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Chemistry News

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INSIDE

History of the UO Department of Chemistry

Editor's Preface

Special Historical Edition

Our goal in bringing you the *UO Chemistry News* every year is to share with you the latest happenings in the Department of Chemistry and to bring you news about our alumni. While there certainly is news on the following pages, this edition is unique. In this newsletter you will find first-person accounts of how the chemistry department was transformed from a small department to an internationally known research institution. These articles were written specifically for this newsletter and have not been published previously.

Have you ever wondered when the chemistry department was created? According to the 1895-1896 UO catalog, the first chair, Edgar McClure, was appointed Fall, 1894. His story is so unusual that we start this historical edition with excerpts from his obituary. The primary activity in these early days was teaching, but there was some research. In the 1920s Orin F. Stafford, for example, patented a method of forming charcoal briquettes using waste from the wood products industry. It has been said that his work influenced Henry Ford's efforts to reclaim scrap wood and sawdust in automobile plants, which resulted in Kingsford brand charcoal briquettes. Around 1930, Adolf Kunz published articles on chemical education and analytical chemistry. All was going well until a setback in 1932, when the State System of Higher Education consolidated and moved all major work in the physical and biological sciences to Oregon State Agriculture College (now Oregon State University), leaving only service courses and general science degrees at the UO. In the fall of 1942, this decision was reversed. The chemistry department began to offer both undergraduate and graduate degrees shortly thereafter. An established chemist, Pierre Van Rysselberghe arrived from Stanford in 1941 and quickly developed an internationally known research program at the UO. In 1946 three new assistant professors were added to the teaching staff: Francis "Frank" Reithel, Don Swinehart, and Hans Heymann. They, along with Van Rysselberghe, formed a cadre that carried a large teaching load. (Reithel and Swinehart continued here

Photograph of Villard Hall with Deady Hall in the background around the time the chemistry department was formed. This photo was taken in the 1890s during a celebration. Note the horse-drawn surreys in the foreground. Science was taught in Deady Hall, which was built in 1876. Villard Hall (built in 1886) provided the main entrance to the university as evidenced by the university seal placed in the sidewalk in front of the steps to Villard Hall by the Class of 1912. The university seal was moved to the entrance of the Erb Memorial Union in 1950 in recognition of the shift of the center of activity on campus. The university first opened its doors in 1876 to 155 students and five faculty members. Photo courtesy of University Archives.

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until they retired; Heymann left in 1949.) The setback of the 1930s was turning into an advantage: With very few faculty members and a flood of GIs returning as students after World War II, there was an opportunity to build the sciences with new faculty and new directions. By the 1950s, the transformation to an acclaimed research and teaching university department was underway.

There were four main players in the early phase of this transformation: Pierre Van Rysselberghe, the first chemist at the UO with an internationally acclaimed research program and the first Ph.D. graduates, Robert Clark, then dean of the college, who had the vision and courage to build up the sciences; Terrell Hill, who was hired to provide direction and select faculty; and Frank Reithel, who had become chair of the chemistry department in 1956, following Adolf Kuntz's fifteen-year tenure in that position.

This issue of the newsletter provides a look at the early days of the Department of Chemistry and the transition to a modern teaching and research department. There are four articles. We begin with an abstract from a 1897 newspaper article about Edgar McClure. The next three articles are eyewitness accounts from later years. The first of these is by one of Van Rysselberghe's Ph.D. students, Paul Delahay, the second is by Robert Clark, and the third by Terrell Hill.

Most editions of the newsletter contain a "Reflections" article, with first-person insights about the campus and the times. In this edition, "Reflections" is written by Charles Jacobs and brings us an eyewitness account of the history of an industrial application of chemistry that we all encounter but seldom think about. Jacobs was an undergraduate here from 1930 to 1931 before the department started undergoing its transition. This is a reminder that the department had some outstanding students and teachers in those days, as it continues to have today. The interested reader may wish to look up the three-part series by Marion Hill (B.A. 1948, M.A. 1950) in the 1995, 1996 and 1997 issues of *UO Chemistry News*. Marion Hill's "Reflections" articles provided a memorable account of the trauma of World War II, the return of the GIs, and life on the UO campus during the late 1940s. Marion Hill's mentor was Hans Heymann. Marion Hill took physical chemistry from Van Rysselberghe and gave us a glimpse of Van Rysselberghe as a teacher. These and other editions of the newsletter can be found on the Department of Chemistry website and in the University Archives.

The chemistry department is now a little more than 100 years old. In a nutshell, the first fifty years were dedicated to undergraduate teaching and service. During the second half of the twentieth century, graduate education and funded research programs were added. This enriched the undergraduate program by providing better instrumentation and opportunities for undergraduate research training and a wider offering of courses.

Knowing our history is helpful in understanding the challenges of the future. As Clark points out in his article, the development of the chemistry department was a struggle that took place in an environment of limited state funding. The same situation exists today and may continue in the future. The state of Oregon struggles to provide basic support but at a lower level than California and Washington in part because there is no sales tax in Oregon. It is often said that the UO is a state-assisted university rather than a state-supported institution.

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McClure Hall around 1950. It was located where Allen Hall stands now, next to Friendly Hall. McClure Hall was built in 1900 at a cost of $16,000. McClure Hall was the home of the chemistry department for approximately fifty years. It was torn down in 1953 when the new science building (Science I, now called Pacific) was constructed. The notation on the back of the photo reads "Reithel's lab in Quonset." Quonset huts were cheap, portable structures built by the U.S. armed forces during World War II. They popped up on campus after the war to provide additional instructional space for the returning GIs. Photo courtesy of University Archives.

The "new science building," called Science I for many years and now called Pacific Hall, in the late 1950s or early 1960s. During the construction one faculty member was quoted as saying, "It is so large that we will never fill it." Since then a succession of science buildings have been added. Currently the chemistry department occupies Klamath Hall (originally Science II) and parts of Onyx Bridge, Streisinger Hall, and Willamette Hall. Photo courtesy of University Archives.

Edgar McClure—the First Chair of the Department of Chemistry

The Son of an Oregon Pioneer Family Blazes the Trail

The following was abstracted from a longer article titled "Eugene Mourns Her Favorite Son," which appeared in the July 31, 1897, Saturday evening edition of the daily Eugene Guard, *after Edgar McClure's accidental death at age thirty-five on the snow-covered slopes of Mount Rainier. McClure was initially hired at the UO to teach mathematics, but his passions were chemistry and mountain climbing. The first chemistry building, built in 1900, was named McClure Hall in his honor.*

—Ed.

Edgar McClure. This picture accompanied the article "Eugene Mourns Her Favorite Son" in the Eugene Guard, July 31, 1897. The original caption read "The Late Professor S. E. McClure."

"Edgar McClure was born in Eugene, Oregon on December 31, 1862, son of Mr. and Mrs. A. S. McClure, two of Oregon's early pioneers, who came to this country in 1853. His first education was received in the public schools of Eugene. Advancing to a higher education he commenced his studies in the University of Oregon in 1877, completing the course in 1883. During the first two years after graduating he filled the position of principal of the Junction public schools, Lane county. In 1887 he was elected a tutor in his alma mater, his work being in mathematics. Taking up the study of chemistry, which he quietly pursued for several years, he asked for permission during the school year of 1893–94 to further pursue his studies at Harvard university, which was granted and at his return was elected to the chair of chemistry and a full professorship in the school. His life work mapped out, he pursued his calling with a degree of success that many a man of twice his years would have been proud to have attained. He has been considered eminent authority on matters pertaining to science among the educated men of the West, and has been one of the most progressive in dealing with new scientific researches.

He pursued his calling with a degree of success that many a man of twice his years would have been proud to have attained.

His experience as mountain climber has been considerable, he being one of the most expert mountaineers of the Northwest. Early in the organization of the Mazamas Club, Edgar McClure became a member and scaled most of the peaks in the state of Oregon. In 1895 he measured Mount Adams for the Mazamas, and his record was subsequently accepted by the United State government as official. In 1896 he was a member of the expedition which explored Crater lake.

His death occurred between the hours of 11 and 12 p m, July 27, 1897, and was purely accidental. A party of fourteen who had been on the mountain were returning down to camp Mazama, from camp Muir, which they had reached between 8 and 9 o'clock. When within about one and one-half miles of Camp Mazama, and when the party had scattered considerably, Professor McClure, who was with Miss McBride and Dr. Connell, realizing that they were off the usual trail over the snow, was investigating to see whether they could safely go down an incline. He had passed partly down the incline of snow and becoming satisfied that they could not go down that way, called out to the others not to come, that he would come up. However, the snow being icy, it seems he slipped his toehold and was dashed to death on the rocks which were at the foot of the incline.

A good citizen has gone. A brilliant man among Western educators has given out his final instructions. An honored and loved man has taken the journey that separates earthly life from immortal existence with the great Alchemist, the Maker of the Universe, the repository of human achievements and deeds. In the midst of life we are in death and blessed be he of whom it can be said: He has made the world better by having lived."

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Excellence can only be sustained by augmenting the state support with private funding. This change is already underway elsewhere, and the distinction between state and private universities has become blurred. The challenge of the next fifty years is to build an infrastructure of private support. A strong program requires endowed chairs, a pool of graduate student fellowships, and peer tutors, as well as undergraduate scholarships. The future of the Department of Chemistry will depend on the success of this effort.

I hope you enjoy this unique newsletter as much as I enjoyed getting to know the pioneers of the department. Special thanks to Marion Hill for his help and encouragement in carrying out this project, to Karen Griffith-Hedberg for critically reading the manuscripts, and to Heather Briston, University Archivist, for locating historical documents concerning the Department of Chemistry.

—Cordially, Hayes Griffith

Recollections: Oregon 1948–49

A Tribute to Pierre Van Rysselberghe— A Pioneer in Physical Chemistry

Lily and Pierre Van Rysselberghe in 1936 in Belgium. Photo courtesy of Judge Pierre Van Rysselberghe and Jane V. R. Bernasconi, son and daughter of Lily and Pierre Van Rysselberghe.

The arrival of Pierre Van Rysselberghe in 1941 brought the UO Department of Chemistry an internationally known research program. He mentored the first six Ph.D. graduates of the department. His unexpected departure in 1955 highlighted the need for change. This following first-person account has been written by one of his Ph.D. students, Paul Delahay, who later established his own international reputation in electrochemistry. Delahay has received many honors including the Award in Pure Chemistry from the ACS, the Palladium Medal in 1967 from the Electrochemical Society, and was the recipient of the 2001 Alumni Achievement Award in Chemistry. Highlights of his career can be found in the Spring 2002 edition of the UO Chemistry News. Delahay wrote an invited paper for the fiftieth anniversary of the International Society of Electrochemistry describing the origins of the Society (Electrochimica Acta 45 (2000) xxv–xxvi) which contains another glimpse of the activity of Van Rysselberghe and his group at the UO. Delahay dedicated his Electrochimica Acta article to the memory of Pierre Van Rysselberghe.

