerns in teaching through workshops, seminars, online classes, and newsletter articles. For example the 2003 Fall Term teacher training offerings for faculty and GTFs



Georgeanne Cooper, director of the Teaching Effectiveness Program. "It is important to me that faculty and graduate students feel supported and valued in their teaching efforts. I want the Teaching Effectiveness Program to be a place where instructors receive confidential, constructive feedback on their teaching, suggestions for new teaching approaches and strategies, helpful resources, and encouragement to take risks and to explore new ways of thinking about teaching and learning."

include "Beginnings: Insights, Tools and Strategies for New Teachers," "Ten important things to do on the first day of class," "Classroom management, presenting material effectively, facilitating discussions, and lesson planning," "Promoting critical thinking," "Handling difficult situations with students," "I made it through the first week! Now what?" and "Overwhelmed? Transitioning to a new job in a new place." Check out the TEP website for the latest offerings: <http://tep.uoregon.edu>

TEP is able to give instructors feedback on their teaching through observations, videotaping, and midterm student feedback services. In addition TEP staff are available by appointment to consult on any teaching topic. As a veteran chemistry instructor who is always looking for ways to improve teaching skills for large classes, I can vouch for the usefulness of TEP.

—Hayes Griffith

Department of Chemistry Reaches Out to Community



Minority middle school students peering through diffraction gratings during an outreach demonstration.

Most of you know Randy Sullivan as "the Demo Guy" who provides lecture demonstrations for undergraduate chemistry courses. But Randy also has been working with Julie Haack, the

assistant department head, and the UO chapter of the Student Affiliates of the American Chemical Society (SAACS) to develop and implement outreach programs. These programs are reaching out to our community to promote the discipline of chemistry, the department, and the university.

On February 17, 2003, twenty-seven talented and gifted students from area middle schools worked with volunteers from SAACS on hands-on green chemistry activities. They worked in the lab to generate hydrogen gas by two different methods and evaluated which method was greener. The program was part of a campus-wide outreach effort by UO Youth Enrichment and TAG Programs.

The chemistry department hosted seven children of UO Human Resources Department employees on Bring Your Child to Work Day. The kids toured our new green chemistry

learning lab and watched a demo show featuring the Ethanol Cannon and Elephant's Toothpaste.

Thirty-five college freshmen who had recently enrolled in the Pathway for Elementary Education were wowed by one of Randy's demo shows on March 6. The show started with a bang as hydrogen-filled balloons were ignited!

On Saturday, April 19, SAACS volunteers performed two demo shows for forty-five minority middle school students. These shows were part of the Reach For Success! program of the Office of Multicultural Affairs. The Can Crush and the Liquid Nitrogen Balloon were on the menu of demos. Fourteen home-schooled high school students were amazed at a demo show presented by SAACS on Friday, May 2. Among other marvels, these students from Bethel School District's HomeSource

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Student Affiliates of ACS Sweep National Awards

The UO chapter of the Student Affiliates of the American Chemical Society (SAACS) swept the ACS National Student Affiliates Chapter Awards for the last academic year. Even though 2002-03 was the first full year since the chapter has been reactivated, it won the following awards and grants:

- One of eight chapters awarded a Community Interaction—Student Affiliates Grant. This grant of \$200, to be matched by the department, is for “New Waves in Chemistry,” an alternative energy demonstration program. This grant proposal was written by Margaret Roller.

- One of nine chapters awarded an Innovative Activities Grant. This grant is also for \$200, to be matched by the department, for “Cracking the Pyrex Ceiling,” a forum investigating equity issues for women in the chemistry profession. This grant proposal was written by Stacey Standrige.

- One of ten chapters recognized as a Green Student Affiliate Chapter for their activities to promote green chemistry.

- One of fifty-two programs presented with a Commendable Chapter Award for their programs and activities as described in their annual reports.



The first annual “spring mixer,” a pizza party for faculty and GTFs to meet the ACS Student Affiliates held April 3, 2003. From left to right: Graduate students Mike Frencl and Eric Tweeten, and undergraduate members of the ACS Student Affiliates: Bethany Ford, Emily May, Christoph Otto, Stacy Standridge, Margret Roller, unidentified student in the back, and Julie King.

Congratulations to all involved in this outstanding effort, especially the officers of the chapter, Emily May (SAACS President), Margaret Roller (SAACS Vice President), Julie King, and Christoph Otto, who invested so much of their free time last year to make SAACS’s first full year such a fruitful one. Special thanks go to Randy Sullivan, faculty advisor to the SAACS. Thanks also to Julie Haack, assistant department head, for her enthusiastic support of the program.

Share Your University Experiences with Your Classmates

Send us your reflections for the *Chemistry News*. Call Lynde at (800) 782-4713, send e-mail to lynde@uoregon.edu, or send a letter to the Department of Chemistry, 1253 University of Oregon, Eugene OR 97403-1253.

Department of Chemistry Reaches Out

► CONTINUED FROM 8

Resource Center witnessed the Amazing Frankenpickle.

For the last year and a half, Randy and Maeve Sowles of Environmental Health and Safety have been developing an outreach program that would bring entertaining and educational off-campus chemical demonstrations to local schools and other appropriate organizations that might not otherwise have access to them. They have named the program ChemDemos. Because of the safety and liability issues involved in such a program, the planning and approval process has been lengthy, but it

On February 17, 2003, twenty-seven talented and gifted students from area middle schools worked with volunteers from SAACS on hands-on green chemistry activities. They worked in the lab to generate hydrogen gas by two different methods and evaluated which method was greener.

is now completed. We are happy to announce that the ChemDemos outreach program is ready to roll! The program’s premiere performance was at South Eugene High School on May 16.

In another outreach activity, on Friday, July 25, Randy journeyed to Elijah Bristow State Park to help more than eighty Cub Scout Webelos earn their achievement badges in science. Working with Kathy Byars, program director of the Boy Scouts of America Cascade District Day Camp, Randy provided a hands-on chemistry learning experience for the scouts at an all-day workshop on the last day of the four-day camp. The Scouts performed actual experiments to determine the relative activity of three metals.

Chemistry Honor Roll of Donors: Your Gifts, Our Thanks

The Department of Chemistry faculty and students are grateful for your contributions. Private donations, because of their flexibility, are often worth much more than their dollar amount in terms of helping our students and programs.

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Faculty News

Andy Berglund was a member of the "Extreme 2002" crew that traveled aboard the 274-foot research vessel Atlantis to their dive site in the Pacific and then descended to hydrothermal vent sites in the deep-sea submersible, Alvin. Berglund was collecting samples of the Pompeii worm (*Alvinella pompejana*) and investigating how it has adapted to the extreme environment of deep-sea thermal vents. He is using the Pompeii worm as a system to study basic cellular processes in eukaryotes.

Jeffrey A. Cina won a 2003 John Simon Guggenheim Fellowship Award. Cina, a professor of chemistry and member of the Oregon Center for Optics, was singled out for his studies in the area of ultrafast electronic energy transfer. One place where ultrafast transfer occurs is during the initial process in photosynthesis where light energy is transformed into chemical energy. He will use the cash award of \$35,000 to travel to universities in California and Mexico to collaborate with fellow researchers. The 2003 Fellowship winners include 184 artists, scholars, and scientists selected from more than 3,200 applicants.

Kenneth M. Doxsee and **James E. Hutchison** received the 2003 Outstanding University Educator Award from the Oregon Academy of Science for their achievements in developing the new Green Organic Chemistry Laboratory curriculum and for their leadership in bringing this innovation to chemical educators around the globe. Hutchison delivered the keynote address on "Green Chemistry" during the 61st annual meeting of the Oregon Academy of Science on February 22 at Linfield College in McMinnville.

Thomas R. Dyke became department head in October 2003. Read his comments in the "Message from the Department Head" section of this newsletter. Dyke was department head from 1993-1995.

Michael Haley was symposium chairman, and **David Tyler** was award chair for the Linus Pauling Award event on November 1. The 2003 Medalist is **Robert H. Grubbs**, Victor and

Elizabeth Atkins Professor of Chemistry at the California Institute of Technology. The Pauling Award is presented by the Oregon, Portland, and Puget Sound Sections of the ACS.

Darren W. Johnson joined the department in the fall of 2003 as an assistant professor. He received his B.S. from the University of Texas at Austin in 1996 and his Ph.D. from the University of California, Berkeley, with Kenneth N. Raymond in 2000. Johnson was a postdoctoral fellow at the Scripps Research Institute from 2001 to 2003 with Julius Rebek, Jr. He will explore problems in coordination chemistry and organic synthesis using the relatively new field of supramolecular chemistry as a tool.

Ken Prehoda has received a Damon Runyon Scholar Award in recognition of his outstanding potential as a beginning investigator. Prehoda was one of five new faculty members in the country to be recognized by the Damon Runyon Scholar Review Panel and selected for the award nationwide. The award provides \$100,000 per year for three years in support of Prehoda's research program.

Geraldine Richmond was the June 2003 commencement speaker at the Oregon Institute of Technology in Klamath Falls. Richmond is a member of the Oregon State Board of Higher Education.

A Festschrift was published in honor of **John A. Schellman**. See separate article for details.

Peter von Hippel was presented the 2003 Wayne Westling Award for University Service and Leadership.

The 2003 summer session faculty members included **Leif Brown** (now in New Mexico), **Randy Sullivan**, and **Jim Long**, all of the UO; **Doug Chapman** and **Owen McDougal**, Southern Oregon University; and **Lars Svanevik**, Oregon Institute of Technology. A few more words about Svanevik: He received his Ph.D. from the UO College of Education in 1980 and started teaching the university's summer General Chemistry sequence



Darren W. Johnson

in 1983. Svanevik is now completing his twenty-first year in this position. In 1983, there were about twenty-five students enrolled in the summer class; now the enrollment exceeds seventy.

Four UO faculty members well known in the classroom retired in 2003: **Frederick (Rick) W. Dahlquist**, **John F. W. Keana**, **O. Hayes Griffith**, and **James W. Long**. Dahlquist retired early to move to the Department of Chemistry, University of California, Santa Barbara. Keana, Griffith, and Long are remaining in Eugene and will be teaching part time at the UO. If you have amusing or interesting photos or anecdotes about their teaching or other activities on campus, please mail them to us in the envelope provided or send them to us by e-mail. Selected contributions will be published in future newsletters. Photos will be returned.

Professor Emeritus **Ray Wolfe**, eighty-three years old, continues to be a leader in bringing public affairs cable programs to the Eugene-Springfield area. Wolfe produces a one-hour program and a thirty-minute program each week. In collaboration with others, he has given free air time to local candidates for elected office. Wolfe has been doing this for more than six years. He also took time out to write a memorial to Frank Reithel for this newsletter.

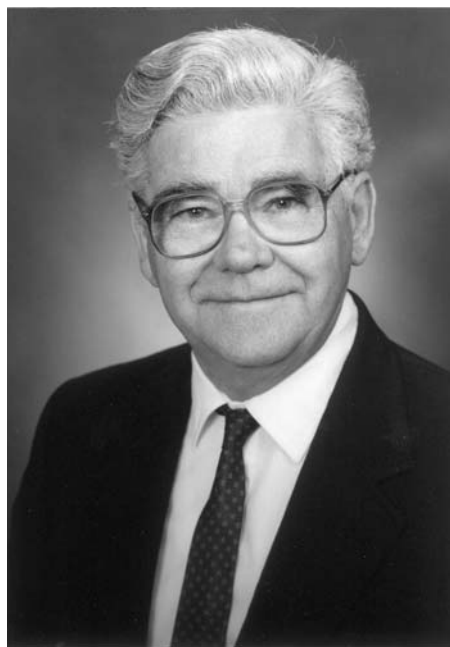
Festschrift Honors John A. Schellman

Festschrift: Pronounced “fes(t)-shrift”; Etymology: German, from Fest celebration + Schrift writing—Merriam-Webster Dictionary.

