When life gives you grapes, make wine

The art of winemaking was not lost on Dionysus, God of Wine. Although Kendall Mix (BSc '87) and Joe Will (BSc '67) have yet to reach his mythological status, their passion for making wine certainly rivals Dionysus’ passion for consuming it.

“I enjoy getting my hands dirty, really being involved with every aspect of winemaking” comments Kendall from the Canoe Ridge Vineyard in Walla Walla, Washington where he is the winery’s winemaker. However, it wasn’t always apparent to Kendall that his passion would lie in winemaking.

“I studied microbiology in my undergraduate days and spent a summer working for the Strathcona Brewing Company figuring it would lead to a career as a brew master,” he explains.

It was not until he began studying enology and viticulture in graduate school at the University of California (Davis), and completed his first internship with Robert Mondavi that he discovered his interest for the unlimited combinations present in winemaking.

“Wines are never the same,” he explains. “You take what you have done in the past, use it and modify it for the future. There are similarities, but there are enough differences to make it interesting.”

Kendall believes one of the most important roles of a winemaker is that of taste tester. “You need to be out in the vineyard tasting all the time,” he explains. “I select grapes based on flavour. You can analyze samples, but in the end it simply comes down to how it tastes.”

His philosophy must be working. The 163-acre Canoe Ridge Vineyard produces on average 40,000 cases per year of Merlot, Chardonnay, Cabernet Sauvignon, Cabernet Franc, and Syrah - many of them award winners.

For Joe Will, his enthusiasm for winemaking was evident at an early age. While in high school he experimented making wine from chokecherries, and as he got older he would pick up grapes from the Italian centre in Calgary.

While at the U of A his time was divided between chemistry classes and a growing interest in writing and the news. His time as news editor of The Gateway lead him away from science and into journalism, and on to a stint as a journalist for Canadian Press.

Not wanting to look back on life with regret, Joe eventually packed his bags, left his corporate communications job, and headed off to Hainle Vineyards in Peachland to pursue his childhood passion - winemaking.

“I knew by getting involved in the industry I would know fairly quickly if my future was in winemaking,” he recalls. As it turns out, it was.

Knowing he needed further education, and with limited viticulture programs available in North America at the time, he left Canada for the University of Adelaide in Australia and a fifteen-month graduate program. After an internship with the Yalumba Wine Company, Joe returned to Canada, worked for a small family run vineyard, and after a long location search opened the doors to Strewn Winery in the Niagara region of Ontario in 1997.

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Hello!

There has been a great deal of activity in the Faculty of Science so far this year. Two successful Faculty of Science alumni events were held this winter. The first was a University of Alberta alumni event in Palo Alto, CA. Nobel Laureate and science alumnus Dr Dick Taylor (BSc '50, MSc '52) was one of the guest speakers. It was great to see alumni like Cam Ainsworth (1945) and Bill Curry (2000), and to get a chance to meet many others.

Our second alumni event was held here in Edmonton, and was a reunion of sorts for me as it was a gathering of Biological Sciences graduates from the past 10 years. World-renowned ecologist and Killam Memorial Professor Dr David Schindler gave a compelling talk.

The 14th annual Faculty of Science Visiting Committee was held in early March to great success. Co-chaired by Neal Oberg of the Alberta Agriculture Research Institute and Jim Wright of Economic Development and Tourism, Strathcona County, this year’s theme was The Future of Science. The Visiting Committee program is designed to maximize the sharing of information, personal contact, and idea exchange between leaders in the community and leaders in the Faculty of Science to assist the Faculty to better meet its educational and research mandate. Full presentations can be found on our website.

Great progress has been made on Phase 1 of the Centennial Centre for Interdisciplinary Science (CCIS). By the time you read this the construction fences will be up and the digging will have started. The goal is to have it finished by August 2005, at which time we hope to be ready to begin Phase 2. To keep up to date with the progress of the CCIS through our construction WebCam, please visit our website.

Enjoy the summer!