—Ed.

By Paul Delahay

Pierre Van Rysselberghe was waiting for me at the railroad station in Eugene on a cool morning in early November 1946. I had met him in Brussels in July of that year and had inquired about the possibility of doing research work at an American university. He invited me to come to Eugene.

I was, at that time, a junior faculty member in the chemistry department of the engineering school at the University of Brussels. I could have remained in Brussels. The harsh conditions of the war were over, and life was returning progressively to normality. But I was determined to go, and I was granted a one-year leave of absence by the university.

The Van Rysselberghes gave me a warm welcome and helped me with the practical details of settling down in Eugene. They invited me to dinner at their home shortly after my arrival. Their house was quite large with a beautifully tended garden on a hill overlooking downtown Eugene. Lily Van Rysselberghe was an enthusiastic gardener. She also had a scientific background with a degree in bacteriology from Stanford University. Both were keenly interested in literature, history, and art, as I found out later. The conversation was in French that evening as Lily spoke this language fluently. I was an eager listener. That was the evening I tasted my first California wine.

Pierre and I got along very well as we had somewhat similar backgrounds: He was from Brussels and had graduated as an engineer from the University of Brussels. He went shortly thereafter to Stanford University with a Belgian fellowship, and he was awarded a Ph.D. degree in chemistry in 1930. He was on the chemistry faculty at Stanford from 1931 until he moved to Eugene in 1941. The Department of Chemistry in Eugene, at that time, was small with only two full professors, namely the department head, Adolph Kunz, and Van Rysselberghe. It is fair to say, I believe, that Pierre was the first faculty member with an international reputation in the history of the department.

We met frequently, Pierre and I, as I had to cross his office to go in and out of the adjacent laboratory where I worked on the second floor

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Pierre Van Rysselberghe (left) and Marcel Pourbaix in 1949 at Crater Lake. Dr. Pourbaix was instrumental in organizing the Comité International de Thermodynamique et de Cinétique Electrochimiques (CITCE), which became the International Society of Electrochemistry. Pierre Van Rysselberghe became the first president of CITCE while he was in the UO Department of Chemistry. Photo courtesy of Antoine Pourbaix, son of Marcel Pourbaix.

The first group of Ph.D. students graduating from the Department of Chemistry. From left to right: Howard K. Zimmerman, Gilbert J. Hunt, Roland McCully, and Paul Delahay standing at the steps of McClure Hall on the day of the 1948 UO Commencement. There was only one prior Ph.D. from chemistry: Armin H. Gropp, who graduated in 1947. The next Ph.D. granted was to Robert D. Williams in 1950. All six were physical chemistry students of Pierre Van Rysselberghe. At least two of these students, Armin Gropp (B.A., 1943) and Robert Williams (B.S., 1943), were undergraduates at the UO, and stayed on to do their graduate work with Van Rysselberghe. Photo courtesy of Paul Delahay.

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of McClure Hall. He had many student visitors, and his teaching load was heavy. He managed somehow to direct the doctoral work of six or seven students, mostly former G.I.s. He continued the work on electrolytes he had done at Stanford, and he initiated work on electrode processes and metallic corrosion. His dominant interest, however, was the thermodynamics of irreversible processes. He had collaborated in the 1930s with the founder, De Donder, of what became known as the Brussels school of thermodynamics. Pierre extended this approach to electrode reactions and wrote extensively on this topic in the 1950s.

The main research laboratory in the basement of McClure Hall was quite spacious and rather well equipped. Some of the instruments would be regarded nowadays as valuable museum pieces, but they were of very high quality and absolutely essential to research. I had used similar equipment in Brussels. There was also an ample supply of war surplus electronic equipment in the attic of the building. Most of it was useless for our purpose, but some of it found its way into my work.

I began work a few days after my arrival, and I continued the research I had been doing prior to my departure from Brussels. This work involved the processing of the signal from an electrochemical cell by means of an electrical network. It amounted to doing a mathematical operation (differentiation) without a computer. The work was continued by others in the early 1950s and led to a commercial instrument for automatic analysis (titrations).

"Van R," as the graduate students called him, suggested early in 1947 that I use the results from my work in Brussels and Eugene as the material for a doctoral dissertation. I easily had the required background of formal courses with Belgian degrees in electrical engineering and in chemistry. The dissertation was completed by the fall of 1947, and the degree was awarded at the 1948 commencement. Three other doctoral candidates from the Van Rysselberghe group graduated on the same day.

My stay in Eugene was drawing to a close by the fall of 1947, and it was time to return to Brussels and my position at the university. Events turned out differently. Pierre invited me to stay on as a postdoctoral fellow on a contract he had with the Office of Naval Research (ONR) for the study of metallic corrosion. Government support for unclassified research in the U.S. dates back to this period, and ONR played a leading role in the implementation of this policy.

I accepted the offer of a postdoctoral fellowship, fully realizing that I was deciding, in all likelihood, to stay permanently in the U.S. and resign from my position in Brussels. I returned to Belgium for two months and was back in Eugene by early January 1948. I worked for nearly two years on the ONR contract with great freedom in the approaches I chose. This resulted in several publications, one of which was selected by the Electrochemical Society for their Young Author Prize.

Marcel Pourbaix, a colleague of mine at the University of Brussels, came to Eugene for a three-week visit in the summer of 1949. He and Pierre had known each other since their student days at the engineering school in Brussels. Pourbaix was in the process of creating an association which ultimately became the International Society of Electrochemistry with about one thousand members at present. Pierre and I represented the U.S. among the thirteen founding members. I was not involved in subsequent developments as I had other interests, but Pierre became the first president of the association. These new duties, I believe, progressively changed his professional interests and activities. He returned to Stanford University in 1955 for a position free of teaching duties. He continued in the succeeding years to write up unpublished work done with graduate students while he was in Eugene. He also was active in the International Union of Pure and Applied Chemistry.

I accepted an offer of a faculty position from Louisiana State University and left Eugene in December 1949. Pierre and I met afterwards at various scientific meetings and on other occasions. I stopped over in Eugene in 1954 on my way to Seattle for lectures at the University of Washington. Our last meeting took place on the occasion of the 1970 Gordon Conference on Electrochemistry in Santa Barbara. My wife and I met the Van Rysselberghes in San Francisco, and Lily was our gracious guide to the city where she was born and raised. We met again at the conference. Pierre was quite nostalgic. He did not say so explicitly, but he felt, I believe, that the postwar years in Eugene had been the best of his career as a dedicated teacher and research worker. I kept in touch with my mentor and friend until his death in 1977 and with Lily until 1995.

The Rise of Chemistry to International Distinction at the University of Oregon

Bob Clark is one of the most beloved members of the university; a man honored and respected by alumni, students, and faculty alike. He was dean of the College of Liberal Arts from 1956 to 1964. Bob Clark was instrumental in bringing about major upgrades in all the science departments, beginning with chemistry. He went on to become the eleventh president of the university in 1969 and was the first president to retire from the university (1975). Positive change does not happen without resources. It was largely Bob Clark's vision and tireless efforts that resulted in improving salaries, reducing exhausting teaching loads, and providing new physical facilities. Bob Clark is still a familiar figure at UO celebrations and fund raising events. The honors college is named the Robert D. Clark Honors College in recognition of his achievements.

—Ed.

By Robert D. Clark

One of the most dramatic chapters in the history of the university, with chemistry leading the way, was the remarkable rise of the sciences from a state of degradation to worldwide recognition for their excellence. I choose the word degradation advisedly, for beginning in 1932 instruction in the sciences, beyond the sophomore year, was removed from the university and placed at Oregon State University, which was then known as Oregon State Agricultural College.

Robert D. Clark. Photo circa 1970.

The sciences had risen gradually in the university, established by the legislature in 1876. By the 1920s several departments, including chemistry, had begun to offer graduate studies leading to master's and doctoral degrees.

From the early years on there had been some conflict between the university and the agricultural college, largely over the duplication of courses and unnecessary costs. Oregon State had begun in 1868 as a unit of Corvallis College, a Southern Methodist institution that the state eventually took over. The legislature's intent was to provide instruction in agriculture and mechanical arts and to preserve the subsidy the federal government had created to support Land-Grant colleges in the states. In common with many Land-Grant schools, the agricultural college admitted students directly from grammar school into its programs in agriculture and mechanical arts. The university, therefore, felt justified in offering engineering at the post-high school level and in the 1890s established a program that it expanded in the early 1900s. It also set up a timber testing station that, despite objections, the legislature supported. The sharpness of the conflict led the legislature to create a Board of Higher Curricula with authority to resolve these problems. The university's preference to find resolution outside the political area led it to favor the establishment of the board. And in the first years the board supported the university's program in engineering. But in 1913 it ruled that all engineering be transferred to the agricultural college and recommended that the college limit admission to high school graduates.

Controversy between the institutions and their supporters continued in the years that followed, over both curricula and finances. Shortly after World War I, the citizens adopted a millage tax on property to support the university and the agricultural college. Because enrollment in the college was greater, funds were, eventually, divided on the formula 3/5 for the college, 2/5 for the university. By the end of the 1920s university enrollment had grown to be even with that of the college. Supporters demanded an even distribution of the funds. The conflict was intense, both over the funding and the duplication of courses that the Board of Higher Curricula had not been able to solve. In consequence, the legislature in 1929 voted to consolidate the institutions of higher education, including not only the university and the agricultural college, but also the medical school, the law school, and the three teachers' colleges,

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under one governing board. The intent was to reduce conflict and eliminate unnecessary duplication of instruction and costs.

The new board contracted with the higher education specialist in the Federal Bureau of Education to survey the situation in Oregon and make recommendations. Consequently, and after a long study of the detailed report, the board created what might be called a multi-versity, with different functions allotted to different campuses and inter-institutional deans to supervise the operation. The lower division courses were to be essentially alike on the several campuses. Elementary education was allotted to the teachers' colleges, business administration was moved from the college to the university. All of the sciences above the lower division were assigned to the state college. It did not matter to the board that all advanced instruction in the pure sciences, including upper division and graduate, was at the university. Under the plan Oregon State was to be the school of science, the advanced sciences were to be concentrated there, and the faculty members were to be moved to Corvallis. Likewise, some faculty members in education and business were to be moved from Corvallis to Eugene.

After a few years under the new plan, the university president, for reasons of poor health, resigned. The board, consulting with the faculty, selected as a successor a former member of the faculty, Dr. Donald Erb, then a professor of economics at Stanford University. Dr. Erb, with the strong conviction that a university without the sciences was not a university, persuaded the board to restore them. Taking action that would not now be countenanced, he went from board member to board member to persuade them individually. He argued that Oregon was the only state in the nation in which the state university did not offer science. Convinced by his argument, the board, in October 1941, authorized the university to offer instruction leading to undergraduate and advanced degrees in the sciences.