A special issue of *Biophysical Chemistry* (2002) 101-102, 1-637 has been published as a tribute to Professor Emeritus John Schellman (born 1924, at Oregon since 1958). This impressive volume was edited by Hong Qian, James Hofrichter, and Robert L. Baldwin. Hong Qian was kind enough to write the following article exclusively for this chemistry newsletter, reflecting on the contents of the Festschrift and some personal experiences with John and Charlotte Schellman. —Ed.

John Schellman and Biophysical Chemistry: The Story Behind the Festschrift By Hong Qian

The European journal, *Biophysical Chemistry*, which has just marked thirty years of existence, published three Festschriften (unique collections of scientific papers and personal accounts) for three giants in the field: John Tileston Edsall (100, 2002), our John Anthony Schellman (101-102, 2002), and Walter Kauzmann (105, 2003). Indeed, these three individuals are part of the group of modern biochemists who established and since have defined this highly interdisciplinary field at the boundary between physical chemistry and biochemistry, now an integral part of molecular and cellular biology. To many readers of this newsletter, Dr. Edsall is probably best known for his monumental treatises written with E. J. Cohn, “Proteins, Amino Acids and Peptides—as Ions and Dipolar Ions” (1943) and with J. Wyman “Biophysical Chemistry—thermodynamics, electrostatics, and the biological significance of the properties of matter” (1958). John Schellman is widely known for his work on the thermodynamics and optical spectroscopies of biological macromolecules and Walter Kauzmann for his seminal contributions to the physical chemistry of water and hydrophobic interaction. Incidentally, John was Kauzmann’s Ph.D. student at Princeton and wrote his dissertation on dielectric polarization of ice. I was with



John Schellman, mid-1980s.

John Schellman from 1990 to 1992 and worked on thermodynamics of small peptides, hydrophobic interactions in proteins, and electrostatics in DNA. Dr. Edsall was the undergraduate tutor of my Ph.D. advisor Elliot Elson. They published a paper together in *Biochemistry* (1, page 1) on the ionization constant of cysteine. So you could say that we all belong to an extended family.

John’s career has paralleled the development of Biophysical Chemistry, both the field and the journal. Hence it is natural for the journal to publish this 630-page volume containing fifty papers to celebrate his career. (A paper by Professor James C. Lee should have been included in this volume but, due to an error in the journal production, appears in *Biophysical Chemistry* (2002) 103, 1-11.) The Festschrift contains a summary of John’s scientific work by Buzz Baldwin and a recollection by Heini Eisenberg placing John’s work and the Institute of Molecular Biology in a bigger historical context. As some of our readers know, the Institute was established through the instigation of Terrell Hill, who is considered, at least by some including myself, as one of the most visionary and pioneering figures in theoretical biophysical chemistry. (See the 2003 Special Historical Edition of UO Chemistry News for Ter-

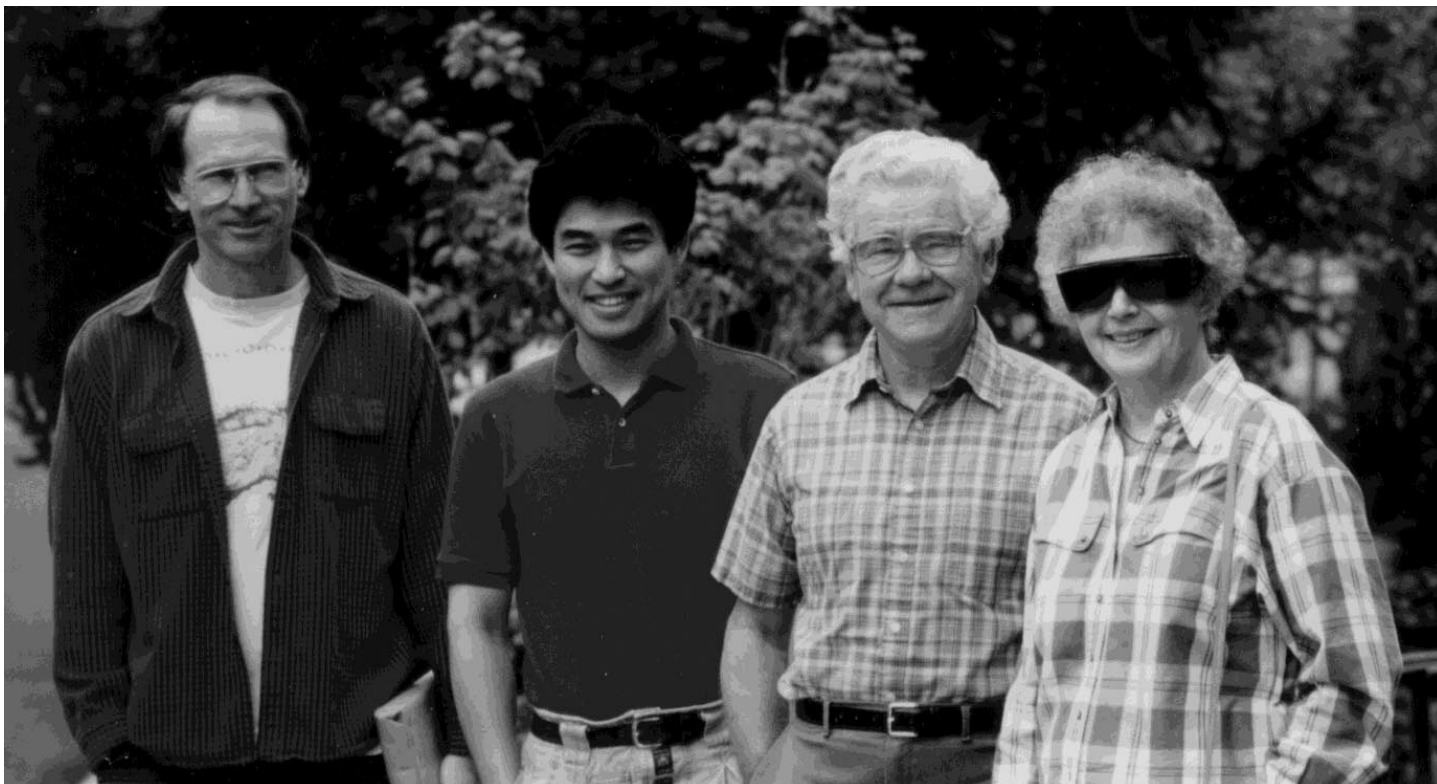
The Festschrift contains a summary of John’s scientific work by Buzz Baldwin and a recollection by Heini Eisenberg placing John’s work and the Institute of Molecular Biology in a bigger historical context.

rell Hill’s role.) While Terrell is a powerful theoretical scientist, he brought to Eugene several young experimentalists including John Schellman. In the bigger historical context of the development of molecular biology, the physicists and physical chemists have been the avant-garde. These two groups brought distinct styles and methodologies to modern biochemistry: The physicists, notably the British crystallographers in the 1950s, have made biomacromolecular structures the center piece of the field. The physical chemists, on the other hand, brought in a host of spectroscopies including fluorescence, CD, and NMR. Since the studies and dynamics are in aqueous solution, the kinetics and thermodynamics are indispensable. A significant number of researchers doing thermodynamics can trace their intellectual heritage to Carlsberg Laboratory in Denmark under the direction of Linderstrøm-Lang in the 1950s. It was then and there that John, as a postdoctoral fellow, met Dr. Charlotte Green, our Charlotte.

The volume also contains several contributions from the people at the Institute and from the “T4” group. The T4 lysozyme project represented one of the shining examples of integration of the two major scientific approaches in biophysical chemistry—atomic structure characterization by crystallography and solution measurements by spectroscopies integrated in terms of kinetics and thermodynamic modeling. I was fortunate to be with John and at the Institute at the time of one of the exciting periods.

In addition to being a leader in the

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John and Charlotte (at right) with postdoctoral fellows Howard Reese (far left) and Hong Qian standing between Howard Reese and John Schellman, circa 1992. Howard Reese is now a senior research scientist at Nanogen in San Diego, and Hong Qian is an associate professor in the Department of Applied Mathematics and associate director of the National Simulation Resource in the Department of Bioengineering at the University of Washington, Seattle.

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field of biophysical chemistry, John has also been a wonderful role-model for young scientists. He is supportive to and nurturing of their careers and warm and caring toward them as individuals. I feel fortunate to have spent two solid years with him, and our friendship has further deepened since I left Oregon. When John and Charlotte made one of their frequent visits to their daughter and grandson in Seattle, they would call me and my wife, and we would get together.

John and his generation of scientists have a very broad outlook on science. To them the driving force behind scientific research is as intellectual as it is technological. This of course does not fit very well with the current trend in biomedical research that emphasizes singularly medical advances. John was often very distressed by the fact that current research involves so much self-promotion. To him, these practices hinder true understanding and fundamental discovery in biology. John has maintained a life-long friendship with a group of colleagues who share not only his scientific outlook but also similar political and personal views of

John has also been a wonderful role-model for young scientists. He is supportive to and nurturing of their careers and warm and caring toward them as individuals.

the world—our own Pete von Hippel as well as Buzz Baldwin at Stanford, to name a couple. You can find many of them as authors in this special Festschrift. Having opportunities to join them hiking on trails and discuss various issues with them were uplifting experiences, and they always treated us young people as equals.

When I first came to the UO, John made sure not only that I was accepted into the working laboratory but also socially into university life. He took me to a basketball game and was pleasantly surprised that I, being a foreigner, was not completely ignorant of American pop culture. I remember vividly all those early afternoons when John would buy me a cup of coffee from the Atrium and we would sit there and discuss all kinds of things ranging from biophys-

cal chemistry to daily life. Now thinking back, I have learned so much from talking to him, not only about research but also about being a scholar, about academic institutes, and about life. My fondest memory of John and Charlotte was a trip to an Oregon mountain with Howie Reese, Nadine Gassner, Andy Morton, and several others. Andy arranged to rent a large house in a resort. On a chilly morning, when we woke up and walked to the kitchen following the aroma of brewing coffee, we found John and Charlotte were busy making scrambled eggs for all of us. Suddenly I felt like a kid in his grandpa's cottage.

Back to our research. Biophysical chemistry is now a mature field and an essential component of modern biochemistry. Its central role in modern cellular biology, which is dominated by molecular genetics, however, has been challenged. What will be the next major contribution of our discipline to biology? I would like to surmise that single-molecule biophysics and nonequilibrium thermodynamics are two possible directions, and the movement toward systems biology will not be possible without the foundation in biophysical chemistry.

In Memoriam

Virgil Boekelheide

Virgil Boekelheide, age eighty-four, died quietly in his sleep on Wednesday, September 24, 2003. This is the obituary submitted by his family to the Register-Guard. See also the call for memories and stories from friends and former students for the next edition of this newsletter. —Ed.

Virgil C. Boekelheide was born July 28, 1919, in Chelsea, South Dakota, to Charles and Eleanor Boekelheide. He was married to Caroline Ambler Barrett on September 1, 1945, in Urbana, Illinois.



Virgil Boekelheide, late 1990s.

Boekelheide was educated in a small school in Northville, South Dakota, from which he graduated at age fifteen. He then attended Dakota Wesleyan University, receiving his A.B., *magna cum laude*, and Ph.D. from the University of Minnesota.

Boekelheide had a long and distinguished career in chemistry. He taught at the University of Illinois, the University of Rochester (New York), and the University of Oregon, from which he retired in 1984. One of his greatest joys was seeing his graduate and postdoctoral students achieve success in their own right. He kept in contact with them over the years, following and encouraging them.