Gregory Taylor
Dean of Science
Lemieux inducted into Hall of Fame

A professor, businessman and pioneer in the field of chemistry, Dr Raymond Urgel Lemieux has been named by the Canada Science and Technology Museum to the Canadian Science and Engineering Hall of Fame.

When Dr Lemieux died in July of 2000 at age 80, he left a legacy of accomplishment, including pioneering efforts in carbohydrate chemistry. His work revealed how carbohydrates bind to proteins, a phenomenon crucial to everything from immunology to cancer.

"It is gratifying to have his accomplishments recognized alongside those of other great Canadian scientists in the Hall of Fame and to have his name mentioned together with those of E.W.R. Steacie, Frederick Banting and Alexander Graham Bell,” said Dr Martin Cowie, chair of the U of A Department of Chemistry.

Dr Lemieux’s work gained international recognition for himself and the U of A. He was the first recipient of the Canada Gold Medal for Science and Engineering, and also received five international awards, including the Albert Einstein World Award of Science in 1992. He held honorary degrees from 15 universities around the world and in 1994 was named Companion of the Order of Canada.

Passion for his work was lifelong theme for her father, said Dr Laura Frost, a professor and Chair of Biological Sciences in the Faculty of Science.

“He lived and breathed chemistry. We lived in a very scientific household.” Her mother Virginia held a PhD in chemistry, and Dr Frost grew up immersed in the subject. “The dinner table conversation was always about chemistry.”

Dr Lemieux earned his first degree from the U of A, a BSc in honours chemistry. A PhD from McGill University followed in 1946 and he did post-doctoral studies in Saskatchewan. Working for the National Research Council two years later, Dr Lemieux became the first scientist to successfully synthesize sucrose in the lab. He returned to the U of A in 1961 after chairing the chemistry department at the University of Ottawa.

In 1998 Dr Lemieux bestowed a $100,000 gift to the U of A Faculty of Science, his endorsement of the Strathcona County-R.U. Lemieux Chair in Carbohydrate Chemistry, currently held by Dr David Bundle. During his lifetime, Dr Lemieux founded three companies: R & L Molecular Research (1963), Raylo Chemicals (1966) and Chembiomed Ltd. (1977).

Joining Dr Lemieux in the Canadian Science and Engineering Hall of Fame are astronomy researcher Helen Sawyer-Hogg and geologist Sir John William Dawson.

Scientist appointed to $4.9 million research chair

Dr Hong Zhang understands the potential benefits that information and communications technology has to offer, and he is focused on demonstrating these benefits to Alberta’s surface mining companies.

The University of Alberta professor’s new appointment as an NSERC/CORE Syncrude/Matrikon Industrial Research Chair in Intelligent Sensing Systems, valued at $4.9 million over five years, will take him one step closer in doing so.

“There are several major challenges in oilsands mining, namely accurate measurement of the sizes of oil sand fragments, real-time monitoring of mining equipment, and analytical modeling of mining activities,” said Dr Zhang, a professor in computing science in the Faculty of Science.

Finding effective solutions to these issues, he added, will allow Alberta’s booming oilsands industry to optimize production by reducing rejects and increasing output, while at the same time lessening the environmental impact of oilsands mining.

“This is an exciting example of how Alberta’s culture of innovation is helping improve our ability to tap a core resource in the most optimal way—for the workers involved, for the environment we cherish, and for the stakeholders in the company,” said Victor Doerksen, Alberta Minister of Innovation and Science.

Most of the research activities, directly supported by Syncrude Canada and Matrikon, will be performed in the newly created Centre for Intelligent Mining Systems (CIMS), a 100 square-metre facility in the U of A Department of Computing Science which is equipped with the necessary sensing, video and computing equipment.

Fibre optic and ATM communication networks bring data and live video information from the pit floors in Fort McMurray mines to the laboratories in Edmonton, 500 kilometres away.