In 1941 the nation was at war. Young men, who ordinarily filled the classes in the sciences, were in military service, and more faculty members were not needed. With the end of the war in 1945, and the provision by Congress of an Educational Bill of Rights to provide financial assistance to veterans seeking higher education, the campus was flooded with students. It was very difficult to find competent staff members. Departments hired faculty as they could, some able, some not.

The problem was temporary. Veterans, many of whom had one or two years of college credits, began to graduate in great numbers. By the spring of 1951, the university, planning for the next year, faced the problem of overstaffing in many departments. Cuts had to be made. That was the year that I, as assistant dean in the College of Liberal Arts (now Arts and Sciences) met my first challenge to meld toughness (high standards) and compassion in dealing with personnel problems. President Newburn made the issue clear. "Here is your budget, with the total number of staff allotted to you," he said to me. "That's it, work it out." With their experience and understanding of such problems, department heads rallied to the task. We met our budget.

Chemistry led the way. . . . Its outstanding member, Pierre Van Rysselberghe, had just resigned to accept a position at Stanford, and the chairman, Frank Reithel, had vision and high standards. With the approval of the president, I authorized the department to recruit a qualified chemist. He was to come to the campus not only as a candidate but also to advise the university on the nature of the graduate program it should develop. The department recommended Terrell Hill.

Very shortly we were faced with a new and much happier problem. Enrollments began to rise, slowly but steadily, and the projections were for a continuing increase over the next several years. By then President Newburn had moved on to another exciting project and the dean, Eldon Johnson, who also had a vision for the future of the sciences, had accepted the presidency of an eastern university. The new president, O. Meredith Wilson, kept me in the office as acting dean for a year and then appointed me to the post.

The one matter above all else that claimed my interest and attention was staffing the departments of science. They still had scarcely begun rebuilding after the years of being limited to lower division instruction. It was a rare opportunity, it seemed to me, to build with quality and strength. The department heads agreed. And so, with enthusiasm, did President Wilson. He placed the administrative responsibility on the dean who had to be tough on selection and tenure. For years the university had relied on what was referred to derisively as the "good old boy" method of recruiting. Faculty would write to former mentors or colleagues they knew on other campuses to ask for recommendations. There was little or no money to pay for visits and interviews. With the papers before them, departments made recommendations (usually three, with an indication of preference); the dean added his recommendation; and the president approved, or on rare occasion, rejected all candidates.

President Wilson had strong convictions about what we should do. With broad perspective drawn from his experience as dean of the social sciences at the University of Chicago, and later as executive secretary of the Fund for the Advancement of Education of the Ford Foundation, he was persuaded that the university should not follow traditional patterns in the development of graduate work in the sciences and certainly should not duplicate the offerings at Oregon State. The departments

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The Rise of Chemistry

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agreed, particularly chemistry and biology. Chemistry led the way. It had greater flexibility because of temporary staff and vacancies. Its outstanding member, Pierre Van Rysselberghe, had just resigned to accept a position at Stanford, and the chairman, Frank Reithel, had vision and high standards. With the approval of the President, I authorized the department to recruit a qualified chemist. He was to come to the campus not only as a candidate but also to advise the university on the nature of the graduate program it should develop.

The department recommended Terrell Hill, chemist at the U.S. Naval Medical Research Institute. A graduate of the University of California, Berkeley, with both A.B. and Ph.D. degrees, he had spent a half year at Harvard as a graduate student, had taught at the University of Rochester, and had created an impressive record of research. He delivered a formal lecture; talked with faculty, students, and administration; studied the situation of the sciences; and made his recommendation. The university, he said, should first of all recruit to its faculty highly qualified chemists, who would then assist in the development of the department.

Everyone was much impressed and delighted. He came to my office to discuss the conditions of his appointment. All went well until we came to a critical point—the salary. He had thought, he said, about what he must have to make the move. He named a figure that I could not meet. The chancellor had set a salary ceiling for professors. Presidents were not to go above that level.

I went to the President's office with mingled feelings of despair and hope. There was no question but that Terrell Hill was the man for us. Wilson agreed. He called the chancellor, but he was out of the state and was not available by telephone. We must have a decision at once. Wilson, with his many contacts with other universities, knew what the situation was with academic salaries, particularly in the sciences. Hill's request, he said to me, was not unreasonable. He would take the chance and approve the requested salary, believing that the chancellor, too, would approve the exception.

We were on our way. Terrell Hill accepted and reported for duty the next fall, in 1957. He began at once, in cooperation with Reithel, to recruit faculty. In short order they brought in John Schellman, Richard Noyes, and Virgil Boekelheide. Reithel, whose interest was primarily in undergraduate education, gave way as department head to others: Hill, himself, for a year; Noyes; Reithel, again; and Boekelheide. But Hill was still not satisfied. One morning in his second year an idea struck him: The way to go, he thought, was molecular biology (a new field, of immense promise, and it was in the category of theoretical science). His colleagues quickly endorsed the suggestion. With President Wilson's enthusiastic support, they canvassed the field for candidates, selected Aaron Novick of the University of Chicago, and brought him to the campus. He was a student of the world-famous physicist, turned biologist, Leo Szilard, who had been a major figure in the development of the atomic bomb. Aaron had served on the team at Los Alamos that developed the bomb (both Szilard and he were to deplore the use of the bomb and its threat to humankind). After the war Novick returned to Chicago as a member of the faculty in molecular biology.

Like Terrell Hill, Novick delivered a paper on his research; talked with faculty, students, and administration; and impressed, delighted, and charmed everyone. I will always remember his wide-ranging interests, not only in science, but also in art, music, and theater, as well as his animated account of seeing the latest sensation on stage, *Waiting for Godot*. With the united support of the departments, he was appointed.

He moved quickly to organize an interdepartmental program, the Institute for Molecular Biology, and to recruit staff. The financial problem was not as serious as it had been. Governor Robert Holmes, a friend of higher education, had persuaded the legislature to provide a substantial increase in faculty salaries (something greater than twenty percent), and the ceiling was gone. However, salaries across the country had risen sharply. Even with the increase it was necessary to take drastic steps to secure top faculty. We did not have rigid salary scales, as did some institutions. It was possible, therefore, to skew the salaries in favor of the sciences and the topflight staff we hoped to attract. And that we did. I remember, at a casual social gathering long after we had both retired, that Virgil Boekelheide once teased me with the comment that his beginning salary at Oregon was higher than the dean's. It may have been. I don't remember. But the point was that we had to use our resources wisely. The worldwide recognition that the sciences soon achieved indicated that we had been successful. And to protect the status of the humanities and social sciences, I selected, with faculty advice, one representative from each area to keep pace with the top salary levels of the sciences. The time would come, I hoped, unrealistically, when we would have the resources to achieve parity for all, according to ability and achievement.

The whole history of the University of Oregon, and higher education in the state, has revolved around trying to persuade the legislature to provide adequate support. Once again the sciences must struggle for finances, not only to keep pace in recruiting faculty, but also to retain those faculty members now on the staff. The departments and institutes through their high quality and outstanding reputation have built a strong sense of community that, with the general quality of the university, has commanded the loyalty of the faculty. But the time is at hand when more must be done, much more. Old ploys and temporary policies are no longer adequate. Happily, some members of the faculty and graduates have begun to point the way: endowed chairs. A good start, but it will be a long, hard battle. Good luck for the continuance of a great educational enterprise.

My Role as a Recruiter at the University of Oregon

Terrell L. Hill received his A.B. in biochemistry in 1939 and his Ph.D. in chemistry in 1942 from the University of California, Berkeley. Hill spent a year and a half each at Western Reserve University and Berkeley (working in the Manhattan Project), four years on the faculty of the University of Rochester, and eight years as a chemist with the Naval Medical Research Institute, Bethesda, Md. before coming to the UO in 1957. His role of recruiting new faculty was a turning point in the history of the Department of Chemistry, and is described in this first-person account. While on the UO faculty, Hill also carried out significant scientific activities including publication of his graduate text book "Statistical Thermodynamics" (Addison-Wesley, 1960); development of the thermodynamics of small systems (1961-64); and the study of steady-state kinetic systems using a diagram approach. He moved to U. C. Santa Cruz in 1967, and joined the Laboratory of Molecular Biology of the Arthritis Institute of the NIH in 1971, continuing his summers at U. C. Santa Cruz. Hill retired in 1988 and lives in Santa Cruz. Details about Terrell Hill's career can be found in a seventieth birthday Festschrift in his honor published in volumes 11 (1987) and 12 (1988) of Cell Biophysics. Hill has recently published his perspectives on the thermodynamics of small systems ("nanothermodynamics") in Nano Letters 1, 111-112, 159-160, 273-275 (all in 2001) and 2, 609-613 (2002).

—Ed.

Terrell L. Hill. Photo taken about 1963.

By Terrell L. Hill

I was 38 in 1956 and by then had published many research papers and a well-received research-level book titled *Statistical Mechanics*. I was at the Naval Medical Research Institute in Bethesda, Maryland. My wife and I had lived in the East since the end of World War II, and we were both hoping to get back to the West Coast before too long. (We had met in Berkeley in 1941.) So when I received a letter from Frank Reithel, chairman of chemistry at the University of Oregon, asking if I would consider visiting Eugene with a future permanent move as a prospect, I was interested. The problem: the University of Oregon had a poor reputation in science.

Subsequently, on my way to Eugene for my visit, I stopped at Stanford University to see Pierre Van Rysselberghe. He had been the only well-known member of the University of Oregon Department of Chemistry, and in fact his recent departure had created the vacancy I might possibly fill. I believe he left Eugene for reasons of health: teaching had become too stressful; he did full-time research at Stanford. His report to me on the state of science in Eugene was discouraging. This confirmed the impression I already had. Consequently, before reaching Eugene, I decided that I wouldn't consider a move there unless several additional appointments in chemistry could be made. Furthermore, because I felt that I had relatively good contacts, I wanted to suggest the candidates in order to ensure high quality. Actually, as I understand it, my own name had come up in a somewhat related way: Reithel had first approached a certain well-known physical chemist who wasn't interested in the job himself but who thought that I might be (he was a friend of mine).

From my point of view my visit to Eugene went very well. I liked the location and the people I met, and I was especially favorably impressed with Frank Reithel and Bob Clark, the dean, as administrators. Equally or perhaps even more important to me was the fact that my ideas about further recruiting were welcomed. I had the impression that the university was delighted that I would be willing to spend appreciable time in this way (my reputation, as well as my main interest, was primarily as a researcher). The upshot was that I accepted a professorship and we (five of us) moved to Eugene in mid-summer of 1957. After a month or so we bought a lovely house up on a hill. It was a lot larger than our Bethesda house; real estate was much less expensive in Eugene than in Bethesda. It turned out (we didn't know this in advance) that our new Eugene home had been owned by the Van Rysselberghes!