He was the recipient of numerous recognitions and awards. In 1962, he became the first Oregonian elected to the National Academy of Sciences. Among the awards he received were a John Simon Guggenheim Fellowship in 1953, an Alfred P. Sloan Fellowship in 1958, a Fulbright Distinguished Professorship in 1972, and Alexander von Humboldt Awards in 1974 and 1982. He was a Plenary Lecturer, Japanese Chemical Society, in 1979 and a Distinguished Scholar Designate with the U.S.–China National Academies of Science Exchange in 1981. He was elected to honorary membership in the Pharmaceutical Society of Japan

in 1988. Boekelheide was honored with the Charles E. Johnson Memorial Award from the University of Oregon in 1991.

Teaching, consulting, and lecturing took him to many countries including Japan, China, Canada, Poland, Switzerland, Yugoslavia, Great Britain, Brazil, and Germany.

Boekelheide was a charter member of the Eugene Swim and Tennis Club and enjoyed playing go, chess, and poker with his family and friends. Other interests included classical music, opera, and ballet. He served as president of the board of the Eugene Ballet from 1988 to 1991.

He is survived by his wife Caroline, sons Erich and Karl, daughter Anne, brother Irving, sister Dorothy Anderson, and grandchildren Amanda and David.

No service is planned. Memorial contributions may be made to the Virgil and Caroline Boekelheide Endowment Fund of the University of Oregon Foundation or the Eugene Symphony.

LeRoy H. Klemm

LeRoy H. Klemm of Eugene died January 21, 2003, of cancer. He was eighty-three. The following was adapted from The Register-Guard obituary and from an article by Aimee Rudin in the March 7, 2003, Oregon Daily Emerald. See also articles in this newsletter titled "Celebration of the Life of LeRoy Klemm" and "New Endowment Established in Honor of LeRoy Klemm". —Ed.

LeRoy H. Klemm was born July 31, 1919, in Maple Park, Illinois, to Henry and Anna Reines Klemm. In 1941, he received a bachelor's degree in chemistry at the University of Illinois, graduating *summa cum laude*. He earned a master's degree in chemistry in 1943 and a Ph.D. in chemistry in 1945, both at the University of Michigan. He married Christine Jones in Texas City, Texas, on December 27, 1945. She died October 10, 1999.

Klemm was a postdoctoral fellow



LeRoy Klemm with his daughter, Rebecca, at the Oregon coast, June 2002.

at Ohio State University in 1946 and taught at Harvard and Indiana universities before beginning his career at the University of Oregon in 1952. He celebrated his fiftieth anniversary with the UO on September 26, 2002. In addition to teaching, Klemm supervised and trained students and published 175 scholarly papers. Following his semi-retirement in 1985 and his official retirement in 1990, he published thirty-five papers and continued an active research program in heterocyclic organic chemistry.

Klemm was instrumental in establishing the UO undergraduate research program in organic chemistry and made significant research contributions. He was assistant dean of the UO College of Arts and Sciences in 1960-1962 and 1968-1969, and associate dean of the graduate school in 1960-1962. He was a Guggenheim Research Fellow in 1958, a NATO and Fulbright-Hayes research grantee in 1972, and a recipient of an Australian government grant in 1979 and 1986. From 1964 to 2003, Klemm was a Fellow of the American Academy of Sciences. He also was a member of the editorial advisory board of the Journal of Heterocyclic Chemistry from 1971 to 2003. He received the Outstanding Scientist of the Year Award from the Oregon Academy of Sciences in 1999. His interests included singing, hiking, and working on the family cabin along the McKenzie River. He belonged to the Obsidians, the Nature Conservancy, and the Sierra Club.

Klemm dedicated his life and his love to two things—his family and his work, said chemistry Professor Mike Haley. "He had a true love for chemistry," Haley said. "He loved being in the lab, working on a project. After his retirement and the death of his wife, he was even willing to spend his own money to fund his research." Within the broader field of chemistry, Klemm's specialty was carbocyclic and heterocyclic compounds. According to Haley, Klemm was fascinated with finding new methods and steps in the production of the compounds. Klemm's work on heterocyclic compounds was especially well known in the pharmaceutical field. Klemm's passion for his work was

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infectious, and he managed to pass his enthusiasm on to his students and colleagues throughout his career as a professor at the university. "Even after his retirement, he was a fixture at the annual regional American Chemical Society meetings. I always said that when I got to his age I wanted to have as much enthusiasm and energy for my work as he did for his," Haley said.

Survivors include a daughter, Rebecca Klemm of Washington, D.C.; a son, Richard of Naperville, Ill.; and two grandchildren. A daughter, Ann Klemm, died in 2002. A memorial service (Celebration of Life) was held on March 8, 2003, at 2:00 p.m. in the Knight Library Browsing Room. Memorial contributions may be made to the LeRoy H. Klemm Seminar and Undergraduate Research Fund in Chemistry, the Nature Conservancy, the Sierra Club, the Obsidians, or the Oregon Health Sciences University.

Francis J. Reithel

A memorial to Francis J. Reithel with photos was published in the 2003 edition of the chemistry newsletter. The following memorial was written by Emeritus Professor of Chemistry Ray Wolfe, a contemporary of Frank Reithel. It contains sufficient new insights into the life and contributions of Frank that we are publishing it here. —Ed.

Francis (Frank) J. Reithel was born in Portland, Oregon, on April 6, 1914. He passed away on December 2, 2001, in Port Townsend, Washington, and his ashes were scattered on nearby Marrelstone Island, Washington. He is survived by his wife Shirley and daughter Nancy Elferts of Vancouver, B.C.



The wooden sailboat "Bryony" that Frank Reithel built, along with other students, at the Wooden Boat School in Port Townsend, Washington, after his retirement from the UO. Photo taken in the late 1990s. Although difficult to see in this photo, Frank is standing toward the back and Shirley is sitting in front of the cabin.

After obtaining his bachelor of arts degree from Reed College in 1936, he pursued graduate

studies in biochemistry at the University of Oregon Medical School, obtaining a master of arts degree in 1938 and a doctorate in 1942.

Dr. Reithel was awarded a Lalor Foundation fellowship, which facilitated postdoctoral research at the Saint Louis University School of Medicine from 1942 to 1944. He subsequently served one year as an instructor at the Washington University School of Medicine. And in the 1945-1946 academic year, he was a research fellow at the California Institute of Technology.

Dr. Reithel joined the University of Oregon Department of Chemistry in 1946 and progressed through the academic ranks to appointment as professor in 1956. He served on many college and university faculty committees. Perhaps most notable was the honors college advisory committee, which facilitated establishment of one of the first such innovative institutions in the United States.

According to Emeritus University President Robert Clark, then dean of the College of Liberal Arts, Dr. Reithel was one of the prominent visionary faculty leaders who advocated hiring outstanding scientists to strengthen University of Oregon graduate programs. A number of these prominent scholars became members of the National Academy of Science. Dr. Reithel served enthusiastically and diligently as chemistry department chairman from 1956 to 1963 while teaching biochemistry and directing his research. He was particularly attracted to physical biochemistry in his studies of various enzymes. His many graduate students and postdoctoral colleagues now amplify his academic influence country wide. Among his publications is a biochemistry textbook, the first to portray all of the atoms in three dimensional structural models of complex biochemical molecules.

He surprised chemistry department colleagues when he circulated a chemistry department memo advocating the importance of regular exercise to health. He was a skilled court handball player who defeated opponents half his age when he was in his early 80s.

His respected administrative competence led to his appointment in the 1959-1960 academic year as program director of the Molecular Biology Pro-

gram in the National Science Foundation. He also carried out research in physical biochemistry at the National Heart Institute in Bethesda, Maryland, during the 1960-1961 academic year.

Frank Reithel was a quintessential academic, reading much non-scientific literature. He particularly enjoyed the Oregon outdoor and wilderness environment, describing his forest jaunts half seriously as "...a means of regaining his sanity." After retirement near Port Townsend, Washington, he participated in the Northwest School of Wooden Boat Building. His first post-retirement opus was the construction of a sailboat with a wooden hull, which attracted much admiration, particularly appreciated when displayed on a picture calendar. He was a contributing senior citizen in the Port Townsend, Washington, community as a member of the board of trustees of the Jefferson County Library; as a folk dancer, hiker, and small boat rower; and through his participation with the Victorian Chamber Singers.

Paraphrasing U.S. Attorney General Robert Kennedy, the quality of life is more important than is longevity. Dr. Reithel was twice graced, first with quality, and second by surpassing biblical three score and ten productive years. His legacy to the university and his family is a significant accolade to his creative and meaningful life.

Dick Wielesek

Dick Wielesek died May 3, 2003, of cancer at age sixty-one. Dick will be remembered by colleagues both as a graduate student of Tom Koenig and for his many years of service in running the mass spectroscopy and analytical laboratory facilities in the chemistry department, as well as for his chemical demonstrations. This memorial was adapted from the Register-Guard obituary. —Ed.

Dick Wielesek is survived by his mother Anna Wielesek; his wife Sue Wielesek; his sister



Dick Wielesek with his wife Sue, 2002.

CONTINUED ON 16 ►

Remembering LeRoy Klemm

Music; words from former students, friends, and colleagues; and family members warmly filled the afternoon on March 8, 2003, at the celebration of the life of LeRoy H. Klemm (July 31, 1919–January 21, 2003). The following are excerpts, with minor editing, of what some of his former students had to say in letters



LeRoy Klemm in his laboratory after retirement, 378 Onyx Bridge.

read by LeRoy's daughter, Rebecca Klemm. Some will make you think and some will make you laugh. —Ed.

▪ "As a research supervisor, Dr. Klemm was always there to give advice but gave me the freedom to go my own way. He was enthusiastic when results took us in new directions and understanding when Mother Nature did not cooperate. He was extremely generous in all ways—not only in using grant money to benefit his students, but also in sharing authorial credit. Rightly speaking, my graduate work should have resulted in, at most, two scientific

papers with my name on them. Instead, Dr. Klemm put my name on ten of his papers and actually apologized to me years after my graduation for no longer including me on subsequent thienopyridine publications. In my own career with Texaco Chemical Co. and Huntsman Corp. as a research supervisor and then manager, I have tried to emulate his example since I can think of none better... I must admit, in closing, of one trait of Dr. Klemm that I did not exactly appreciate at the time—his strict sense of fairness. During my dreaded preliminary orals, I was disconcerted to find that my own adviser was the one who led the charge in grilling me. Afterwards, I asked him why he was rough on me. He replied that he thought the other committee members were being too lenient with me, and he knew that I could handle it. His faith in me may have been a little misplaced, but his heart was always in the right place. The university will be a poorer place without him and his wonderful example." —David McCoy, Ph.D. 1967

▪ "Dr. Klemm was an excellent teacher. I attended his Advanced Organic Chemistry course for two quarters and was impressed by his logic and patience. I still keep lecture notes he gave me fifteen years ago. Without sophisticated computer programs to draw chemical structures at that time, one can imagine how much effort he put into preparing these notes and how devoted he was to the course he loved." —Jun Wang, Gaithersburg, Maryland

▪ "It is with the fondest and most respectful memories that I join with you in remembering the life of my Ph.D. adviser and mentor, LeRoy Klemm. Not only did he have a direct impact on my life at the University of Oregon, but also in the years that followed. My wife Diane and I always looked forward to his Christmas letter and to an update on his work and the lives of his and Christine's family. They regularly included graduate students, postdocs, and their spouses in their family events. They cherished not only their own family, but also understood the importance of family in the lives of their graduate students as well... A true story that I will not forget: It was passed down to me by fellow graduate students that LeRoy expected his understudies to spend at least eight

In Memoriam

► CONTINUED FROM 16

and brother-in-law Anita and John Milosovic of Tinley Park, Illinois; nephews Mike and John and their wives, Deborah and Donna; and their children Derek, Krysta, and Kenny.