This type of partnership is key for industry, said Dr. Ron Kube, a research associate with Syncrude and co-director of CIMS. “By examining both fundamental and practical issues relevant to surface oil sand mining in the lab, we can develop necessary solutions which can be transferred to industry.”
Faculty of Science Research Award

Dr Rik Tykwinski  
Chemistry

Dr Tykwinski arrived at the U of A in 1997 as an assistant professor. In just under seven years he has established an innovative, dynamic, thematically coherent and diverse research program in organic materials chemistry, as well as materials science. He has made important contributions to both synthetic organic and physical organic synthesis of important classes of conjugated and cross-conjugated alkyne-based molecules, advances that have significantly extended the realm of the possible in this field. His work has both breadth and depth.

And when it comes to working with students, Dr Tykwinski is also known to go the extra mile. Fourteen graduate students have worked under his direct supervision, and he has taken on 21 undergraduate researchers. Of the 12 undergraduates to have since graduated, 10 have continued on to graduate school. The short-term nature of undergraduate research projects presents a challenge when it comes to publications, yet Dr Tykwinski has published eleven papers to date with undergraduate co-authors. Perhaps the most impressive is the inclusion of a WIEST summer high school student on one publication.

Faculty of Science Award For Excellent Teaching

Dr Edward Lozowski  
Earth & Atmospheric Sciences

Dr Lozowski is the leading international expert on all aspects of ice accretion, a costly and deadly natural hazard that includes hail and icing of aircraft, power network equipment, and marine vessels and structures. He has taught a variety of courses at both the graduate and undergraduate levels, such as Atmospheric Physics, Atmospheric Fluid Dynamics, and Physical Climatology. He has also taught courses to non-specialists, including the Violent Weather course, which fills the largest lecture theatre on campus every year.

A few descriptions of Dr Lozowski's teaching style include terms such as “patient, approachable, encouraging, enthusiastic, and knowledgeable.” Claire Martin, Chief Meteorologist at Global News and a former student of Ed’s added, “Dr Lozowski simply believes in his students and treats them with courtesy and integrity. His knowledge of the subject of meteorology is thorough, but it is his love of the subject that is truly inspiring.”

Dr Ted Lewis  
Mathematical & Statistical Sciences

Dr Lewis has been a full-time continuing member of the department since 1975 and is taking early retirement at the end of the current academic year. During his long tenure, he has been a most important faculty member in terms of teaching, because of his innovative ideas and immense versatility. Dr Lewis has made an impact on the Math 160 course designed for students in Elementary Education. Through the Math Fair, an annual event involving his students teaching math to large numbers of school children, students that came into the course with little mathematical experience left with a firm grasp, and appreciation, for the subject.

Faculty of Science Teaching Innovation Award

The Faculty of Science Teaching Innovation Award is a new award, and recognizes creative contributions to the development of tools for the innovative presentation of coursework, new curriculum design, and the creation of an improved teaching and learning environment.

Dr Isaac Y Isaac  
Physics

Dr Isaac joined the Department of Physics as a graduate student in 1990, and after a two-year appointment in Japan returned to the Department in 1999 to the position of a Faculty Lecturer. Past students stress that physics courses given by Dr Isaac were an unforgettable experience that they still cherish. A quote from one of them summarizes this succinctly: “Clearly, Dr Isaac’s dedication and efforts in actively engaging the class with memorable and educational demonstrations, interesting lectures, and useful Internet resources have improved the learning environment significantly.”

Dr Isaac’s achievements go well beyond classroom excellence. He has been instrumental in creating a climate for embracing novel teaching aids within the Department of Physics. He has put an enormous effort into investigating, evaluating and implementing on-line resources available now for physics instruction. He demonstrated that these resources are valuable, useful, and worth the effort.

Faculty of Science Service Award

The second new award is the Faculty of Science Service Award, which is given to recognize outstanding contributions by an individual staff member for service to the Department, Faculty, University and/or Community. The recipients are:

Dr Ivan Baggs  
Mathematical & Statistical Sciences

Dr Baggs has been with the department since 1973, and has served much of that time as the Associate Chair (Undergraduate Studies). Despite his heavy workload, Dr Baggs has participated in a fundamental way to innovations of great benefit to both the department and the University. He was one of the key instigators in creating an advisory exam and precalculus course for entering students.