During the academic year 1957-58 I suggested and the three-man team Clark-Reithel-Hill succeeded in persuading John Schellman at the University of Minnesota and Dick Noyes at Columbia to move to our chemistry department. Noyes' possible availability had been brought to my attention by Linus Pauling. Some years later, both Schellman and Noyes were elected to the National Academy of Sciences. So we were off to a good start on the quality front.

Two other chemists I soon tried to get were Virgil Boekelheide and Sid Bernhard. Both were former colleagues of mine: Boekelheide at the University of Rochester and Bernhard at the Naval Medical Research Institute. Both declined at first. But Boekelheide changed his mind and joined us in 1960. Soon after, in 1962, he became the first person from the state of Oregon to be elected to the National Academy of Sciences (I was the second, in 1965). Bernhard also had a change of heart and came to Eugene in 1961. What it took to persuade him was the creation of the Institute of Molecular Biology and his recruitment for it by the director, Aaron Novick.

After some months in Eugene I was very conscious of the general weakness of the biology department. To help correct this situation I had the idea one day (I was walking by the Men's Gym on the way

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My Role as Recruiter

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to my office) that we should start an Institute of Molecular Biology. Members of the institute would have appointments also in biology, chemistry, or physics and would have only half-time teaching responsibilities there to free up more time for research. This would be a very attractive feature in recruitment efforts. Partial salaries would have to come from individual research grants. But this proved to be practical because of the high quality of staff selected and also because of a lucky coincidence: the USSR sent up Sputnik in October 1957, and one quick American response was to increase significantly the amount of federal money put into scientific research grants.

The concept of a new Institute of Molecular Biology was approved by Dean Clark and President Meredith Wilson, with backing by Frank Reithel. My job was then to find a director. Once appointed he would take over all aspects, including recruiting; I could then drop out.

The suggestion of Aaron Novick of the University of Chicago as possible director came to me from Gunther Stent (UCB), a mutual friend. Novick proved to be willing to visit and did so very successfully, but he soon decided to go to UCSD instead: a major setback for us! But after a few months at UCSD, Novick changed his mind and opted to join us (the job was still open). He started his work in Eugene on January 1, 1959.

The detailed story of the beginnings and the truly impressive development of the institute can be found in the article "The Making of an Institute" by Tom Hager in the alumni magazine *Old Oregon* Vol. 64, 22-27 (1984).

I had the idea one day that we should start an Institute of Molecular Biology.

After the Institute of Molecular Biology was well under way, it occurred to me, by analogy, that our physics department could be helped indirectly if we started a second institute: an Institute of Theoretical Science with joint half-time appointments in physics or chemistry. This idea was also approved by Dean Clark and President Wilson. I then set about to find a director and came up with Marshall Fixman, an outstanding young theoretical chemist (he, too, was later elected to the National Academy of Sciences). Although I was also a theoretician, I stayed out of the new institute so that Fixman could go his own way uninhibited by my presence.

A final suggestion of mine for a chemistry department appointment turned out well: Bill Simpson of the University of Washington, an expert in quantum chemistry and the possessor of a personality appreciated by everyone, agreed to move to Eugene in 1963.

At this point I retired from active recruiting of senior staff: Some of the people I had helped bring to Eugene took over, with others, the task of finding new faculty, as needed.

Chemistry Department Heads

How many of these faces do you recognize?

George H. Collier
1st Chemist
1878-95

S. Edgar McClure
1st Chair
1894-97

Arthur Lachman
1897-1902

Orin F. Stafford
1906-41

Adolf Henry Kunz
1941-56

Francis J. Reithel
1957-59 and 1961-63

Terrell Hill
1959-60

Richard M. Noyes
1960-61, 1963-64,
1966-68, and 1975-78

Virgil C. Boekelheide
1964-66 and 1968-72

David R. Herrick
1987-93

William T. Simpson
1972-75

Thomas R. Dyke
1993-95

Robert M. Mazo
1978-81

David R. Tyler
1995-98

Peter H. von Hippel
1981-87

Frederick W. Dahlquist
1998-present

This panel was assembled by Hayes Griffith and Melinde Hatfield, a genealogist, in 1980. This display hangs in the chemistry office as a lasting tribute to those who have taken on the challenging and time-consuming task of serving as department head. It is updated with each new appointment.

A note on George H. Collier: In the 1878-79 University Catalog he is listed as a professor of chemistry and physics with the following statement. "Professor Collier, widely known in our state as a teacher of chemistry and for some time past as a lecturer on chemistry to the medical department of Willamette University, takes the chair of Chemistry, Physics, and Metallurgy." His residence, Collier House, still stands across 13th Avenue from Friendly Hall.

A Historic Landmark in Applied Chemistry

The Transition from Cork to Synthetic Organic Seals in Bottle Crowns

Classroom instruction focuses on the fundamentals. Little is taught about the challenging task of making useful products for society (with the exception of the new UO Industrial Internship Programs). We are only vaguely aware of the many changes in industrial processes and packaging produced by innovative chemists in the private sector. The following is a first-person account of one such change by Charles Jacobs, who attended the UO in 1930 and 1931, and is listed as a member of the Class of 1934. It provides a link to the history of the Department in the 1930s. His mentor, Orin Stafford, recognized his talent and advised Jacobs to transfer to Stanford since there was little opportunity for undergraduate research at the UO at that time. Jacobs went on to receive his B.A. in 1933 and M.A. in 1934 from Stanford and had a distinguished career in industry. You can read about Jacobs, his family links to the Oregon Pioneers who settled in the Willamette Valley, and his career in the article titled "Jacobs Endowment" that appeared in the 1999 edition of UO Chemistry News.

—Ed.

Charles J. Jacobs. Jacobs started his career as a research chemist at Shell Oil Co. in 1934 and held positions at several companies before becoming chief chemist at Pacific Can Co. (1939-1946). He then worked at Dewey & Almy in New York, which eventually became a division of W. R. Grace & Co. Next he held the position of new product manager for American Can Co. in New York. In 1980 he and his wife Margretta moved to their present home in San Diego where he continued consulting for several years. Charles Jacobs is a loyal supporter of the chemistry department, and he participated in the university's chemistry spring commencements in 1999 and 2001.

By Charles J. Jacobs

In past years there have been many innovations and improvements in the field of consumer packaging through chemical developments. There are the obvious ones, such as blister packs, bubble-wrap, plastic bottles, paper cartons for fluid products, and arid primary innerliners. Also, there have been improvements that are not as obvious. The replacement of cork by vinyl plastisols in bottle crowns (i.e., crown-type bottle caps) is a classic example.

Before bottle crowns were invented, the packaging of beer and soft drinks was in a myriad of styles of bottles and made use of a variety of closures. In 1892 William Painter patented the bottle crown that was the forerunner of today's bottle crown. He called it a "crown"

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The Transition from Cork

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because it resembled a crown worn by queens and kings. Based upon the development of his invention, Mr. Painter founded the company known today as Crown Cork and Seal Company. It was not until about 1910 that the crown started to become universally used because it required newly designed bottles and new closing equipment.

At first, cork trimmings from the production of bottle corks were cut into disks to be glued into the metal crown shells. Because of the veins in natural cork, about one in a hundred bottles leaked. As bottle crown usage increased, the cork disks began to be made from blocks of granulated cork that had had a binder and other ingredients added before heating to set the binder. With the advent of the new disks, "leakers" were reduced to about one in a thousand, and the acceptance of the new closures dramatically increased.

In the 1920s and 1930s the ground cork product was made by forming rods of the right diameter for the crown, and machines were designed to cut the rods into disks, either nine or ten

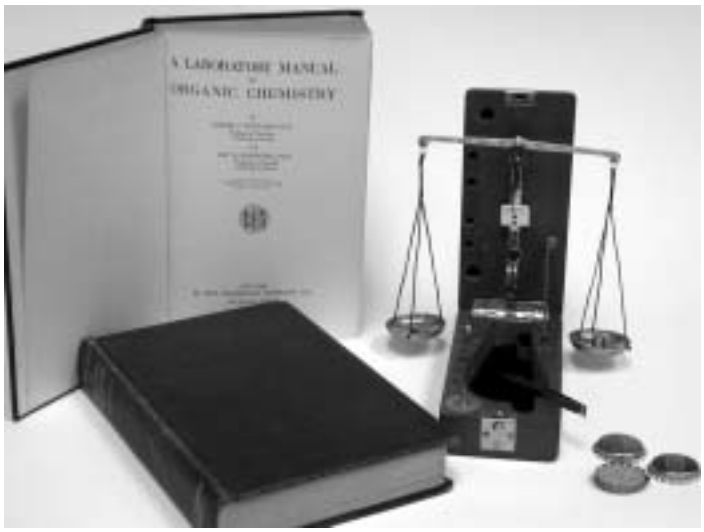
Because of the veins in natural cork, about one in a hundred bottles leaked.

to the inch. As time progressed, machines were developed to enable application of vinyl-coated paper or aluminum spots to the cork, which improved impermeability, flavor, and sealing qualities.

Prior to World War II a number of attempts were made to utilize latex and synthetic materials to replace the cork disks in bottle crowns. Although one or two of these endeavors were commercially successful in very limited situations, it was not until the early 1950s that attempts were made to use vinyl plastisols—polyvinyl chloride resins, dioctyl phthalate plasticizers, and other minor chemicals.

The Dewey & Almy Division of W. R. Grace & Company based in Cambridge, Massachusetts, developed plastisols for experimentation by Bond Crown/Cork Division of Continental Can Company in molding the compound in crown shells. At the same time, Dewey & Almy resumed their efforts to line crowns by

A "crowning" achievement. Left: old-style bottle cap sealed with a cork disc. Right: a bottle crown with a modern synthetic organic seal.



Portable scale and books Charles Jacobs recently donated to the Department of Chemistry historical collection. Jacobs carried the scales as a back-up on his trips to bottling companies. When not in use, the scales folded into the compact wooden box. The text books were from his courses at the UO in 1931 and 1932. Closed book: "An Introduction to Organic Chemistry" by Roger J. Williams, Associate Professor of Chemistry, UO, D. Van Nostrand Company, New York 1927. Open book: "A Laboratory Manual of Organic Chemistry" by Roger J. Williams, Professor of Chemistry, UO and Ray Q. Brewster, Professor of Chemistry, University of Kansas, D. Van Nostrand Company, New York, 1928.

centrifically placing the liquid compound primarily in the area of the crown that contacts the sealing area of the bottle. The liquid compound was converted to a solid by a one-minute bake on a moving belt in an oven at the rate of 1,200 crowns per minute.