Dick was raised in an Eastern European neighborhood in Chicago, to which his grandfather came from Russia in 1908. His grandfather planned to send money to bring his wife of three years and their son to America. The Russian Revolution and its after-math kept them separated for twenty-two years, at which time Dick's grandmother also came to Chicago. Like many immigrants, they thought education was important, and both Dick and his sister attended college and did post graduate work. Dick received his Ph.D. in chemistry from the UO in 1968.

He was a Fulbright Scholar, teaching in Poland from 1970 to 1972 during the Cold War. The KGB suspected him of being a spy, and he learned the trick of keeping the radio on at all times to frustrate the bugs in his rooms. He returned to the University of Oregon, where he was a chemist from 1973 through his retirement in 2000.

He married Sue Miller in 1992. He was devoted to his four stepchildren and their families, which include Adam Miller and his wife, Jamie Mellor; Jennifer Miller; Seraph and Robbie Cortez; and Sadie Miller, all of the Eugene-Springfield area, as well as their families and friends. He enjoyed spending

time with his four step-grandchildren Destin, Jordan, Sam, and Isabell, and extended family members Lohring Miller, Yayoe Kuramitsu, and Hannijetta Cortez.

An unassuming man, he was vain only about his cooking. He received the Mollie J. Award for Best Dutch Oven Entrée and the Best After-School Leftovers award (both Roosevelt and South Eugene Divisions). He tied a fine Caddis Fly and was a good fisherman, but a poor dog trainer. His black lab Sobaka was generally reputed to be the worst dog in Eugene.

A memorial service was held at 3:00 p.m. on May 10, 2003, at Musgroves, and a traditional Panahida service was held Memorial Day weekend at the Archangel Michael Orthodox Church in Burbank, Illinois. For more details, please visit the family website at www.adamandjamie.com. In lieu of flowers, the family requests donations to the charity of choice.

Truman Teeter

Truman Teeter died September 29, 2001, at age eighty-two. He graduated from Oregon State College with a B.S. in 1942. He earned M.S. (1949) and Ph.D. (1954) degrees in chemistry from the University of Oregon. After one year of teaching at Lewis and Clark College, he joined the Pacific University faculty in 1964 where he taught until retiring in 1982. His wife, Wilberta (Willi) continues to live in Forest Grove. —Bill Jordan.

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hours on weekdays plus Saturday mornings in the lab and that if you did that he would let you do your work without further ado. One Saturday morning I was sitting at my desk studying French. I had enrolled in a summer class to try to learn enough French to pass the required written exam. Wouldn't you know it that LeRoy just happened to walk in and of course he asked me what I was doing and said that he expected me to be working at the bench on his time. I had five reactions going at the time, including one in the Hydrogenation Lab, and I am not sure I had any more equipment to work with or ideas to work on at the moment. Well, for once, I counted to ten and listened as I was reprimanded. After stewing for a half hour or so, I walked gingerly to his office and began to explain my hurt and the work in progress and offered to show him where the work was set up around the labs. He said that wasn't necessary, that he was sorry that he had said what he said and that all was well—carry on! I knew he was truly sorry when later he brought me lunch from McDonalds and said it was on him. What could have been a better gift for a starving graduate student. P.S. These were the only strained words we had in the nearly three years that I spent under his tutelage. That is pretty amazing, but it says who LeRoy was as a person." With fondest memories, —Wayne Johnson, 1969

▪ "We former students know him to be a research leader who shared his qualities of knowledge, techniques,

and kindness in a friendly, collaborative way. He shared without restraint, shouldering research work loads, leading by example and demonstration, and with ideas and imagination for interpreting experiments. I think many of us needed his idea of tolerable work loads to succeed." —Bill Hodes, Bridgewater, New Jersey

▪ "His lectures in organic chemistry had superb presentation, never equaled in the following years I attended the university. I enjoyed his course so much that I decided to change my major from premed to chemistry." —Gary Miller, 1959-60

▪ "It's very hard for me to eulogize about a person who was so important in my life because it is hard to express in words what his guidance meant to me as a lowly undergraduate student in 1963. It was a time when I had been skipping from one major to the next, when I took organic chemistry and found a subject that held some interest for me. During the school year I was made aware of Oregon's NSF-URP program. I first talked with LeRoy at that time trying to decide if I should apply and also trying to decide whom I could do research with. Of course, Dr. Klemm



LeRoy Klemm enjoying a swing in Australia.

began talking of the research projects he had available and I became hooked on his research ideas. I became one of his NSF-URPers as I remember him calling us. It led to many interesting times in the lab, lots of library searches, and to my first publication, "Transformations of 2-(isopropyl-

deneaminoöxy) propionic acid," Tetrahedron (1964) 20, 1667-1673....He is the one faculty member at the University of Oregon who took the time to direct me, and I cannot express with words the gratitude I have for the way he instilled the confidence in me to become the person that I am today. As I teach, I find myself emulating him in many ways. I hope I can be as important to some of my students as he was to me." —Wayne M. Stalick

▪ "LeRoy was to me a prime example of a truly great university professor. He was a great researcher, but above all he was a teacher. When I left Oregon to work in the research labs of a large oil company alongside men and women from other great universities of the country, I was gratified to find that my preparation by your father was equal and in most cases far superior to my contemporaries. Finally, your father always encouraged his students to reach their potential. I'll always remember a story he told me about finishing university and going to work in Texas in an assignment he did not particularly enjoy—but he told me in great sincerity that he came to enjoy the challenge. In fact he told me on several occasions that he had never had a job that, after getting into, he had not come to enjoy. Truly, LeRoy was a wonderful example for me." —Dave Reed

▪ "LeRoy was a friend of very long standing; we were graduate students together. He was steady, cheerful, never frivolous or boisterous, but a warm friend. The mention of his love



LeRoy Klemm, Joyce Fry, and Christine Klemm (right) at the Klemm's cabin on the McKenzie River, 1997. Joyce Fry was a neighbor.

Remembering LeRoy Klemm

► CONTINUED FROM 17



LeRoy Henry Klemm, 1957.

Smith, Ann Arbor, Michigan

▪ "I have heard LeRoy described as the kind of professor that everyone wants. Someone whose door is always open and who is willing to spend time listening to students. I remember LeRoy as a quiet and pensive man—a man who listened. In addition to listening to family, students, and friends, he also liked listening to nature. He enjoyed the outdoors, hiking, and working in the garden. He was very proud of his garden and enjoyed giving tours, showing off different plants, the vegetable garden plot, and the compost bin. I hope all of his spring bulbs have emerged and are blooming for this celebration of his life. I know that all of us have bloomed a little for knowing him." —Jennifer McNeil

▪ "I would like to share an incident with you: George grew up in Greece and had only recently moved to the United States. We were married in Duluth, Minnesota, before moving to Eugene, Oregon, in 1959. George had been accepted in the graduate student Organic Chemistry Department. Your mom and dad welcomed us so warmly. George started classes and I worked as a nurse at the Eugene Clinic. We lived in the student housing complex at Skinner's Butte. George wanted to invite your parents for dinner. (Umm, sure. We had a two-burner hot plate, a card table with four chairs...you get the picture.) Your parents were so gracious. Our portable record player enhanced the atmosphere as we were eating when the Greek song "Never on Sunday" burst forth. Dr. Klemm inquired, "What is that?" I answered, "Oh, it's the Greek national anthem!" Dr. and Mrs. Klemm set down their forks and stood up in attention. We followed suit. George almost had a heart attack...the song is about a Greek

prostitute. We are still married." —Joan Karoboyas

▪ "You were mentioning stories—one I have enjoyed over the years was LeRoy's ability to sleep anywhere, anytime he felt the need. I had a good view of your backyard when we lived across the alley. I looked out my kitchen window one time, and LeRoy was stretched out on the picnic table oblivious of the yard full of children and the white rabbit running around his sleeping spot." —Pauline and Kenny

▪ "I took organic chemistry in my junior year from Dr. Klemm. I was so impressed by Dr. Klemm's excellence of presentation in lectures and management of the teaching laboratory that I decided to change my major to chemistry. Dr. Klemm had become the pivotal mentor in my school career, and I have been very thankful for the privilege of attending his class. We have kept in touch over the years, especially so in the last five years. Last summer my wife Margaret and I were in the Eugene area, so I called to see if we may come by and pay a visit. Dr. Klemm warmly invited us to do so, and we had a delightful visit, my wife commenting afterwards how she could understand how I held this man in such high esteem. I had met his wife approximately two years previously while working in the Eugene area and found her to also be a very gracious and pleasant person. Sadly, she had passed away and my wife and I expressed our condolences to Dr. Klemm, who then told us they had been married fifty-four years and that still was not long enough. My wife and I felt this was a wonderful tribute to her. Dr. Klemm went on to tell us that he was then eighty-two years old and retired, but still had an office and a small laboratory facility. Dr. Klemm, I thank you for giving me both encouragement and motivation in the work I have done over the years. When I retire, my wife and I plan to move to LaGrande, Oregon. Eastern Oregon University is located there, and like you, I will probably continue to study and learn still more in the field of my delight—CHEMISTRY. Like you, I will seek to encourage young people to pursue careers in the many paths open to them and be eager to applaud their success. You have done so for me. How could I not wish to do the same?" —Gary R. Miller



Rebecca and LeRoy Klemm, cheery after a filling Thanksgiving dinner, November 2002.

New Endowment Honors LeRoy Klemm

Thanks to the generosity of Rebecca Klemm, LeRoy Klemm's daughter, the department now has a new endowment to support undergraduate research and seminars in organic and inorganic chemistry: The LeRoy H. Klemm Seminar and Undergraduate Research Fund in Chemistry. It was established on December 20, 2002, and LeRoy learned about this endowment before his death. The endowment reads: "The Fund celebrates the life and achievements of LeRoy H. Klemm, who made pioneering discoveries in chromatography and heterocycle synthesis during his 50+ year career as an organic chemist at the University of Oregon. The purpose of the fund is to provide an annual source of income 1) to bring individuals to the Department who are recognized for their outstanding accomplishments in organic chemistry or in its applications to related fields. Uses of the funds shall include honoraria, a reception and travel and lodging expenses of the seminar speaker. 2) to acknowledge student achievement through the LeRoy H. Klemm Award for Excellence in Undergraduate Chemical Research, given annually to an undergraduate conducting research with a faculty member in the Organic/Inorganic Division of the Chemistry Department. For this, 10% of the Fund income will be used to make an award." The first LeRoy H. Klemm Award for Excellence in Undergraduate Chemical Research was made to Micah Jeffery Bodner at the June 14, 2003, Chemistry Department Commencement Ceremony. The first Klemm Lecturer is Professor E. C. Taylor of Princeton University.

1960s Reflections Revisited

Andy Fedoruk's "60s Reflections" in the 1998 UO Chemistry News regarding the organic chemistry group between 1962 and 1966 brought back many treasured memories. Here are some that have stayed with me since I graduated from the University of Oregon in 1965. Bill Nolan, M.A. 1965. Bill Nolan lives in Detroit, Michigan, and can be reached at sweetgrassmont@glis.net —Ed.

I remember most of the individuals who were doing organic research at the time. Clay Smith, Gordon Gribble, Bob Iwamoto, Fred Lee, and I worked in the end lab on the third floor of the science building, now called Onyx Bridge. Two postdoctoral students, Russell Molyneux from England and Shin-ichiro Sakai from Japan, also worked in that lab. Vic Sniekus, Ralph Barnhard, Gary Riddle, Frank Meneghini, Jim Nottke, and Joe Philips, a postdoctoral student from Australia, worked in adjacent labs. Other members of the organic group worked downstairs in the older, attached science building. As I recall, Tadashi Miyasaka, a postdoctoral student from Japan, worked there along with Charlie Klopfenstein, Dennis Taylor, David McCoy, Maury Schwartz, and Chet Ramey. Dave Booth and Andy Fedoruk also worked there and would periodically come upstairs to make sure that we were all behaving ourselves.