Dr Baggs created and supervised the running of the department drop-in help sessions. He has given generously of his time by holding help and review sessions for his students on Saturdays and evenings. He has been heavily involved with the development of computer-assisted delivery systems and, in the spirit of Campus Alberta, has made his material available to other institutions.

Mr Tom Brisbane  
Chemistry

Mr Brisbane has been the department’s APO since 1997. In this role he oversees...
University

• **Susan Jensen** (Biological Sciences) – YWCA Women of Distinction Award
• **John Klassen** (Chemistry) – Petro-Canada Young Innovator Award
• **Anthony Lau** (Mathematical & Statistical Sciences) – University Professorship Award
• **Yanping Lin** (Mathematical & Statistical Sciences) – McCalla Professorship
• **William Tonn** (Biological Sciences) – McCalla Professorship
• **John Vederas** (Chemistry) – Killam Award for Excellence in Mentoring

National

• **Margaret-Ann Armour** (Chemistry) – 10 Outstanding Canadians (Maclean Magazine’s 2003 Honour Roll)
• **Mike Belosevic** (Biological Sciences) – Outstanding Achievement in Applied Technology and Innovation Award (ASTech)

• **Vladimir Chernenkov** (Mathematical & Statistical Sciences) – Canada Research Chair in Algebra
• **Edward Lozowski** (Earth & Atmospheric Sciences) – Casey Baldwin Medal (Canadian Aeronautics and Space Institute)
• **David Schindler** (Biological Sciences) – Officer of the Order of Canada
• **Helmy Sherif** (Physics) – CAP Medal for Excellence in Teaching (Canadian Association of Physicists)
• **Ian Stirling** (Biological Sciences) – Northern Science Award for Lifetime Achievement (Canadian Minister of Indian and Northern Affairs)
• **Richard Sutton** (Computing Science) – iCORE Chair in Reinforcement Learning and Artificial Intelligence
• **Roderick Wasylchen** (Chemistry) – John C. Polanyi Lecture Award (Canadian Society for Chemistry)

International

• **Raymond Egerton** (Physics) – Distinguished Scientist Award for the Physical Sciences (Microscopy Society of America)
• **Andrew Liu** (Mathematical & Statistical Sciences) – Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics (Mathematical Association of America)
• **Nat Rutter** (Earth & Atmospheric Sciences) – Distinguished Service Award of the Quaternary and Geology and Geomorphology Division (Geological Society of America)
• **Eleni Stroulia** (Computing Science) – IBM Eclipse Innovation Award
• **József Tóth** (Earth & Atmospheric Sciences) – M. King Hubbert Science Award (National Ground Water Association)

Geological teaching and research gets industry support

the total operating and capital budget of the department, manages all academic trust funds involving 227 accounts totalling over $14M, is the personnel supervisor of 53 support staff, manages all departmental support support laboratories, storerooms, purchasing, secretarial and administrative services, and is responsible for the planning, initiation and supervision of all renovations, repairs and maintenance for the two aging buildings of the Gunning/Lemieux Chemistry Centre.

Mr Brisbane demonstrates outstanding skills in administrative, financial and personnel functions and displays a thorough understanding of all aspects of the department. Moreover, his integrity, his level-headed approach to problems, together with his friendly and always helpful manner help keep the chemistry department running smoothly. In addition, Mr Brisbane willingly volunteers for duty on committees across campus, and always brings distinction and respect to his position. His tireless efforts on behalf of the Department of Chemistry make everyone’s life much easier.

In geology, there is no substitute for field experience. Undergraduate students need to learn how to read rock in its natural setting. At the U of A, that means taking trips around Alberta to places like the Badlands and the Rocky Mountains.

Such field trips have become more expensive in recent years, leading some in the Department of Earth and Atmospheric Sciences to wonder how long they will survive. But now, thanks to a $750,000 donation from Burlington Resources Canada Ltd., the geology and geophysics field schools will have the resources to remain among the strongest in Canada.