After much experimentation in Dewey & Almy's chemical laboratories and application center, a decision was made in March of 1955 to carry out a commercial test of the compound-lined crowns. Crowns were shipped to Flabricas Monterrey, the crown manufacturer of the local brewery in Monterrey, Mexico. No matter how the crowner at the brewery was adjusted, they continued to have an unsatisfactory number of leakers.

The solid vinyl compound was satisfactory for the Bond crowns because it was formed in three, fin-like rings, but the compound was too hard in flowed-in crowns. After considerable experimentation, the vinyl compound was formulated with a blowing agent that produced microscopic bubbles in the sealing material. Not only did this result in a softer, more compressible material that produced satisfactory seals, it also permitted the use of less material.

Although the primary problem of producing crowns with reliable sealing qualities had been solved, other problems were still to be overcome. In late 1955 a Dewey & Almy crown lining machine was installed in the crown and cork manufacturing company Consolidated Cork Company of Brooklyn, New York. They supplied centrifically-lined crowns to Mountain Spring Water Company for their first commercial use. At about the same time, the Bond Crown and Cork Company supplied their "Triple Seal" molded crowns for commercial use by Canada Dry Company.

The advantage of the vinyl-lined crowns over the

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cork disk-lined crowns were many: elimination of black deposits on bottle lips over a long storage time; greater uniformity of sealing characteristics; assurance of continued domestically-supplied, uniform, sealing material; reduction of storage area for raw materials; elimination of mold growth (which occurs occasionally on cork); superior aging characteristics; superior adhesion to the crown shell; and superior resistance to product flavor changes.

The main disadvantage was the high initial cost of the vinyl plastisol-applying equipment and fluxing oven. Also, the cost of the plastisol used in the then-existing crown shells was equal to or higher than spotted cork disks. To make the new process economically viable, the amount of compound necessary had to be reduced. This was accomplished by making the crown shells shorter in height, which effected a savings in the cost of tinplate.

In 1956 and 1957 the Dewey & Almy No. 55 Lining Units were installed in Italy and Japan. Other lining equipment made by crown manufacturers and equipment suppliers was introduced in the following years. Eventually, the Italian company, SACMI Impianti Spa, which had been the primary supplier of crown spotting machines, developed crown lining equipment that was installed throughout the entire world. Slowly but surely the packaging industry, as well as other industries, will continue to improve and expand through chemistry. This will continue to provide rewarding jobs for chemistry majors.

In Memoriam

Frank Reithel, April 6, 1914–December 2, 2001. Photo, taken in 1995, courtesy of Shirley M. Reithel.

Francis J. "Frank" Reithel of Port Townsend, Wash., formerly of Eugene, died December 2, 2001, of heart failure. He was 87.

Reithel was born April 6, 1914, in Portland to John and Mary Samberg Reithel. After the death of his first wife, Mary Dickson, he married Katherine "Kitty" Hunter. She died in 1994. He married Shirley Budinger a year later.

He received a bachelor of arts degree from Reed College in 1936, a master of arts degree in 1938, and a doctorate in biochemistry from the University of Oregon Medical School in 1942.

From 1942 to 1944, Reithel taught biochemistry at the St. Louis University School of Medicine on a Lalor Foundation fellowship; from 1944 to 1945 he taught at the Washington University School of Medicine; and from 1945 to 1946 he was a research fellow at the California Institute of Technology.

In 1946, Reithel joined the UO chemistry department, becoming a professor in 1956 and twice serving as department head during the years 1957-63. He worked in several European laboratories and served as microbiology program director for the National Science Foundation from 1959 to 1960. He also was a public health service fellow at the National Heart Institute from 1960 to 1961, and again from 1967 to 1968. He published more than one hundred papers in scientific journals on his studies of urease, β-galactosidases, and other enzymes.

His role in the transition of the chemistry department from a small, teaching-oriented unit to a nationally-recognized, teaching and research university department is well documented in the accompanying articles by Robert Clark and Terrell Hill. Together these two first-person accounts are a fitting tribute to Reithel.

In 1979 Reithel moved to Port Townsend. He was involved in the Northwest School of Wooden Boat Building and the Victorian Chamber Singers. He served on the board of trustees for the Jefferson County Library and enjoyed sailing, rowing, hiking, and folk-dancing. His sailing experiences were the subject of an article in the National Geographic Magazine.

In addition to his wife, survivors include a daughter, Nancy Elferts of Vancouver, B.C.; nine stepchildren; and 11 step grandchildren living in Germany, Mexico, and the United States.

Adapted, in part, from the Register-Guard obituary.

—Ed.

Ben Eder, March 22, 1980–December 11, 2001. Photo by Phoebe Morris.

A bright light was extinguished on December 11, 2001, when **Ben Eder,** a twenty-one-year-old University of Oregon biochemistry major, died after the crabbing boat he was working on capsized approximately one-half mile off the Oregon coast. A recent transfer student from Reed College in Portland, Ben was an enthusiastic student at the university.

Dedicated to life-long learning, Ben signed all of his letters to family and friends with his personal creed: "Learn, learn, learn!" At the time of his death, on his nightstand was a biochemistry text and *A History of Knowledge*. In his backpack, salvaged from the hull of the vessel Nesika, were a copy of Barron's *Islam* and a recent issue of *The Economist*. Ben loved to travel and did so extensively. In addition to traveling across the U.S. several times, he journeyed to Brazil, Panama, Chile, Uruguay, Argentina, and Bolivia while in South

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Focus on Undergraduate Research

Hot Topics in Student Research

Twenty-one undergraduate students displayed their research at the "Focus on Undergraduate Research" poster session held May 30, 2002, in the Willamette Atrium. This year marks the fourth annual session and the first to encompass a variety of departments, including chemistry, geological sciences, biology, ecology and evolution, physics, neuroscience and development, and geography. Dr. Deborah Exton (chemistry) chaired the poster session, in coordination with Dr. Dean Livelybrooks (physics), Dr. Martin Miller (geology), and Dr. Pat Lombardi (biology).

Many of the posters illustrated exciting new developments in their respective realms of science. Two of the research projects, one in protein crystallography (physics) and the other in solid-state chemistry, are described here.

—Christina Hur

Potential Future Medicine Using Protein Crystallography

Kazuto Usui, 22, under adviser Brian Matthews and with postdoc Doug Juers, studied the structure of an inactive form of the bacterial enzyme *E. Coli* ß-galactosidase before and after activation by binding of specific polypeptides. The enzyme splits lactose, a disaccharide, into glucose and galactose, sugars that the bacteria (and higher organisms like humans) metabolize. Usui first prepared an inactive form of the enzyme through site-directed mutagenesis to delete N-terminal amino acids previously known to be crucial for activation. The enzymatic activity can be restored through a process called α–complementation: Polypeptides that contain the deleted N-terminal residues bind to the inactive form of the enzyme to create an activated polypeptide-enzyme complex. By making crystals of the mutant enzyme and of the polypeptide-enzyme complex, both structures can be solved by x-ray diffraction and compared. Usui, who graduated this year with a degree in physics, wants to determine these structures before he leaves for graduate school this September. Many human diseases stem from mutant proteins malformed because of genetic or environmental (e.g., UV rays) factors. Studies like this one by Usui, Juers, and Matthews, may lead to drugs that can repair damaged proteins *in vivo*.

Solid-State Chemistry: Next-Generation Microprocessor Technique

Sochetra Ly, 22, is a junior majoring in biochemistry. With his adviser Dave Johnson and in collaboration with graduate student Jake Jensen, Ly studied an alternative, more efficient method of synthesizing a specific phase of nickel monosilicide (NiSi). NiSi, which has low resistance to electrical current, is useful for transistors in integrated

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"Focus on Undergraduate Research," a poster session held May 30, 2002, in the Willamette Atrium. Faculty from all of the science departments attended the undergraduate presentations.

In Memoriam

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America. He also traveled to British Columbia, the Dominican Republic, Mexico, Costa Rica, Venezuela, and Israel. Ben made innumerable friends wherever he lived and traveled.

Ben is survived by his immediate family, parents Bob Eder and Michele Longo Eder, and brother Dylan Eder, all of Newport, Oregon; his love, Phoebe Morris; his grandparents, aunts, and uncles; many cousins; and innumerable friends.

A celebration of life was held at the Newport Performing Arts Center. Ben's name will be added to a marker inside the Fishermen's Memorial Sanctuary at Yaquina Bay State Park. To further honor his memory, the Ben Eder Memorial Scholarship has been established at Newport High School.

As his good friend, Matt Harner, said, "He was a great guy. He had so much potential, so much going for him."

The chemistry department staff, faculty, and students are deeply saddened by the loss of Ben and wish his family and friends comfort during this difficult time.

—Roxanne Young

Yvonne Delahay (née Yvonne Courroye) died in Paris, France, on May 24, 2002, at the age of seventy-eight. She had been afflicted with rheumatoid arthritis for many years and was in the loving care of her husband, Paul Delahay. Paul Delahay's dedication to the care of Yvonne prevented him from coming to Eugene in the fall of 2001 to receive his Alumni Achievement Award in Chemistry. While caring for Yvonne during her final days, Paul Delahay wrote an article for this special historical issue of the newsletter describing his years at the UO with Pierre Van Rysselberghe.

—Ed.

2002 Department of Chemistry Alumni Achievement Award in Applied Science

David L. Booth—Problem Solver and Research Manager in a Billion-Dollar Chemical Company

David L. Booth

Winners of the Alumni Achievement Award in Chemistry are a select group chosen for this honor on the basis of professional and personal achievements and service that exemplify the Oregon spirit and traditions of leadership and excellence. This year's Awards Committee modified the name slightly to identify the area, in a manner similar to the awards given by the American Chemical Society. The title now appearing on the award statement is Department of Chemistry Alumni Achievement Award in (one of the following) Pure Science, Applied Science, Education, or Service. We have alumni pursuing a wide variety of professions that we can be proud of, and these alumni can serve as role models for our current and future students. Some alumni are involved in pure research, many others are in areas such as applied science, teaching, and administration, and many work in fields beyond the traditional areas of chemistry.

—Ed.

David L. Booth has made his mark in the chemical industry, bringing improved products and cost savings to consumers. Born on July 20, 1939, in Aurora, Illinois, he received his B.S. in chemistry in 1961 from Beloit College, Beloit, Wisconsin. Booth was one of a remarkable group of Ph.D. students who graduated from Lloyd Dolby's group in 1965—two other members of that group, Gordon Gribble and Maury Schwartz, are already Alumni Achievement Awardees.

Booth has spent his entire career at Morton International, Inc. This company grew out of the Morton Salt Co. with its familiar Morton Umbrella Girl and "When It Rains It Pours" slogan on the blue package of table salt. It expanded to include a broad product line including inorganic chemicals, dyes, pharmaceuticals, coatings and adhesives, solid rocket propulsion systems for the Space Shuttle program (Morton Thiokol Corporation), thermoplastics, and other polymers.