Interacting with and learning from postdoctoral students from different countries were especially enriching for me when I was a student at the University of Oregon. There was great excitement in the lab when Joe Philips succeeded in the final step in the synthesis of the unusual aromatic compound trans-15, 16-Dimethyldihydropyrene. I remember clearly Dr. Boekelheide's elation the morning he learned the good news that the final step in the synthesis had been successful.

One day I lent Joe a new world atlas that, at the time, I thought was quite good. Joe took it home and reviewed it. The next day he pointed out to me that it seemed to focus mostly on the United States and not all that much on the rest of the world. His critical remarks opened my eyes to the importance of having a

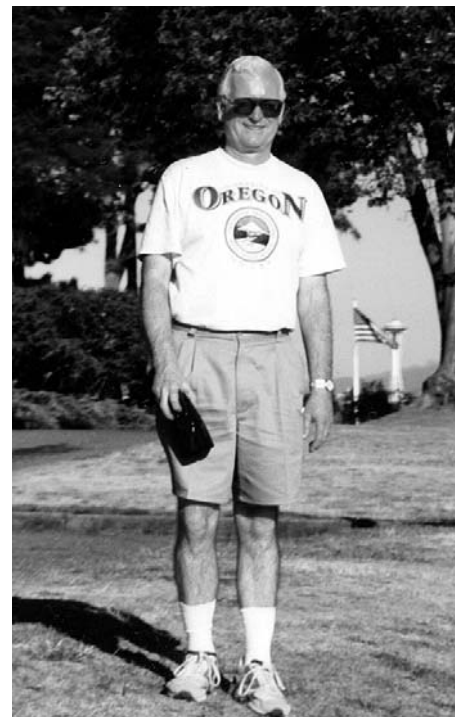
global perspective, which we need now more than ever.

Tadashi Miyasaka was a very polite person. My wife Margie and I invited him for dinner at our apartment at Westmoreland one evening. After dinner, he held our rapt attention by displaying his origami skills, producing two beautiful swans from paper by making a series of precise folds. As a final step, he blew a puff of air into each swan to make it three-dimensional. After almost forty years, we still have the two paper swans and hang them on our tree each Christmas.

Sometime later, Tadashi invited us to come to his apartment for a dinner that he had prepared. We were puzzled when he served us a clear soup that had an insect at the bottom of each bowl. As I recall, they had antennae and resembled silverfish. Margie and I looked at each other anxiously, wondering whether we should eat everything in the soup. We definitely did not want to offend Tadashi. So, when he went to the kitchen to get the main course, we both worked up our courage, quickly ate them, and had a new culinary experience. I can still remember the taste, like cod liver oil.

A once-in-a-lifetime experience with Shin-ichiro Sakai stands out in my memory. Shin-ichiro wanted badly to get his Oregon driver's license. One afternoon, I agreed to accompany him while he practiced—perhaps "experimented" is a better word—on the streets of Eugene. That was one of my first white knuckle experiences. My pulse and skin color returned to normal that evening after having one or two beers.

By the next summer Shin-ichiro's driving had improved considerably. He wanted to see more of the West, so our two families, driving in separate cars, traveled to Grand Teton and Yellowstone National Parks. Driving over Teton Pass, Wyoming, elevation 8,400 feet, we came upon thousands of wildflowers. The magnificent array of colors fascinated Shin-ichiro, and we stopped to take close-up pictures of flowers that contained natural products related to his research interests. When we got to Jackson, Wyoming, we got our families settled in at the motel. While our wives



Bill Nolan proudly displaying the beautiful University of Oregon seal, "Mens Agitat Molem" (Minds Move Matter) on his new shirt, 1999. Type this Latin phrase into your favorite web browser, and you will see several variations of the translation including "Minds Move Mass," "Mind over Matter," "Minds Move Mountains," and "The Spirit Dominates." Jokesters have added "Men Grind Their Teeth" and "Men Molest Moles."

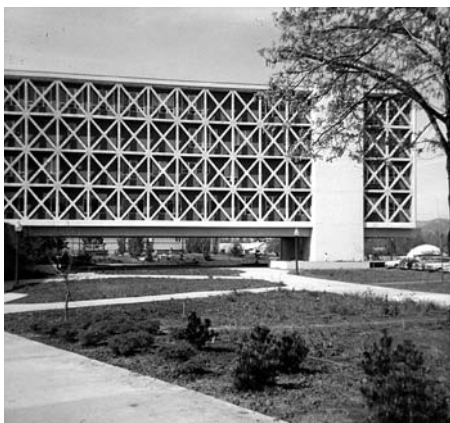
watched the kids, Shin-ichiro and I went downtown to inspect a popular watering hole called The Silver Dollar Bar. Over two thousand inlaid silver dollars were visible along the serpentine-like bar top. Shin-ichiro was absolutely spellbound as he studied intensely the display of silver dollars. As we came out of the bar he immediately said, "I have an idea. We go back to the motel and get your wife while my wife stays and watches the kids; then we go back to the bar. After a while we go back to the motel and get my wife while your wife stays and watches the kids; then we go back to the bar." He quickly emphasized, "Each time I go!"

Another vivid memory is the devastating Columbus Day storm in 1962, tearing through Eugene and doing great damage to the campus as it toppled many huge Douglas firs. At our apartment at Westmoreland, we watched as gale force winds ripped assorted undergarments from clotheslines. They sailed over rooftops into the dark, ominous clouds. I can still see the large bay window in our apartment flexing in and

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Reflections Revisited

► CONTINUED FROM 19



The new science building (now called Onyx Bridge) as it looked to a chemistry graduate student in the early 1960s. The sky was overcast so the background is a uniform gray. Note the parked cars on the right (east side). The parking lot is where Klamath hall is today. Klamath hall was built in 1966.

out like a pulsing heart but somehow remaining in place.

It is impossible to forget Oregon's natural beauty and recreational opportunities. The Three Sisters were visible seventy miles away on clear days. Beautiful springs, summers, and falls made the many months of winter rain all worth it. Of course, salmon fishing at the coast was an experience that I will never forget. One day Frank, Gordon, Bob, and I went there on such an expedition. I can still see Bob's face lighting up as he described the excitement of having a "big one" on his line.

During my teaching career I became aware of how important some of my professors were as role models. Dr. Boekelheide, my research mentor at the University of Oregon, was one of those important people in my life. He loved organic chemistry and was enthusiastic about teaching it. As one of his students, I remember him being approachable, helpful, patient, and understanding. He truly enjoyed interacting and having fun with students. Realizing that the personal traits he exemplified were crucial to success in teaching, I cultivated a similar teaching style.

The 1960s was a great time to be a graduate student in organic chemistry at the University of Oregon. I will always be thankful for the many unforgettable experiences I had there and for having had the opportunity to meet so many special people.

Staff News

You may have noticed a familiar new face welcoming visitors to the front office of the Department of Chemistry. That smiling, friendly new person is

Carol Gard, who was recently hired on as the department's new receptionist. She comes to us from Page Elementary in Springfield, Oregon, where she was the assistant administrative secretary. Says she, "I did a little bit of everything there, and it sounds like I'll be doing a little bit of everything here." Welcome Carol!



Stephen Golledge is the new director of our CAMCOR Surface Analytical Facility. He comes to Eugene by way of the University of Washington's NESAC/BIO

instrumentation center, where he was



engaged in surface analysis for biomedical researchers. CAMCOR stands for Center for Advanced Material Characterization in Oregon. As director, Golledge will coordinate the usage of our specialized instrumentation for any researchers who could benefit from surface analysis but might not know what techniques we have available at the university. The overriding vision is to centralize facilities so that instrumentation can be used effectively by all researchers. Further, the UO is set to receive a Time of Flight SIMS, which will be online and available by March of 2004. This shortcut of a name means Secondary Ion Mass Spectrometer, and the instrument will provide a detailed analysis of the molecular or atomic species present at a surface. It will have state-of-the-art depth profiling capability. With Golledge at the helm, our instrumentation center is set to take our research to new heights.

Deborah McMillen, a familiar face in the department and Institute of Molecular Biology, left the UO in 2003.

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Call for Remembrances and Stories about Virgil Boekelheide



Virgil Boekelheide, 1991

As this newsletter was going to press, word came that Virgil Boekelheide died quietly on September 24, 2003. Virgil was a leader in the Department of Chemistry and had a positive impact on many lives. We hope to publish a collection of remembrances from his former students, colleagues, and friends in the next newsletter. It is up to you to make this happen. If you have an interesting, amusing, or insightful story about him, please e-mail it to Carol Gard at cgard@uoregon.edu or mail it to the Department of Chemistry. Thank you. Together we can share memories and learn more about Virgil. —Ed.

McMillen was a research assistant in Hayes Griffith's group from 1975 to 1985. She returned to the Institute of Molecular Biology in 1987 and became lab manager of the Biotechnology Laboratory and, most recently, acting director of the Genomics and Proteomics Facility. McMillen is enjoying visiting family and friends in places like Wyoming, Illinois, Michigan, and California, as well as close friends in Italy. She is studying mass spectrometry and its application to proteomics as she considers her next career move.

Tim Weakly retires in 2003. Weakly initially came to us on a year's leave from Dundee University in Scotland in 1987. With his trademark



laconic humor, he says, "Naturally, the rain reminded me of Scotland, so I had to stay." Originally, Weakly signed on to do crystal structure analysis using an x-ray diffractometer. He is currently doing service work for organic research groups at the University of Oregon as well as contract work for several clients outside of the UO and overseas. While Weakly is sorry to leave his friends and colleagues stateside, he has much to look forward to on the other side of the pond. Reveals Weakly, "It's been a very good sixteen years, but we have ties on the other side. We have a house in Dundee. We have a granddaughter in Ireland, so there's good reason to go back." Weakly will be missed, but we wish him the best as he begins this new adventure.

And . . . **Larry Scatena** has been hired as director of our Laser Lab. Lab Preparator **Mary Dricken** has taken a maternity leave following the birth of her daughter Kate Alice Siegfried, born July 18, 2003. **Dave Anderson** (UO Ph.D. 1980) has been hired as the new proteomics director by the Institute of Molecular Biology

—Vanessa Salvia

Alumni News from All Over

1930s

Charles Jacobs, Class of 1934, has established the first endowed peer tutor (peer learning assistant) in the department to assist students in the large introductory general and introductory chemistry classes (see separate story). He also participated in the June 2003 UO Chemistry Commencement.

1940s

Keith Claycomb, B.S. 1947, M.S. 1948, Ph.D. 1951, was named professor emeritus in 1985 after thirty-four years at the OHSU Dental School in Portland, Oregon. Claycomb enrolled at the UO in the fall of 1940 to get the two years required to enter the Air Corps pilot training program. He was also in ROTC and was called to active duty in August 1943 to enter officer training. At the end of WWII, he returned to the campus and completed work for his degrees.

Marion Hill, B.A. 1948, M.A. 1950, was inducted into the SRI International Alumni Association's Hall of Fame. The award is in recognition of his contributions to SRI's success in organic chemistry research and for founding the Physical Sciences Chemistry Laboratory. The Laboratory grew from a small group to more than 100 chemists, widely respected in the scientific community, doing research in most of the sub-disciplines of chemistry. He served as its director for more than seventeen years before retiring and leaving a legacy represented by several laboratories in operation today. Prior to his time at SRI, formerly known as the Stanford Research Institute, Hill had a distinguished career at the U.S. Navy's Naval Ordnance Laboratory in research on energetic fluorine and nitro compounds for explosives and propellants. He received many Navy awards and honors that included an unusual cash award for his contribution to improving the performance of the Polaris missile. In 1996 Hill received the University of Oregon Chemistry Department's Alumni Achievement Award.