“This is a nice gift from our perspective because it provides the tools to put in the classroom which gives direct relevance to real-world situations,” said Dr Gregory Taylor, dean of the Faculty of Science.

“It’s this kind of partnership that helps us build our reputation as one of the top, if not the top, science faculty in the country.”

Part of the donation will also be used to form a new resource geosciences research group, focused on oil and gas exploration, within the new Centennial Centre for Interdisciplinary Science, the first phase of which is scheduled to open in 2005. Burlington will also supply the department with data sets—often difficult to obtain because of issues around intellectual property—for use in the classroom.

“We hope this partnership will help address our industry’s need for world-class geoscience research and education facilities,” said Mark Ellis, president of Burlington Resources Canada. “We have a long history of working with students and graduates of University of Alberta programs, and it is a strategic step for us to enter into these partnerships to ensure that as we grow our operations, we will have qualified graduates to recruit into our programs.”
New masters program
Internetworking Technology

It may seem strange in today's technology-obsessed world, but it's tough to find people who can design, implement and manage computer network systems from the ground up. "If you go into the market and try to find somebody who can set up a network, run it, grow it, architect it, you can't find them," said computing science professor Dr Mike MacGregor. "And it's even tougher to find someone who can design new types of networks and equipment."

That is why the Faculty of Science's computing science department and the Faculty of Engineering's electrical and computer engineering department have teamed up to create a new Master of Science in Internetworking (MINT). As one of only three such programs in the country and the first in western Canada, it will aim to produce "technology transfer leaders who will shape the future of this emerging field," said Mark Dale, dean of graduate studies and research.

Set to start next fall, the program is designed for industry professionals seeking to upgrade their theoretical and practical knowledge, taking advantage of collaborative research across two faculties. Its goal is to cover every aspect of Internet technology, from its underlying organization and structure to its technical, business and societal implications. There will be a significant hands-on component in the new $2 million internetworking lab.

Graduates would be capable of developing architecture for complex network implementations or leading Internet-related project teams and business ventures. "One group of folks would go off and operate networks," says Dr MacGregor, the program's new director. "But the folks we're really trying to graduate from here are those who will design the new equipment that the people operating the networks will buy."

The two-year program starts with 10 students in its first year, and classes are scheduled for evenings and weekends to accommodate work schedules. The next open house is set for Tuesday, June 15, 2004 at 7:00 pm in the Engineering Learning and Teaching Complex (ELTC) E2-101, on the University campus.

For more information, visit http://mint.ece.ualberta.ca or contact the program office at (780) 492-1930.

Science Mentors wanted

SCiberMENTOR is an email mentoring program that matches girls aged 11 to 18 with women practicing or studying engineering and science. The primary objective of SCiberMENTOR is to expand girls' knowledge of careers, opportunities and benefits that exist for women in the health sciences, science and engineering fields. The program is designed to motivate girls to continue in the areas of math and science during their junior and senior high school years through interaction with women who are studying or working in these fields. The program is always looking for mentors, so if you are interested in participating please contact Alby Pei, Northern Alberta Program Administrator at sciber@ualberta.ca, (780) 492-2926, or www.scibermentor.ca to request a registration package.

Dr Gregory Taylor fulfilled every kid’s dream on February 13th as the University of Alberta celebrated the academic and athletic achievements of the award-winning Golden Bears and Pandas student athletes.

“I made a bet with Dean Mahon”, said Taylor. “If the Faculty of Science had more Academic All Canadians than the Faculty of Physical Education and Recreation, I would get to drive the Zamboni.” As it turns out, they tied.

Out of the 99 U of A student athletes who made the Canadian Interuniversity Sport (CIS) Academic All Canadian list last year Science and Physical Education and Recreation topped the list at 19 each.

To make the Academic All Canadian list student athletes must maintain a Grade Point Average of 80 per cent or better while competing on a varsity team. The U of A leads the nation in the number of Academic All Canadians since the inception of the award in 1991 with 1,000.