In 1989, Morton International, Inc. was reorganized, and the aerospace operations were renamed Thiokol Corporation. Morton International continued to grow and acquire other companies, and in 1999 it became a subsidiary of Rohm and Haas Company.

Throughout this period of rapid change and product development, Booth held many titles and carried out many job functions: From 1965 to 1974 he was a research chemist and senior chemist; in 1974 he became assistant director of research; in 1978 director, New Products Development; in 1983 director, New Products and Specialty Polymers; in 1987 vice president, Dyes and Organic Specialties; in 1997 vice president, Technology; and finally in 1999 Booth held a position in the Central Technology Office of Rohm and Haas after it acquired Morton International. He retired in 2001.

Some of Booth's specific projects during his career include the following: He was in charge of the pesticide synthesis and screening group in the U.S. for a joint venture with Schering, A.G.; he developed a patented process for Eli Lilly's herbicide Tebuthiuron and was involved in constructing a twenty-six million dollar manufacturing facility in the U.S. and in setting up manufacturing in Brazil for this herbicide; he developed a continuous process for the production of a styrene-acrylic acid resin, which produces sixty million pounds per year at three sites in the U.S.; he assisted in the acquisition of three dye companies in the United Kingdom, the Netherlands, and the U.S., and coordinated and directed the technical efforts at these three locations; he headed the technical effort for the Polymers System business unit, which had over $100 million in revenue; he was appointed vice president of the $100 million per year Dyes and Organic Specialties business unit and was responsible for all aspects of the business—R&D, Technical Service, Sales, Marketing, Manufacturing,

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Hot Topics

➤ CONTINUED FROM 14

circuits. In typical fabrication of microchips, a key challenge in preparing NiSi is inhibiting the formation of many of the other possible nickel silicide phases (such as Ni_2Si and $NiSi_2$), which have higher resistivities.

The Johnson lab developed a novel approach to this problem, physical vapor deposition (PVD), which is based on methods used in other chemical disciplines. Pure nickel and silicon are evaporated onto a silicon wafer to create thin, alternating layers of these two elements. By controlling deposition time and the resulting layer thickness, the PVD procedure allows the formation of NiSi under conditions which limit the generation of the undesirable nickel silicide phases. X-ray diffraction is used to evaluate the success of each experimental run. The PVD procedure may help microprocessor industries produce this important circuit component more efficiently.

Alumni News from All Over

1930s

Charles Jacobs, Class of 1934, wrote the "Reflections" section of this edition of UO Chemistry News, an account of an important, but little-noticed, industrial application of chemistry that has changed our lives.

1940s

Paul Delahay, Ph.D. '48, wrote an article about his years as a Ph.D. student with Pierre Van Rysselberghe for this special historical edition of UO Chemistry News.

1950s

Norman Diebel, M.S. '54, spent twenty-eight years at Hanford Atomic Works doing research and analytical chemistry. Now Diebel is helping his son build a towing and auto repair business. He is also spending time doing carpentry and electrical upgrades to his office and home.

James Kennedy, B.A. '59, recently published the book, How's the Weather?, which helps readers find their outdoor comfort zone in the U.S. The book allows readers to estimate favorable weather conditions in the geographical region they plan to visit. Kennedy uses mountains of climate data to help estimate the weather all over the country at different times of the year. You can learn more on the web at www.askanalytic.com. After leaving the UO, Kennedy worked as a research chemist at International Milling in Minneapolis before receiving his M.S. in biochemisty at the University of Minnesota in 1965. He eventually found himself at Honeywell (and Alliant Techsystems, a spinoff), where he worked for twenty-eight years as a systems analyst, programmer, and engineer. He has five patents that pertain to the defense industry. In 1991 he was awarded a master's with an emphasis in mechanical engineering from National Technological University.

1960s

Patrick Oriel, Ph.D. '64 with **John Schellman,** recently retired from teaching and research at Michigan State. After leaving the UO, Oriel did his postdoctoral work at Harvard Medical School before joining Dow Chemical for seventeen years of work in biotechnology. He eventually left Dow in 1982 to join the faculty at Michigan State in the Department of Microbiology and Molecular Genetics. While at Michigan, Oriel helped found the Michigan Biotechnology Institute, a statewide, non-profit research center. In a recent letter, Oriel wrote that he remembers his time at the UO as both challenging and rewarding. "I can still remember Professor Terrell Hill's difficult qualifying exams in thermodynamics," he wrote.

David L. Booth, Ph.D. '65 with **Lloyd Dolby,** received the 2002 UO Department of Chemistry Alumni Achievement Award in Applied Science.

Charles Wilkins, Ph.D. '66 with **Lloyd Dolby,** did his postdoctoral work at Berkeley before joining the faculty at the University of Nebraska, where he remained until 1981. He then joined the University of California at Riverside as a professor until 1998. Wilkins is now distinguished professor of chemistry and biochemistry at the University of Arkansas and is receiving the 2002 Award for Outstanding Achievements in the Fields of Analytical Chemistry from the Eastern Analytical Symposium. During his time at Arkansas, Wilkins created the Center for Sensing Technology and Research (CSTAR) and helped establish the Arkansas Statewide Mass Spectroscopy Facility. According to a UA press release, Wilkins' "current research focuses on polymer analysis using novel mass spectroscopy techniques to study synthetic materials used in household goods and automobiles. He also uses novel mass spectroscopy techniques to study different bacterial subtypes for potential use in detecting and characterizing bacterial infections. He and his students are also developing a new type of Fourier transform mass spectrometer to analyze aerosol particles, which pose a potential danger to human health."

Bruce J. Chasen, M.S. '69, recently joined the law firm of Casesar, Rivise, Bernstein, Cohen & Pokotilow, Ltd. Website: www.crbcp.com. The firm specializes in all aspects of intellectual property law and has expertise in a variety of technical areas.

Max Deinzer, Ph.D. '69 with **Tom Koenig,** worked for Dupont de Nemours & Company and the EPA before starting his career at Oregon State University in 1973. He is currently a professor in the Department of Chemistry and director of the Mass Spectrometry Core Facility. Deinzer's research focuses on the mechanisms of resonance

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David L. Booth

➤ CONTINUED FROM 15

and Purchasing; — and he held this position of vice president for eight years.

Booth appeared before committees and subcommittees of Congress to argue for the use of dyes to prevent tax evasion in petroleum products, and his efforts culminated in legislation he helped write—The Omnibus Reconciliation Act, requiring dyeing home heating oil to prevent its use on roads. Implementation of this dyeing regulation resulted in $1.2 billion per year of additional tax revenue for the Department of the Treasury.

When Booth was promoted to vice president of Technology, he became responsible for coordinating the technical efforts of a $2.3 billion company. As his colleagues have put it, "Dave was often challenged with some of the company's most difficult problems and processes. His work in this area was outstanding"; "Dave demonstrated superior talents both in the laboratory and later in supervision and management"; "As Director of Research he led brilliantly"; and "Dave was not only a strong contributor but also an individual who developed people's careers by sharing the knowledge and skill he had."

—Alumni Awards Committee

➤ CONTINUED FROM 16

electron capture in organic molecules and biopolymers and on hydrogen/deuterium exchange coupled with mass spectrometry to detect conformational changes in proteins.

Catherine Schaecher Smith, B.A. '69, completed her Ph.D. at the University of Arizona Medical College in Tucson. She worked for Abbott Laboratories, Allied Corporation, and Hybritech Gen-Probe before accepting her current position as Senior Director of Research and Development for Prometheus Laboratories, a pharmaceutical company in San Diego, California. Smith's early career focused on product development. Her current position includes clinical research and regulatory affairs.

Alan Waggoner, Ph.D. '69 with **Hayes Griffith,** received the Carnegie Science Center Award for Excellence. Waggoner is director of the Center for Fluorescence Research at Carnegie Mellon University. He was cited for his development of new fluorescent dyes and his work in advancing the development of fluorescence technologies for biological research, biotechnology, and medical diagnostics.

1970s

Toshinari Tamura, a former postdoctoral associate with **John Keana** in 1978–79, visited the department in June and gave an informative seminar titled "Research, Development, and Corporate Activities of Yamanouchi Pharmaceutical Company, Japan." Yamanouchi is the third-largest pharmaceutical company in Japan. Tamura is a managing director on the board of Yamanouchi and chairman of the Investor Relations Committee. He enjoys returning to Eugene. A few years ago during his most recent visit, prior to this past June, Tamura attended the Boekelheide symposium.

Window on the Past: *Francis Reithel in his laboratory located in McClure Hall, 1946–49.*

Neil Johnson, B.A. '70, did his undergraduate research with **Hayes Griffith** and has been a visiting scientist with **Pete 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." Neil is a research scientist at the Institute de Pharmacologie et de Biologie Structurale, Toulouse Cedex, France.

Ron Stenkamp, B.A. '70, received his Ph.D. from the University of Washington in Seattle and is now a professor in the Department of Biological Structure at UW. His research group uses x-ray crystallography to study the three-dimensional structure of proteins. Currently, his lab is focusing on studies of rhodopsin, the retina protein that interacts with light in the visual system. This receptor is also a model for G-protein coupled receptors that are molecular targets for many clinically important drugs.

Prapon Wilairat, Ph.D. '74 with **Ed Herbert,** is now an associate professor of biochemistry at Mahidol University in Bangkok, Thailand. He was recently appointed chairman of the Department of Biochemistry at Mahidol.

Mark Smith, B.A. '76, received his M.S. from M.I.T. in '78 and his Ph.D. in physical chemistry from the University of Colorado in '82. He did his postdoctoral work at the University of Toronto. He is currently a professor of chemistry and department head at the University of Arizona at Tucson. Smith's research includes experimental studies of reactive collisions at very low temperatures (0.2 to 200 K) related to chemistry of the interstellar medium and planetary atmospheres. He also studies the atmospheric and surface organic chemistry of Titan as related to prebiological chemistry in the solar system. Smith was recently awarded a JILA Fellowship through the University of Colorado and the National Institute of Standards and Technology. The fellowship will allow him to spend some sabbatical time this fall and winter at the University of Colorado at Boulder in collaboration with other researchers there. Smith and his wife, Margie, have three children from the ages of seven to eleven.

CONTINUED ON 18 ➤

Alumni News

➤ CONTINUED FROM 17

1990s

Myles Smith, postdoctoral fellow with **John Keana** and **Hayes Griffith** in the 1990s, stopped by for a visit in June. Smith is now working for Biostream, Inc. in Cambridge Massachusetts. E-mail address: mssmith@biostream.net

Chia-Liang (Charlie) Cheng, Ph.D. '93 in physics with **Tom Dyke,** is an assistant professor at National Dong Hua University in Taiwan. Cheng's recent research focuses on spectroscopic methods to study materials and surfaces. Since beginning his work at NDHU three years ago, his research has started to take off. His group recently published a paper in the *Journal of Chemical Physics* titled "The Size of Interstellar Nanodiamonds Revealed by Infrared Spectra of CH on Synthetic Diamond Nanocrystal Surfaces" (*J. Chem. Phys.* 116, N4, 1211-1214). Cheng's wife, Yuh-Yao Lyda Wan, Ph.D. '93 in art education, also works at the university and is now the dean of student affairs. In addition to his research, Cheng is also director of the Department of Common Courses.