1960s

Russell J. Molyneux, a postdoctoral fellow with Virgil Boekelheide from 1963 to 1965, is currently a project

leader, Agricultural Research Service, USDA, Western Regional Research Center, Albany, California. His projects include the chemistry of poisonous plants, fungal toxins, grapevine disease, and fungal metabolites. He is also associate editor of the ACS Journal of Agricultural Food Chemistry.

Tim Thomas, Ph.D. 1964, is a professor of chemistry at the University of Missouri at Kansas City. He's been there since 1966 with the exception of two research leaves to work at the Air Force Geophysics Lab in Bedford, Massachusetts. Thomas teaches general chemistry and undergraduate physical chemistry lab every year plus graduate level physical chemistry including chemical kinetics, photochemistry, and mass spectroscopy. Thomas's research areas involve photochemistry, kinetics, and materials science, including ion photodissociation spectroscopy.

Bill Nolan, M.A. 1965 with Virgil Boekelheide, retired in 2001 from Oakland Community College, Waterford, Michigan, after thirty-four years of teaching general, organic, environmental, and biochemistry. Nolan wrote the "Reflections" section of this newsletter. Many experiences described in it were recalled while drinking coffee from a cup with the Mens Agitat Molem seal on it. He believes that the decision of the university to replace the elegant seal with a simple, empty "O" is a big mistake. However, he is confident that the blunder will increase the value of his cup and that one day it will become a priceless antique.

Victor Snieckus, Ph.D. 1965 with Virgil Boekelheide, inaugural appointee to the Bader Chair of Organic Chemistry, Queen University, has been awarded the Order of Grand Duke Gediminas by Lithuanian President Valdas Adamkus. Snieckus has been active in bringing appreciation for chemical research to the Baltic States, including organizing a conference, Balticum Organicum Syntheticum. (Reprinted from the Spring 2003 issue, Oregon Quarterly)

Dennis Clark, B.A. 1966, received his Ph.D. from Stanford University in

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Alumni News

► CONTINUED FROM 21

1971. Clark did his undergraduate work with John Keana, who encouraged him to apply to Stanford. After completing his Ph.D., Clark worked at Stanford Medical Center and Stanford Hospital until 1991. In 1986 he helped start the company Analytical Solutions and went to work there full time in 1991. Analytical Solutions was an analytical chemistry lab doing contract work for the pharmaceutical industry. In 1998 they sold the business to MDS Pharma Services. Clark later retired from MDS in 2002. He now enjoys spending time with his three granddaughters and restoring a 1965 Sunbeam Tiger.

Bruce J. Chasen, M.A. 1969 and J.D. from Boston College Law School, has written an article for this newsletter on career opportunities for chemists in patent law. He is a member of the law firm of Casesar, Rivise, Bernstein, Cohen & Pokotilow. The firm specializes in all aspects of intellectual property law and has expertise in a variety of technical areas. Chasen is willing to answer questions of UO chemistry students considering this field. His e-mail address is on the company website: www.crbcpc.com

Susan Stepenske Magic, B.S. 1969, M.A. 1970, who did her research projects with Hayes Griffith and Peter von Hippel, has retired as a biochemist from Abbott Laboratories, Diagnostics Division. She now is a clinical research consultant, having assignments with Gen-Probe and Prometheus Labs in San Diego, California, sponsored by former UO graduate Dr. Katie Smith. Magic and her husband Mike have two sons. Doug, 30, lives in Denver, and Scott, 24, graduated from the UO with a B.A. in architecture in December 2002 and is working in San Diego.

1970s

Neil Johnson, B.A. 1970, did his undergraduate research with Hayes Griffith and has been a visiting scientist with Peter von Hippel. Johnson gave a seminar at the UO this past January titled "Free Energy of DNA Strand

Exchange by RecA Protein Suggests a Thermodynamic Basis of Homologous Recombination." Johnson is a research scientist at the Institute de Pharmacologie et de Biologie Structurale, Toulouse Cedex, France.

Ronald Stenkamp, B.A. 1970, is presently a professor with the Department of Biological Structure, University of Washington, Seattle, having been there since 2002. Previously, Stenkamp held positions as associate and adjunct professor in the Departments of Biochemistry, Chemistry and Biological Structure. He has been at the University of Washington since 1987.

James Hofrichter, Ph.D. 1972 with John Schellman, is section chief, Laser Biophysics & Spectroscopy Section, Laboratory of Chemical Physics, NIDDK, National Institutes of Health, Bethesda, Maryland. He recently collaborated with Hong Qian and Robert L. Baldwin in editing a Festschrift in honor of John Schellman. (See article describing the Festschrift in this newsletter.)

Stephen C. Erfurth, Ph.D. 1974 with Warner Peticolas, is the director for science and technology, Oregon Medical Laboratories, Eugene, Oregon. His major responsibilities include the research and development of molecular diagnostic tests used for the detection of genetic and infectious diseases and other chemical and toxicological tests used for the diagnosis and treatment of human disease. Erfurth is also a Diplomate, American Board of Clinical Chemistry in both clinical chemistry and toxicological chemistry. He has been married to Elizabeth for thirty-one years, and they have four children, ages fourteen to twenty-seven years.

Jerry Andrews, Ph.D. 1975 with John Baldwin, is now a senior research associate, DuPont Experimental Station, Wilmington, Delaware. Andrews worked with Phil Eaton at the University of Chicago as a postdoctoral fellow before joining DuPont in 1978.

Ursula Andrews, Ph.D. 1976 with Robert S. Cooke and John Baldwin, is a chemistry instructor at Ursuline Academy in Wilmington, Delaware. While the Andrews' children were very young, Andrews taught a few lab, recitation,

and instruction sections of general and organic chemistry at Loyola University of Chicago and the University of Delaware.

Pamela Bjorkman, B.A. 1978 who did her undergraduate research with Hayes Griffith, is a professor in the Division of Biology, California Institute of Technology. Bjorkman is the recipient of the 2003 UO Alumni Achievement Award in Chemistry.

1980s

Dave Johnson, Ph.D. 1980 with Rick Dahlquist, recently returned to the university to accept the position of director of the Genomics/Proteomics Facility in the Institute of Molecular Biology.

Lars Svanevik, Ph.D. 1980 (College of Education), graduated from the University of San Francisco in 1962 with a B.A. and in 1964 with an M.S. He is retired from full-time teaching at Oregon Institute of Technology in Klamath Falls, Oregon, a faculty appointment he held for thirty-one years. Svanevik continues to teach on a part-time basis at Oregon Institute of Technology and during the summer in the UO Department of Chemistry. His particular teaching interests are instrumental analysis and fuel cell chemistry. (See also Faculty News.)

Rama Viswanathan, Ph.D. 1980, has been at Beloit College since 1983 and became professor of chemistry and computer education at Beloit College in 1996. He teaches thermodynamics and kinetics, quantum chemistry, introduction to computing, connecting instruments to computers, computer organization, and computer networks.

Neal C. Birnberg, Ph.D. 1981, is the president and CEO of Mercury Therapeutics in Woburn, Massachusetts.

Peter Flynn, B.S. 1983, has been an assistant professor at the University of Utah since August 2002.

John Kauffman, B.S. 1983, conducted his postdoctoral research at the University of Oregon in the areas of analytical and physical chemistry, chemistry of supercritical fluids, chemical dynamics, and picosecond laser fluorescence. He is currently a research professor at the University of Missouri-Columbia.

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David C. O'Kelley, B.S. 1983, did research with Hayes Griffith and currently is the manager of Applications Program Sabre in Scottsdale, Arizona. O'Kelley says that although he hasn't done anything directly with his biochemistry degree, he finds that the way he learned to address problems and solve them in the sciences made computer science very easy and has continued to benefit him in his professional career of software development.

Craig P. Hunter, B.S. 1984, Ph.D. 1990 from the University of Colorado, is a professor of Molecular and Cellular Biology, Harvard University, Cambridge, Massachusetts. Hunter worked with Tom Stevens for two years, beginning the year Stevens arrived at the University of Oregon. Hunter presented a seminar at the IMB in Eugene in April 2003, reporting his current work investigating intercellular transport of RNA.

Dan Sykes, B.S. 1985, Ph.D. 1990 from the University of Alberta, is currently a lecturer and the director of Analytical and Physical Instructional Laboratories at Penn State University, University Park, Pennsylvania.

Peter C. Rasco, B.S. 1986, M.B.A. 1993 from Northwestern University, is the general manager, Northern California, ENSR International, Alameda, California. ENSR International is a worldwide environmental engineering and consulting firm that provides technical services to the refining, chemical, and manufacturing industries. Rasco is the father of three boys, ages six, four, and two, and the husband of Stephanie Rasco. He lives in Alameda, California. Rasco is willing to talk with anyone interested in working in the environmental industry. You may contact him at (510) 748-6700 or at prasco@ensr.com.

1990s

Hong Qian, postdoctoral fellow with John A. Schellman in the early 1990s, is now an associate professor, Department of Applied Mathematics, University of Washington, and associate director, National Simulation Resource, University of Washington. Qian just finished editing a Festschrift (special journal issue) in honor of John Schellman: *Biophysical Chemistry* (2002) 101-102.

Stacey Fiddler, M.S. 1992, is an instructor in chemistry and a chemistry lab director at Lewis and Clark College, Portland, Oregon.

Tun Liu, a postdoctoral fellow with Hayes Griffith from 1994 to 1997, is now a senior scientist at Centocor, a Johnson and Johnson Company in Raritan, New Jersey.

Lynnette C. Garner, M.S. 1994, Ph.D. 1997, worked with Ken Doxsee while at the UO, followed by a one-year postdoc with Dr. G. R. Pettit at the Cancer Research Institute at Arizona State University. Garner has been back in Oregon since 1998 and in Portland working at Schrodinger as a customer support scientist since 2000.

Heather Blanchette, M.S. 1994, Ph.D. 1999 with Mike Haley and Bruce Branchaud, did her postdoc at Organix in Woburn, Massachusetts, and has since worked at Shionogi BioResearch (now Synta Pharmaceuticals) in Lexington, Massachusetts. For more than a year, Blanchette has been employed at Praecis Pharmaceuticals in Waltham, Massachusetts, as a pharmacokineticist, specializing in pharmacokinetics, pharmacodynamics, and drug metabolism.

Wai L. Lau, B.S. 1995, who did undergraduate research with Hayes Griffith, received his Ph.D. in biochemistry and molecular biophysics in the spring of 2003 from the University of Pennsylvania. The title of his thesis is "Folding dynamics and membrane fusion mediated by model coiled-coil peptides." Lau is joining Dr. Dane Wittrup's laboratory at the Department of Chemical Engineering, MIT.

Sally Horne-Badovinac, B.S. 1996, and Matthew G. Miller, B.A. 1997, were awarded the Harold M. Weintraub Graduate Student Award from the Fred Hutchinson Research Center in Seattle. Horne-Badovinac and Miller were two of sixteen students from North America and Europe to receive the award. Both are Ph.D. students at the University of California, San Francisco. Winners were selected on the basis of the quality, originality, and significance of their work. The award, established in 2000, honors the late Harold M. Weintraub, a founding member of Fred Hutchinson's Basic Sciences Division, who died in 1995 of brain cancer at the age of forty-nine.

Weintraub was an international leader in the field of molecular biology.

Greg Baxley, Ph.D. 1997 with David Tyler, and **Lara Baxley**, Ph.D. 1999 with Diane Hawley, live in Bakersfield, California, with their children Aleta and Sander. Five-year-old Aleta just started kindergarten and amazes her teachers with facts about animals. Two-year-old Sander loves mud. The entire family enjoys trips to zoos and aquariums. The Baxleys are both professors of chemistry at Bakersfield College, where they teach general physical science and first-year chemistry. They are involved in K-12 science outreach and improved classroom assessment.