“These student athletes have to rank among the superheroes of this world,” said Mahon. “They expend a tremendous amount of energy keeping their marks high, and go on to devote about 30 hours a week to their sport. They are champions in every sense of the word.”
Where are they?

**Manley Johnston** (BSc ’64) currently lives in Dellwood, Minnesota. Now retired, Dr Johnston had a long career with 3M in St. Paul, MN. Upon completing his PhD at the University of Illinois in 1968, Manley started at 3M as a senior chemist. Over the years he took on more administrative roles, from Technical Director for France and Europe to Staff Vice President of International Technical Operations, the position he held when he retired in 2001.

**Godo Stoyke** (BSc’86, MSc ’91) is President, Environmental Educator at CarbonBusters Inc., a leading company in the area of greenhouse gas emissions reduction through energy conservation and environmental education. Godo oversees day-to-day operations of CarbonBusters and provides environmental education to students, teachers and staff.

**Dr Elvins Y. Spencer** (BSc ’36, MSc ’38) is busy working on “Recollections”, a journal that recounts over 75 years of fascinating life experiences. After graduating in honors chemistry in 1936 he became Dr Arthur McCalla’s first graduate student in the then Field Crops Department, and completed his Masters in Cereal Chemistry by 1938. After a brief stint with the NRC in Ottawa he went on to complete his PhD at the University of Toronto. From 1960 to 1978 he was the Director at The Southern Crop Protection and Food Research Centre in London, ON. He went on to teach at the University of Saskatchewan where he overlapped with Dr Raymond Lemieux who was completing postdoctoral studies. He is now retired and living in London, ON.

**Robert (Bob) Caine** (BSc ’72) is currently living in Devon, AB breeding purebred cattle.

Also working at CarbonBusters is **Shanthu Mano** (BSc). Shanthu is CarbonBusters’ Program Director, responsible for co-ordinating the CarbonBusters program in Canada, the US, and other English speaking countries. She maintains contact with School Districts and Municipalities and is the trouble-shooter for the company.

**Dr Stuart Davis** can often be spotted pedalling his bicycle across campus, making his way from his Windsor Park home to the office he still has in the Gunning/Lemieux Chemistry Centre. Often referred to as Edmonton’s patron saint of music, Dr Davis has generously given a gift of $500,000 to the Faculty of Science, earmarked to support the Centennial Centre for Interdisciplinary Science (CCIS), a world-class teaching and research facility soon to be under construction on campus.

Dean of Science, Dr Gregory Taylor, comments on the gift, “As an alumnus, professor emeritus, and an ongoing supporter, Stuart is a true friend of the faculty. This is truly a generous gesture, yet another example of his genuine interest in the people of Edmonton and his desire to make their lives better.”

Dr Davis, named Edmonton’s 2003 philanthropist of the year, is an alumnus of the University of Alberta having obtained his BSc and MSc in chemistry before heading off to McGill to complete his PhD. He soon returned to the University of Alberta’s Chemistry Department where he spent 40 years teaching future scientists and pursuing his research on the physical properties of clay.

Dr Davis’s gift will support the Centennial Centre for Interdisciplinary Science. The CCIS project will integrate teaching and research activities at the interface of traditional disciplines. It will foster collaborative programs for graduate and undergraduate students that are responsive to ever-changing trends in science and industry.
We have two vineyard locations,” Joe comments, referring to himself and his partner, wife Jane Langdon. “We have five acres located at the winery, and another 21 acres about three kilometers away.”

Like Kendall, Joe believes in getting out to inspect and sample the fruit. Joe and his crew make a point of visiting each plant (approximately 1000 per acre) at least four times a year, which, he adds, is much more land to cover than it appears while sitting on tractor.

Strewn Winery has established its own niche market in the vineyard-dense Niagara region. In addition to producing more than 30 wines from four vintages, Joe and Jane (a former food writer) offer a Wine Country Cooking School and an independently owned restaurant, both focusing on the relationship between food and wine. An experience, Joe points out, that all Science alumni are invited to enjoy!