Rachel Slade, Ph.D. '95 with **Bruce Branchaud,** worked at Darwin Molecular in Seattle, Washington, and SIDDCO in Tucson, Arizona, before taking a position at Myriad Pharmaceuticals in Salt Lake City, Utah, as a senior medicinal chemist. Her current work focuses on the synthesis of anti-cancer and anti-HIV drugs. Slade married John Conboy, Ph.D. '96, in 1999.

John Conboy, Ph.D. '96 with **Geri Richmond,** completed postdoctoral work at the University of Minnesota and was an NIH postdoctoral fellow at the University of Arizona before joining the faculty at the University of Utah, where he is now an assistant professor. His research focuses on the development of novel analytical tools for the investigation of protein interfacial phenomena. John married Rachel Slade, Ph.D. '95, in 1999.

Mike Ansell, Ph.D. '98 with **Cathy Page,** is now a chemistry instructor at Las Positas College near Lawrence Livermore National Lab in Livermore, California. He will be teaching general, organic, and introductory chemistry courses at the two-year community college.

Cory Bystrom, Ph.D. '98 with **Bruce Branchaud** and **Jim Remington,** visited campus last December. Bystrom is now a senior research scientist in the food science section at the New Zealand Dairy Research Institute (Fonterra Research Centre).

Alexander Pico, B.S. '98, was the recipient of the 2001 David Rockefeller Fellowship. Pico is a Ph.D. student at Rockefeller University where he has made important progress in solving the x-ray structure of human potassium ion channels.

Ben (Straw) Langsdorf, M.S. '99, is currently working for TriQuint in Portland.

Jennifer Turmel, M.S. '99, is currently working at Fairchild Semiconductor in Portland, Maine.

Shuangbo Yang, Ph.D. '99 in physics with **Michael Kellman,** is now an associate professor of physics at Nanjing Normal University in Nanjing, China. He is currently back at the UO collaborating with Kellman in research on spectra and dynamics of highly excited molecules with chaotic vibrations. He plans to be here for one year.

Man Lung Desmond Kwan, a postdoctoral fellow with **Ken Doxsee** 1999–2000, is now an assistant professor of chemistry at John Carroll University in University Heights, Ohio, just outside of Cleveland. Kwan has three undergraduates working in his lab currently and expects to have six by the beginning of the fall term. His research focuses on organometallic reagent mediated allyl- and vinyl-silane synthesis. Kwan loves working with the students but misses the UO and Eugene terribly.

2000s

Ryan Fredrickson, M.S. '00, is working for LSI Logic in Portland.

Laura Schreiner, M.S. '00, is currently working at Hynix in Eugene.

Jeffrey DeHart, M.S. '01, is currently working for Hynix in Eugene.

Danielle Della-Selva, M.S. '01, is currently working at LSI Logic in Portland.

John Foley, M.S. '01, is working for Novellus in Grants Pass, Oregon.

Brandi Langsdorf, Ph.D. '01 with Mark Lonergan, is completing a postdoctoral fellowship with Peter Pickup at the University of Newfoundland. She will begin a sabbatical replacement at Pacific University in Forest Grove, Oregon, this fall.

Moreen Minkoff, M.S. '01, is currently working at TriQuint Semiconductor in Portland.

Laura Murphy, M.S. '01, is currently working at Hynix in Eugene.

Lucius Rivers III, M.S. '01, is currently working at TriQuint Semiconductor in Portland.

Justin Sato, M.S. '01, is currently working at LSI Logic in Portland.

Satoko Shimamura, M.S. '01 with **Hayes Griffith,** is now working with Dr. Show-Ling Shyng at the Center for Research on Occupational and Environmental Toxicology at the Oregon Health Sciences University, Portland.

Andrea Sieg, M.S. '01, is currently working at Intel in Portland.

Tricia Tighe, M.S. '01, is currently working at Hynix in Eugene.

Andrew (AJ) Boydston, M.S. '02 with **Mike Haley,** will be starting the Ph.D. program at the University of Texas at Austin this fall.

Wendy Breyer, Ph.D. '02 in physics with **Brian Matthews,** is now working as a postdoctoral fellow in Ken Prehoda's lab.

Dave Kimball, Ph.D. '02 with **Mike Haley,** has accepted a postdoctoral position at Los Alamos National Labs in New Mexico.

Lawrence (Larry) Scatena, Ph.D. '02 with **Geri Richmond,** was recently appointed as acting director of the Shared Laser Facility at the UO. The former director, David Alavi, left the position this summer.

Mark Watry, Ph.D. '02 with **Geri Richmond,** has accepted a postdoctoral position at Gonzaga University in Spokane, Washington.

Staff News

Lynn Woolfe (center) gives thumbs up at the reception in Gerlinger Alumni Lounge on April 16, 2002, honoring the award recipients. Surrounding Woolfe are some of the chemistry faculty and staff members who attended the award ceremonies. From left to right: Warner Peticolas, Tom Dyke, Julie Haack, Diane Lachenmeier, Linda Sappington, Lynn Woolfe, Hayes Griffith, John Hardwick, and Mark Lonergan.

Lynn Woolfe won the 2002 Classified Employee Recognition Award, which was presented to him by President David Frohnmayer. Only four of these awards were made, and there are about 1,200 classified employees on campus. Woolfe's nomination was based on his efforts to save the Department of Chemistry $170,000 in glassware costs associated with the incorporation, last fall, of the Green Organic Chemistry Laboratory curriculum. As a result of renovations and curriculum changes instituted in the late 1980s and mid-1990s, the teaching labs were burdened with a large surplus of glassware and other equipment. Over the past ten years, Woolfe has taken the initiative (and working with an intrepid crew of work-study students and lab preparators) to inventory and store some 100,000 items. It was this inventory that enabled fellow lab preparators, Mary Dricken and Sandi Smith, to provide 225 green-lab students with glassware at a significant cost savings to the department. Woolfe's inventory project demonstrated extraordinary dedication and forethought. His ability to create and implement a plan to inventory 100,000 items over the course of ten years with limited space and financial resources was outstanding. It is this type of commitment and teamwork that enabled the department to provide students with a cutting edge curriculum in green chemistry. Woolfe's commitment illustrates the true meaning of the university's statement that everyone is involved in the education of students.

—Julie Haack

Gary Nolan is back at the UO as the new laboratory preparator of the Green Organic Chemistry Laboratory. Nolan received his B.S. *magna cum laude* in chemistry in 1976 from Northern Arizona University and his M.S. in organic chemistry in 1979 from Oregon State University. Nolan has previously held several positions at the UO: environmental health chemist, 1981-82; science lab preparator, 1982-91; and chemistry teaching lab director; 1991-1997. He became product development project manager at East Earth Herb, 1997-1999, and science lab preparator at Oregon State University, 1999-2001, before returning to the UO chemistry department. Nolan says running the Green Organic Chemistry Laboratory involves maintaining a clean lab, troubleshooting experiments, developing new methods, improving the way materials are presented, and supervising a small group of student helpers.

G. Bruce Birrell retired after thirty years at the UO. Birrell received his B.A. in chemistry from Willamette University in 1962 and his Ph.D. in physical chemistry at Arizona State University in 1967. His first job was with Dow Chemical Co. in Texas, after which he came to the University of Oregon as a postdoctoral fellow with O. Hayes Griffith's research group in the Department of Chemistry and Institute of Molecular Biology from 1969 to 1971. Birrell stayed with the Griffith group and was promoted to research associate and then senior research associate. During his career at the UO, Birrell has co-authored more than fifty articles in scientific journals on a wide range of topics including the structure of free radicals, the dynamics of biological membranes, the development of new types of microscopy, and most recently enzyme kinetics and mechanism studies. Birrell has also made a major contribution in education by supervising numerous undergraduate research projects and giving students valuable "hands on" laboratory experience.

—Ed.

Bruce Birrell

Jeff Cina surrounded by balloons.

When the Cat's Away . . .

When Professor Jeff Cina complained jokingly to his graduate students that they didn't have enough personality, they decided to demonstrate their true colors by decorating his office for him. With the help of students from Andy Marcus', David Tyler's, and Geri Richmond's labs, they stuffed his office with more than 500 balloons. Jeff has promised never to complain about their lack of spunk again.

—Mary Rohrdanz

Faculty News

Geraldine L. Richmond was awarded the 2002 ACS Division of Analytical Chemistry Spectrochemical Analysis Award. Richmond also received the 2002 Women Chemists Committee Regional Award for Contributions to Diversity at the American Chemical Society's Northwest regional meeting in Spokane, Wash. This award, given to commemorate the ACS Women Chemists Committee's seventy-fifth anniversary celebration, recognizes individuals who have stimulated or fostered diversity in the chemical workplace. Geri Richmond was recently reappointed by Governor Kitzhaber to the Oregon State Board of Higher Education.

Michael Haley received the 2002 Thomas F. Herman Faculty Achievement Award for Distinguished Teaching at the UO. "Winners of the University of Oregon's Distinguished Teaching Awards are widely respected and admired by their students and peers," said President Frohnmayer. "These professors all are accomplished scholars in their own right, and they have shown a remarkable ability to energize classrooms full of students while offering focused attention and showing genuine care to each individual student." Student comments point to Haley's enthusiasm and clarity, the usefulness of his course packet and review sessions, his accessibility outside of class, and the efforts he makes to demonstrate the relevance of his subject matter to their everyday lives. Haley is "an outstanding instructor", his "lectures were interesting and well directed," said one student evaluator. He "relates to each student and wants them to succeed," wrote another.

Window on the Past: *Donald F. Swinehart in McClure Hall, 1950*

Window on the Past: *An early science lecture hall at the UO. Wood stoves were a common feature in lecture halls and offices because there was no central heating. Date and building unknown, but probably Deady Hall in the 1890s.*

Mark Lonergan and **Andy Marcus** have been promoted to the rank of associate professor with tenure. Both are physical chemists. Mark received his B.S. at the University of Oregon and his Ph.D. at Northwestern University in 1994 with Mark A. Ratner and Duward F. Shriver. He was a Noyes postdoctoral fellow at the California Institute of Technology from 1994 to 1996 with Nathan S. Lewis. Lonergan's research involves understanding fundamental electronic processes that occur at junctions between conjugated polymers and other electroactive materials. **Andy Marcus** received his B.A. at the University of California, San Diego in 1987, and his Ph.D. at Stanford University in 1994 with M. D. Fayer. He was a postdoctoral fellow at The James Franck Institute at the University of Chicago from 1994 to 1996 with S. A. Rice. One of Marcus' research interests is understanding the macromolecular systems restricted to confined spaces. Marcus has developed a new technique, Fourier Imaging Correlation Spectroscopy, which he is applying to the study of molecular motion in mitochondria and other complex systems.