Perry E. Francis, Jr., M.S. 1997, is the senior QA scientist for Schrodinger in Portland, Oregon. He has been with Schrodinger for three and a half years and is responsible for quality assurance for Glide as well as other products. Francis also works with UO alumni Lynnette (Garner) Sander and Dale Braden at Schrodinger.

Dewaine Jackson, Ph.D. 1997 with Tom Stevens, is an assistant professor of chemistry at Stetson University in Deland, Florida.

Brigitte Barron, B.A. 1998, spent two years as a graduate student with Jim Hutchison building multi-amide containing self-assembled monolayers in gold substrates. She is beginning her fifth year as a science teacher at Sandy High School in Sandy, Oregon. Barron teaches college preparatory chemistry, ChemCom, and Advanced Placement chemistry.

Cory Bystrom, Ph.D. 1998 with Bruce Branchaud and Jim Remington, has returned to Oregon from his former position as a senior research scientist, Fonterra Research Center, New Zealand. He is heading up the new proteomics facility at Oregon Health Sciences University in Portland. Bystrom's new title is Proteomics Core Facility Director, Research Development & Administration.

Nadine Gassner, Ph.D. 1998, is a postdoctoral fellow at Stanford University in the Department of Molecular and Cellular Physiology.

Keith J. Keana, M.S. 1998, was recently promoted to the rank of Major in the United States Air Force and

Alumni News

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currently holds the position of 30th Operations Group Chief of Training where he oversees operations training for West Coast spacelift and ballistic launches. Maj. Keana, his wife Christy, and daughter Madelyn are stationed at Vandenberg AFB, California.

Dale Braden, Ph.D. 1999 with Dave Tyler, is working for Schrodinger in Portland, Oregon. Braden is now the product manager for the company's Jaguar and Qsite molecular modeling software programs. In his spare time, he makes beer, sausage, and cheese. Braden has plans to add wine to his repertoire.

Bob Clegg, Ph.D. 1999 with Jim Hutchison, is working for Meso Scale Diagnostics in Gaithersburg, Maryland, where he's been working in research and development since 2001. The company develops and markets analytical systems with biological, environmental, and medical applications. He joined the company after finishing a postdoc at Caltech in surface science and electrochemistry. Clegg lives with his wife, Connie, and their three crazy cats, in nearby Frederick, Maryland, where they've been bonding with their bicycles all summer. Clegg reports that the most exciting thing to happen recently is the extension of the local commuter line, allowing him to ride the twenty-five miles to work.

Sonja Gerrard, Ph.D. 1999 with Tom Stevens, is currently completing a postdoc with the Centers for Disease Control in Atlanta, where she's been for the past four years. She's been working in the special pathogens branch, researching the Rift Valley fever virus, a human and livestock pathogen endemic to sub-Saharan Africa. In January, Gerrard will join the faculty at the University of Michigan, Ann Arbor, as an assistant professor in the School of Public Health.

Blake Gillespie, Ph.D. 1999 with Rick Dahlquist, is currently completing a postdoc with Kevin Plaxco at the University of California, Santa Barbara. The Plaxco lab focuses on protein folding.

Tracy Hardwick, B.S. in biochemistry 1999, did research with Rick Dahlquist and received her M.D. from

the Uniformed Services University of the Health Sciences (and promotion to Captain in the U.S. Air Force) on May 17, 2003. She is presently doing an internship at Andrews AFB, just outside Washington, D.C.

Bruce Howard, Ph.D. 1999 with Jim Remington, is currently an assistant professor of chemistry at Southern Utah University in Cedar City. After completing three years of postdoctoral research with Chris Hill at the University of Utah School of Medicine in Salt Lake City, he accepted his current position in fall 2002. Howard is responsible for teaching general chemistry, organic chemistry, and biochemistry for nursing students as well as a senior-level biochemistry course. Howard and his wife enjoy a wide variety of outdoor activities such as skiing, mountain biking, hiking, and camping in red rock country.

Bob Schneidmiller, Ph.D. 1999 with David Johnson, recently began a job as assistant professor at Southeastern Louisiana University in Hammond. In between alligator wrasslin' and gumbo eatin', Schneidmiller teaches inorganic chemistry. On the side, he's slowly developing a research lab for undergraduates that will focus on solid-state reactions in thin films and sol-gel chemistry. He hopes to get back to Eugene over winter break.

Rachel K. Smith, B.A. 1999, studied with Jim Hutchison researching the order and stability of self-assembled monolayers (SAMs) of alkane thiols with internally substituted amide groups. Currently she is a graduate student at State College in Pennsylvania synthesizing and measuring the kinetics of assembly using a quartz crystal microbalance. Since 2003 she has been a graduate student representative to the Selection Committee for Chemistry Department Colloquium speakers and Priestly & Marker lectures.

2000s

Christoph Balzarek, Ph.D. 2000 with David Tyler, has been working as a research chemist at Celanese Chemicals Europe in Oberhausen, Germany, since last September. He is leading a

group of three lab technicians working on process development and new business development. The company makes products used in paints, coatings, textiles, plastics, and adhesives. Balzarek is living in the Inner Harbor Area in Duisburg, a recently revamped area on a canal next to the river Rhine. He still follows Duck football and was happy when they beat Michigan. Balzarek completed a postdoc at Caltech before beginning his job in Germany.

Bethany Jenkins, Ph.D. 2000 with Alice Barkan, completed a brief postdoc with Bea Darimont at the UO before leaving for a postdoc at the University of California, Santa Cruz. Jenkins is working in the Ocean Sciences Department in the field of marine microbiology with advisers Jonathan P. Zehr and Raphael Kudela where she has two projects. The first involves looking at the ecology of bacteria in the open ocean in terms of genes involved in nitrogen assimilation pathways. The second project focuses on trying to find the genetic basis of toxin production in algae that produce harmful blooms off the California coast. Jenkins says she really likes her new field and the fact that she gets to do field work in Hawaii and go out to sea on large vessels.

Heike (Sellinschegg) McNeil, Ph.D. 2000 with Dave Johnson, recently joined the faculty at Northwest Christian College, right next door to the UO. McNeil will be teaching chemistry, physics, and nutrition. The science program at NCC is brand new, so she will be helping to develop the new curriculum. After a part-time position at Willamette University, McNeil is enjoying the small class size of ten to fifteen students. In addition to science, McNeil is also teaching fitness, so you might catch her running by the UO science complex with her students in tow as they head to Hayward Field for a stair workout.

Will Deutschman, Ph.D. 2001 with Rick Dahlquist, recently completed his second year as an assistant professor at Plattsburgh State University in Plattsburgh, New York. His current research focuses on thermophilic organisms, protein stability, and the thermodynamics of protein folding.

George Hanson, Ph.D. 2001 with

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Jim Remington (physics), is a research scientist at Panvera Corporation in Madison, Wisconsin. Panvera develops drug discovery screening products and services. Invitrogen recently bought the company.

Brandi Langsdorf, Ph.D. 2001 with Mark Lonergan, and Ben (Straw) Langsdorf, M.S. 1998, are the proud parents of Kate Maren Langsdorf, born July 31, 2003. Kate was six pounds and 0.2 ounces and nineteen inches at birth. The happy parents recently brought her by the department to show her off. Mrs. Langsdorf just finished a one-year replacement position as assistant professor at Pacific University in Forest Grove, Oregon. She is currently taking time off with the new baby and looking for teaching positions for fall 2004. Mr. Langsdorf has been working at Hewlett-Packard in Corvallis since October 2002. He started as a wet etch process engineer and recently transferred to the silicon micromachin-

ing work center as a silicon dry etch process engineer. He works on deep silicon trench processing.

Scott Reed, Ph.D. 2001 with Jim Hutchison, completed a postdoctoral research appointment at Los Alamos National Laboratory in September 2003. His research in the LANL Bioscience Division centered on developing fluorescent receptors for biothreat agents and coupling these molecules to optical waveguides for use in a hand-held sensor. Currently he is an assistant professor of chemistry at Portland State University engaged in research on the interactions between fluorophores and metal nanoparticles.

Aimee Eldridge, Ph.D. 2002 with Rick Dahlquist, is currently working as a postdoc for Debbie Wuttke at the University of Colorado at Boulder. The Wuttke lab investigates interesting biological systems from structural, biophysical, and biochemical perspectives.

David Kimball, Ph.D. 2002 with Mike Haley, is working as a postdoc at Los Alamos National Lab with Pete Silks.

Cindy (Mayr) Warner, M.S. 2002, is currently working at Pacific Northwest National Laboratory in Richland, Washington. She is working on the Genomes to Life project, funded by the Department of Energy.

Josh Williams, Ph.D. 2002 with Dave Johnson, is working as a postdoc with Scott Chambers at Pacific Northwest National Laboratory in Richland, Washington.

Jake Jensen, Ph.D. 2003 with Dave Johnson, has recently joined Intel Corporation in Hillsboro, Oregon, as a senior process engineer. His current assignment involves developing processes for device isolation in next-generation microprocessor technologies. Jensen and his wife Rebecca have three children: Mary, Eric, and F. Scott.

Marvin Warner, Ph.D. 2003 with Jim Hutchison, is currently doing a postdoc at Pacific Northwest National Laboratory in Richland, Washington. He is working on the development of new biological and chemical sensors for the detection of common warfare agents.

The 2003 Department of Chemistry Alumni Achievement Award in Pure Science

Pamela J. Bjorkman—Solving Puzzles of the Immune System

It is rare in the history of the UO that one individual has won two different alumni awards. Pamela Bjorkman has achieved that distinction. In 1995 Pamela won the



UO Alumni Association's Young Alumnus Award for attaining "extraordinary distinction in his or her chosen professional field." In 2003 she was selected for the Department of Chemistry Alumni Achievement Award for her continuing achievements as a pioneer in the structural biology of immunology.

Pamela, a native Oregonian, did her undergraduate research in chemistry with O. Hayes Griffith and received her B.A. from the UO in 1978. She completed her Ph.D. at Harvard University in the Department of Biochemistry and Molecular Biology with Don C. Wiley. Pamela continued her studies as a postdoctoral fellow at Harvard and then at Stanford, before accepting a position as assistant professor in the Division

of Biology at the California Institute of Technology in 1989. She advanced to professor at Caltech in 1998 and currently holds the title of Professor and Investigator, Howard Hughes Medical Institute, at Caltech.

During her years at Harvard, Bjorkman solved the first structure of the major histocompatibility complex (MHC) protein. MHC molecules are glycoproteins expressed at the surface of most cells of vertebrates. The name comes from "histo" meaning tissue and "compatible." The importance goes far beyond the issues of organ transplants and tissue compatibility. Our body's immune system is a collection of cells and proteins that protect us from harmful microorganisms, such as bacteria, viruses, and fungi. A key step involves the binding of fragments of the foreign material (antigens) to MHC molecules so that cells infected by viruses or bacteria can be recognized and attacked by lymphocytes. Bjorkman's work is of such importance that it is now covered in biochemistry textbooks.

Bjorkman has followed up on these

fundamental studies with a series of structure-function studies of MHC-homologs that perform other functions in the immune system and elsewhere. She continues to use a combination of x-ray crystallography to determine three dimensional structures, together with molecular biology and biochemical approaches. Her contributions and interests have expanded to include aspects of iron metabolism, cancer, and virology.

In recognition of her discoveries, Bjorkman has won more than twenty distinguished awards, including Pew Scholar in the Biomedical Sciences, William B. Coley Award for Distinguished Research in Fundamental Immunology from the Cancer Research Institute, James R. Klinenberg Science Award from the Arthritis Foundation, Gairdner Foundation International Award for achievements in medical science, and Investigator of the Howard Hughes Medical Institute, as well as election to memberships in the American Academy of Arts and Sciences, the National Academy of Sciences, and the American Philosophical Society.

Chemistry and a Career in Law

Bruce Chasan earned an A.B. in chemistry from Dartmouth College, an M.A. in biochemistry from the UO, and a J.D. from Boston College Law School. Bruce is a registered patent attorney and a member of the Bar of the U.S. Supreme and numerous federal courts. Bruce served as an associate solicitor in the U.S. Patent and Trademark Office before joining the Philadelphia law firm of Caesar, Rivise, Bernstein, Cohen & Pokotilow, Ltd. He is the inaugural author of this new feature of the newsletter designed to bring career opportunities to the attention of chemistry students and alumni. —Ed.

By Bruce J. Chasan

When I left the University of Oregon in 1969 with a master's degree in biochemistry to head back East to attend law school, I had no idea how valuable that master's degree would be! At the time, I simply had a belief that being a research chemist or working in academia was not for me.

My first job out of law school was with a bureaucratic government agency in Washington, D.C. After a year, I thought I would like to get some litigation experience, so I applied to the Civil Division and the Lands and Natural Resources Division of the U.S. Department of Justice (DOJ). At my interview with the assistant attorney general for the Lands Division, my interviewer reviewed my resume and asked: "Do you suppose that master's degree in chemistry would be useful in the Pollution Control Section?" Didn't need a Ph.D. to know the right answer to that question! Soon I was an environmental lawyer for the DOJ in Washington and later the U.S. Attorney's Office in Philadelphia. And yes, my knowledge of chemistry was useful in numerous cases!

After approximately a decade with DOJ, I went into private practice with



a law firm in Philadelphia. Immediately I found myself defending a gasoline pipeline company in a class action lawsuit brought by homeowners impacted by groundwater contamination after a pipeline accident. For several years I litigated the "toxic tort" claims of the homeowners who blamed benzene for everything that went wrong in their lives. The toxicity of hydrocarbons, or lack thereof, was my professional interest for a considerable time.

Then I had a patent infringement case referred to me. The case involved a patent on a polymer that was a thickener additive in latex paint. Two industrial behemoths squared off. The patentee wanted to protect its market share, and the alleged infringer wanted a piece of the lucrative latex paint market. Every witness had a Ph.D. in organic chemistry. Depositions of the witnesses were highly technical, and I enjoyed every minute of the battle. I found myself more interested in patent law than the casualty cases I had typically defended for insurance companies.

I decided to switch my interest, and I took the patent bar exam. The patent bar is a highly specialized exam administered by the U.S. Patent and Trademark Office (USPTO). A prerequisite is that the candidate must have either an undergraduate or graduate degree in one of several sciences. I studied intensely for the exam, and I was pleased to pass it on my first attempt.

Eventually I left private practice to work for a year as an assistant solicitor in the USPTO. The attorneys in the Solicitor's Office are often tasked with defending the decisions of the USPTO Board of Patent Appeals and Interferences (BPAI) in the federal courts. The BPAI will often sustain rejections of patent claims made by the patent examiners on a variety of grounds, such as lack of novelty, obviousness, or failure to adequately describe the invention in accordance with the requirements of the Patent Act. The Solicitor's Office also works on *amicus* briefs for cases in the U.S. Supreme Court when the Court wants to know the position of the United States on issues of patent law.

A few years ago I returned to Philadelphia to join my current law firm, which specializes in intellectual property, i.e., patents, trademarks, and copyrights. A large percent of my time is taken up with patent infringement litigation over generic drugs. The pharmaceutical company is usually alleging that the generic manufacturer infringes its patent, and the generic company is usually denying infringement or contesting the validity of the patent. "Invalidity" contests involve allegations that the USPTO issued the patent in error, as it should have been rejected for failing to meet one or more statutory criteria of patentability (such as lack of novelty, obviousness, and so forth). Patent infringement cases often have millions of dollars at stake.

Another aspect of my practice involves the preparation of patent applications on a variety of inventions including mechanical devices and compounds and processes in the chemical and biochemical arts. I also advise clients on how to avoid infringing competitors' patents.

I often advise undergraduate majors in the sciences to consider working as a patent examiner in the USPTO. It is extremely valuable experience. Patent examiners learn the intricacies of patent law; the rules, regulations and procedures for obtaining a patent; and a lot about the particular "art" in which they toil. While some examiners make a career at the USPTO, others elect to attend law school and switch to private industry or law firms. The experience these former examiners have is extremely valuable. These men and women know how to draft and prosecute patent applications for all the innovative research that is occurring in private industry and academia. While the USPTO hates to lose talented people, a certain amount of turnover is expected, and "graduates" of the examining corps serve a very important societal purpose. The patent system in the United States is second to none, and innovation in the United States should be second to none for a long time.

Anyone wanting more information on chemistry and a career in law is welcome to contact me by e-mail or telephone (number available on my law firm website: www.crbcp.com).

Commencement 2003

Graduating Class of 2003

Baccalaureate

Biochemistry

Terri Patricia Altmiller
Kristen Lenore Aramthanapon
Brian Richard Bell
Micah Jeffery Bodner
Han-Ju Chuang
Amy Melissa Cooke-Thill
Aaron Christopher Denbo
Haralambos Antonis Hadjivas-siliou
Buck Timothy Hanson
Rachel Lauren Jacks
Benjamin John Kuhlman
M. Christine Sherzer
Brynne Christine Stanton
Joshua David Thompson
Anthony Trung Tran
Li-Chun Lisa Tsai
Benjamin Lloyd Wiggins

Chemistry

Shannon Wachter Boettcher
Jenelle Kiara Bray
Eric Anders Hoidal
Matthew Montgomery Nye
David Louis Proctor
H. Jeffery Rayburn
Ramon Orlando Sanchez
Michael D. Swanson
Joshua John Wyman

Master of Science

Sarah Bowen Antonelli
Esther Caballero-Manrique
Jonah Cannoy
William Scott Dunlap
Melody Ann Elrod
Damon Justin Hamel
Melanie Rachel Hauser
Mark Barnett Johnson
Andrew Michael Jost
Jennie Lynn Looney
Lallie Cobb McKenzie
Georgette Erin Moyle
Robert Charles Muller
Yi Qian
Jeffrey Daniel Rask
Jacob Luff Reichman
Jonathan David Sowins
Shaun Patrick Swartz
Julia Renee Walls
Erica Alexander Wescott

Doctorate

Andrew Barry Carmel
April Stephanie Goehring
Gerard Joseph Oshering
Eric Eugene Sheagley
Marvin Glen Warner



Charles Jacobs: "It is an honor to be given the opportunity to present an award and to address you. I am not up on all the new thinking and ideas; however, one of the old ones is still valid: Pay-back. Approximately fifty percent of the cost of your education was underwritten by contributions of former students and friends of the university. For future students to be able to get the quality of education that you have received, it is most desirable that you plan to "pay-back." Please plan to make annual contributions to the university or specifically to the chemistry department. I have always counseled "spend less than you earn," but that shouldn't stop you from an annual contribution, no matter how small. And now really why I'm here: Upon recommendation of the faculty of the Department of Chemistry, I am pleased to announce Shannon Boettcher as the recipient of the 2003 American Institute of Chemists Foundation Award." Charles Jacobs is approaching the age of ninety-one, a record for a speaker at the Chemistry Commencement. We hope to have him back again. —Ed.

their names during the course (just to make my life easier), Haralambos with his sunny personality, David discussing science in the hallway, and of course all the others. How is it possible to ever forget you guys? I will bring the memory of you with me, in my heart and in my mind forever." —Excerpts from Guenza's address to the Class of 2003.



John Keana: "The film Harry Potter provides some helpful analogies in appreciating your chemistry degree. **Chemistry Muggles**, i.e., non-chemistry folk, probably don't know what you've been through to get here. Let's help them out. **General Chemistry:** You are escorted into the formerly forbidden forest of chemistry. You eventually make friends with a spectrum of creatures, including the **formidable stoichiometry troll and the oxidation-reduction troll**. Your new Nimbus 2000 calculator proves to be indispensable. How well did you do grade wise? The sorting hat lets you know. **Organic Chemistry:** A course full of animals—cows and chickens, gremlins, unicorns, and dragons (resonance structures), etc., and let's not forget the many mirrors of stereochemistry. Passing O-Chem was like getting past Fluffy—one head for each quarter. There were the **poems relating Thanksgiving to Organic Chemistry:** Made it to Thanksgiving hanging by a thread—How the heck can anybody keep it all in his head?—little did you know then what was to come! **P-Chem:** Passing P-Chem is like getting past the chessboard to reach the goal. There were wounded, of course, but you made it! You take a rare Saturday afternoon break for **Quidditch** between the Gryffendor Ducks and the Slytherin Huskeys. But today you are the Seeker, and you caught the Golden Snitch—a degree in chemistry. Instead of "Off to see the wizard," you are now "Off to be the wizard!" **You are a member of an elite group.** The total population of twenty-four-year-olds in the U.S. (as of 1998) was 3.4 million. Those with their bachelor's in chemistry: 10,120 or 0.8 percent. Your chemistry degree is an open door to a feast of opportunities..."

"Having just retired, may I finish with a suggestion looking toward your eventual retirement: Indiana editor John Soule and then Horace Greeley once said: "Go west, young man, go west." I want to paraphrase that to "Invest, young people, invest."

Awards and Honors

University Honors

Summa Cum Laude

Shannon Wachter Boettcher
Jenelle Kiara Bray

Cum Laude

Amy Melissa Cooke-Thill
Haralambos Antonis Hadjivas-siliou
Eric Anders Hoidal

Phi Beta Kappa

Shannon Wachter Boettcher
Jenelle Kiara Bray (Oregon 6)
Rachel Lauren Jacks
Brynne Christine Stanton

American Chemical Society

Analytical Award

Eric Anders Hoidal

Biochemistry

Achievement Award

Amy Melissa Cooke-Thill
Benjamin Lloyd Wiggins

Organic Chemistry Achievement Award

Kristen Lenore Aramthanapon

Inorganic Chemistry Achievement Award

Matthew Montgomery Nye

Richard M. Noyes Physical Chemistry Achievement Award

Jenelle Kiara Bray
David Louis Proctor

LeRoy H. Klemm Award for Excellence in Undergraduate Chemical Research

Micah Jeffery Bodner

American Institute of Chemists Foundation Award

Shannon Wachter Boettcher



Marina Guenza: "When I read the list of the students graduating I was so pleased to recognize most of the names. Really, how is it possible to ever forget you guys? Kristen, Rachel, and Brynne, the three girls always at the top. By the way, since I am an Italian professor teaching a course in English, Brynne wrote me a teaching evaluation in French (I wonder if my department head had trouble with it?). How can I forget Micah who was so interested in the course that he wrote me five e-mails before the course was even started, Jenelle and Aaron who shared with me the joy (or pain) of studying protein dynamics, Amy with her smart questions and her incredible will-power, Ramon and his unforgettable uncle Pepe, Josh and Antony that decided to exchange



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College of Arts and Sciences

DEPARTMENT OF CHEMISTRY

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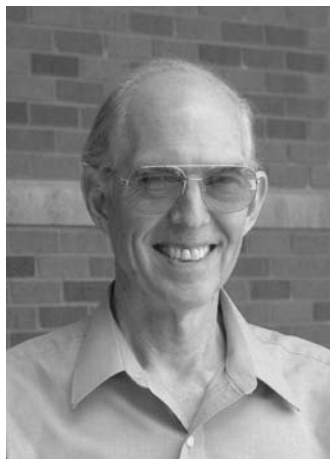
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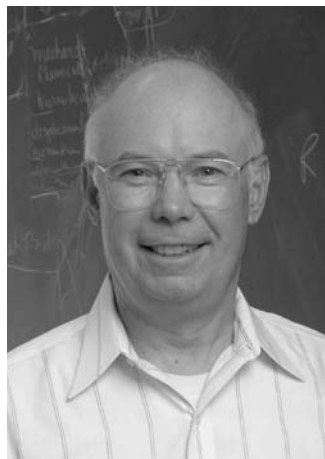
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