Greg Williams joined the faculty in 2002. He was an undergraduate at UCLA and received his Ph.D. at Princeton in 1981. Before coming to the UO he was professor of chemistry at Cal State Fullerton, where he has worked for the last fifteen years. In addition to teaching on a part-time basis, Williams will continue to write and produce new instructional materials for undergraduate chemistry. His current creative endeavors stem from the observation that the visualization of chemical concepts presents a significant barrier to many

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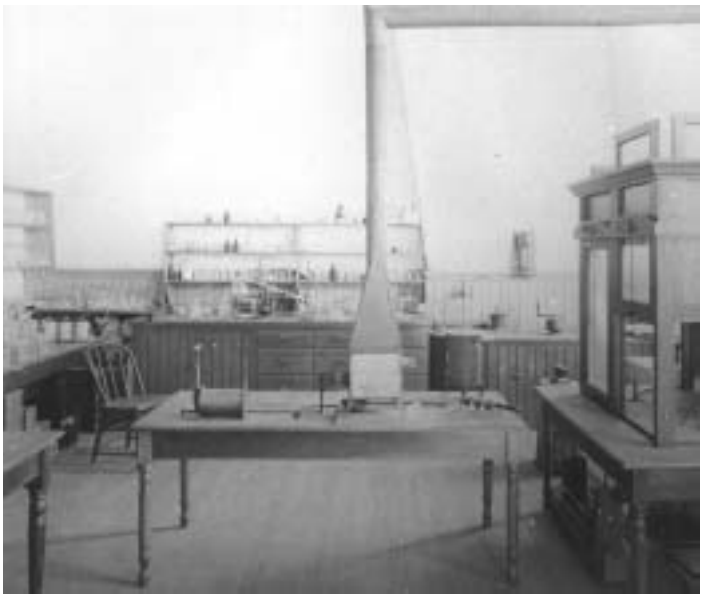

Window on the Past: *Left: Edgar McClure's office in Deady Hall. Late 1890s. Right: Edgar McClure's laboratory in Deady Hall. Late 1890s. Photos courtesy of University Archives.*

➤ CONTINUED FROM 20

students in the sciences. John Wiley & Sons just published the third edition of the general chemistry book he wrote with John Olmsted—a book that places heavy emphasis on visualization at the molecular level. Williams plans to specialize, over the next several years, in applying computer graphics and animation to chemical pedagogy.

Marina Guenza is the new assistant professor in physical chemistry. Guenza received her Ph.D. from the Consortium of the Universities of Turin, Pavia, and Genoa, Italy, in 1989. She was a tenured researcher at the Italian National Laboratory (CNR) for ten years. Guenza was a visiting scientist at the University of Chicago with Karl Freed in 1994 and at the University of Illinois, Urbana-Champaign with Ken Schweizer from 1995 to 1997. In 1997 she came to the UO as a senior research associate, teaching courses in both physics and chemistry. Guenza's research in statistical mechanics of complex fluids appears in *Journal of Chemical Physics, Physical Review Letters,* and *Macromolecules*. This year Guenza was awarded a Division of Material Research/Materials Theory National Science Foundation grant for the second time.

Andy Berglund has joined the chemistry department faculty as an assistant professor in biochemistry and as a member, Institute of Molecular Biology. Berglund received his B.A. from the University of Colorado in 1992. He completed his Ph.D. with Michael Rosbash at Brandeis University in 1997. His postdoctoral work was done with Steve Schultz and Tom Cech at the University of Colorado. The primary goal of the Berglund lab is to understand how introns are recognized in the process of pre-mRNA splicing. Pre-mRNA splicing is conserved from yeast to humans and a complex molecular machine, the spliceosome, is responsible for removing introns from pre-mRNAs to produce mRNAs. Both biochemical and biophysical techniques are being used to study these RNA-RNA, RNA-protein, and protein-protein interactions. These interactions are critical because incorrect splicing will result in mRNAs encoding truncated proteins or proteins with the wrong sequence. Incorrect splice site selection in pre-mRNA splicing is thought to be responsible for 15 percent of human diseases.

Department of Chemistry Summer Session 2002 faculty include **Leif Brown, Jim Long,** and **Randy Sullivan,** all from the UO; **Doug Chapman** and **Owen McDougal** from Southern Oregon University; and **Lars Svanevik** from the Oregon Institute of Technology.

Robert M. Mazo has recently published his book titled Brownian Motion: Fluctuations, Dynamics and Applications, Oxford University Press, 2002.

Mordecai Rubin, Technion–Israel Institute of Technology, Haifa, is visiting for the twelfth time. Mordecai was a collaborator with **Dick Noyes** and continues to be a frequent visitor to the department. Rubin was awarded the 2002 Outstanding Paper Award from the ACS Division of the History of Chemistry for his article "The History of Ozone. The Schönbein Period, 1839-1868" (Rubin, M. B., *Bull. Hist. Chem*., 2001, 26, 40-56). A second article covering the period 1869–1899 is in press in the same journal.

—Ed.

Window on the Past: *Early shop at the UO. Photo courtesy of University Archives.*

Chemistry Gifts, July 1, 2001 to June 30, 2002

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Catherine '77 and Anthony Chanin '77

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Gudrun M.A. '71 Ph.D. '95 and James Hoobler Ph.D. '72

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Robert Knoop

Matthew Kraynyak M.S. '01

Donald Mack '47

Julie Christie Marshall '87 and Donald Marshall, Jr. '90

Yoon Hwang Merrill M.S. '73

Michael Montague-Smith M.S. '94 Ph.D. '94

Patricia and Robert Moser

James Moulds '63

Pieter Paulson '89

Joanne and David Paxton

Marilyn and Robert Pinschmidt, Jr. Ph.D. '71

Katherine '66 and Chester Ramey Ph.D. '68

Stephanie Delich Rasco and Peter Rasco '86

Craig Reece M.S. '80

James Riddle '95

Sara Olson Robertson '78 and Scott Robertson

Mordecai Rubin

Xiumei Ph.D. '91 and Quanyuan Shang Ph.D. '90

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Pancras Wong '76

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Commencement 2002

Some Thoughts about Graduating

Biochemistry and chemistry majors, along with friends, family, and faculty, gathered in the Willamette Atrium. The baccalaureates, over half of whom won awards and honors, sat together for the last time as they were awarded diplomas for their persistence and hard work.

Jessica Eng, 23, biochemistry graduate—research

Eng, now employed as a research chemist at Suterra LLC, a biotech firm in Bend, Oregon, couldn't wait to get to work. "[This past year] has been pretty anti-climatic. I have senioritis really bad," she said. However, Eng enjoyed the intimacy of smaller, upper-division classes. "Everybody knows everybody, which I think is more true to life," Eng said, "because in research, you don't do projects alone, you have to confer with people."

Kai Kinder, 21, chemistry graduate, *magna cum laude*—pharmaceutical internship

Kinder had mixed emotions about leaving the UO. "It'll be nice to be done with school," he said, "but at the same time, it means I'll have to actually go out and find a job, be responsible." Kinder began an internship at Bend Research this August and also plans to travel with a friend for a while.

Chelsea Hamilton, 22, biochemistry graduate with minor in Honors College, *cum laude*—medical school

Hamilton, who is attending Georgetown University in August, reflected back on what she got out of the UO: "Especially with physical chemistry and the difficulty of it, I've really learned to think. I'm convinced [that] college is not just about stuffing your head full of facts or teaching you a certain discipline. I think it's more about learning to think and analyze situations, and to communicate with people."

—Christina Hur

Julia Walls and Buck Hanson "Look Ma, no entropy!"

Graduating Class of 2002

GRADUATES

Baccalaureate

Biochemistry

Kyla Lynn Bjornson
Jessica Alexis Eng
Chelsea Dawn Hamilton
Buck Timothy Hanson
Andrew Michael Jost
Hyun-Seo Kang
Charles Alexander Kosydar
Melissa Danielle Marr
Georgette Erin Moyle
Vanessa Renee Muller
Heather Phipps
James Murray Robinson
Dustin John Rush
Akio Sato
Matthew Jay Saunders
William Edmund Solis
Li-Chun Lisa Tsai
Julia Renee Walls

Chemistry

Aryani Boedisantoso
Kristi Lisa Carlsen
Bonita Femine
Jared Wade Ford
Kai Zachary Kinder
Quentin Vance Lebkowsky
Jennie Lynn Looney
Lallie Cobb McKenzie
Jessica Lee Morgan
Ryoko Mori
Susanna Oeidy
Steve Robson
Shaun Patrick Swartz
Iwen Tseng

Master of Science

Andrew Jackson Boydston
Joseph F Brooks
Jessica Anne Cervantes
Robert Danner
Cynthia Opal Duehn
Lei Gao
Joshua Brandon Hanna
Wenjin Liu
Sam W. Lonberg
Cheryl Lynn Loveless
Cynthia L. Mayr
Robert Charles Muller
Nicole Nesser
Brian C. Phillips
Edward John Sambriski
Jonathan David Sowins
Yu Teong Tan
David Samuel Whalley
Yong Yang
Jianfei Zhao

Doctorate

Wendy Ann Breyer
Aimee Marie Eldridge
Marcus Helfrich
David Brian Kimball
Lawrence Scatena
Joshua R. Williams

Commencement 2002 Awards and Honors

University Honors

Summa Cum Laude
Andrew M. Jost

Magna Cum Laude
Kai Z. Kinder

Cum Laude
Chelsea D. Hamilton and
Melissa D. Marr

Phi Beta Kappa

Kai Z. Kinder

Chemistry Awards and Honors

Chemistry Major with Departmental Honors
Chelsea D. Hamilton
Andrew M. Jost
Kai Z. Kinder
Charles A. Kosydar
Quentin Vance Lebkowsky
Melissa D. Marr
Lallie C. McKenzie
Matthew J. Saunders
Shaun P. Swartz
Li-Chun Lisa Tsai

Biochemistry Achievement Award
Hyun-Seo Kang

Organic Chemistry Achievement Award
Kai Z. Kinder
Quentin V. Lebkowsky
James M. Robinson

Inorganic Chemistry Achievement Award
Lallie C. McKenzie

Richard M. Noyes Physical Chemistry Achievement Award
Chelsea D. Hamilton
Charles A. Kosydar

American Chemical Society Analytical Award
Jessica L. Morgan

American Institute of Chemists Foundation Award (Outstanding Senior)
Andrew M. Jost

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Willamette Hall. A recent photo of the main entrance to the UO science complex.

Chemistry News

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