Chemistry at Hamilton

A newsletter produced by the Department of Chemistry at Hamilton College

Inside this issue:

Fall 2003

❖ ***Sarah Taylor, Fulbright Grant winner, page 8.***

Hamilton

❖ *INTRODUCTION*

Since I last wrote to all of you alumni and friends, we've had an eventful year. Most notable is that we've just graduated one of our best senior classes in the past 35 years (according to Robin Kinnel!), and you can read all about their accolades inside. Of particular note is that 10 of the 11 Chemistry graduates and 4 of the 8 Biochemistry graduates were inducted into Sigma Xi, the National Research Honor Society. Five chemistry graduates and one biochemistry graduate were inducted into Phi Beta Kappa. Sarah Taylor '03 was awarded a Fulbright to spend next year in Barcelona, Spain, pursuing a drug design research project.

In all, 17 of the 19 graduates received one or more Honors at Commencement. In addition, 22 juniors have elected Chemistry (14), Biochemistry (6), or Chemical Physics as their major. This past academic year our students made 23 poster presentations at national or international meetings. Twenty-seven students worked on research projects with the faculty this past summer. Students have co-authored 14 publications in the peer-reviewed literature with faculty over the past four years. And this past spring Shayna McHugh became only the 4th Hamilton College student, and the second sophomore, to win a Goldwater Fellowship.

How is this success possible? I met recently with Admissions to discuss what we do that is unique from other institutions. First of all, we have very small class sizes. This fall we are teaching three sections of Chem 125, our discussion-based class, with each section limited to 16 students. Chem 120 is being taught in two sections, with enrollments of 30-35. The next two semesters of organic chemistry are taught in two sections, keeping the enrollments well below 50 in each section. The small classes during the first two years of the chemistry sequence maximize the attention that our students receive from the faculty, and represent an ideal situation for all students who are learning chemistry. Second, we have a variety of research experiences available, and we work hard to ensure that every student who would like to do research during the summer gets a chance to do so. Many of our students work for multiple summers, and build up the kind of track record that is essential for external awards. For instance, the Goldwater Fellowship is the premier undergraduate scholarship in science, and the main criteria are an aptitude for research and a commitment to graduate studies in mathematics or science. All four of the HC Goldwater winners worked on research projects with chemistry faculty prior to their award, and the faculty letters of recommendation were crucial to their success. If you don't get a chance to do research, it is hard to demonstrate an aptitude for it!

The faculty and staff of this department work extraordinarily hard, and work smart, using their time wisely to ensure that the seamless integration of teaching and research continues. This synergy improves both our teaching and our research endeavors simultaneously, and results in an ever changing but always stimulating education for our students. Our mission is to provide the finest possible education in chemistry to a broad

continued on next page

Students made 23 poster presentations at national or international meetings.

continued from previous page

spectrum of students, including both majors and non-majors. We are committed to providing individualized education to our students that allows all students to learn about the role of science and chemistry in the modern world and is characterized by challenge and intellectual stimulation.

Of particular note this past year are two faculty successes. The first is that Robin Kinnel has successfully obtained an NSF-MRI grant to enable us to purchase a new NMR, just in time to move it into the new building next May. The second is that Tim Elgren has been elected President of the Council on Undergraduate Research (CUR), effective the summer of 2004. Tim will sit on the Executive Committee for each of the next three years. Hamilton, by virtue of the chemistry department's success and Tim's work on CUR, has gained a national reputation among undergraduate institutions that take science education seriously.

This past summer we had another great research program [see inside]. Ram Subramaniam has landed a tenure track job at Santa Clara University. Our best wishes to Ram, who was a superb colleague. We welcome Visiting Assistant Professor of Chemistry Stephen Waratuke, who joins us for the next two years. Steve will be teaching Organic Chemistry and Research Methods in Chemistry while he is here.

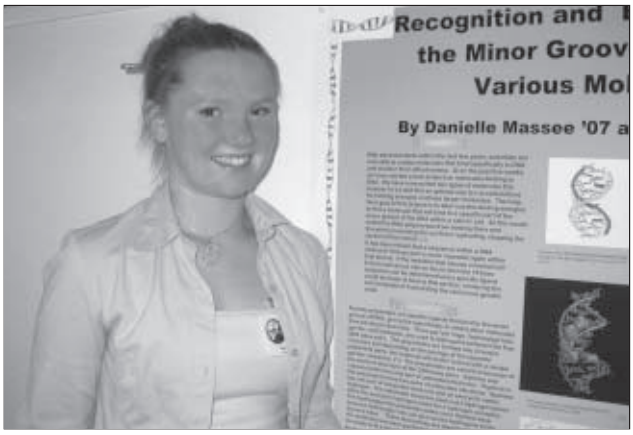
Finally, I'm thrilled to be able to tell you that this year's freshman class is the best group of students I have ever taught in the classroom; as a faculty we look forward to working with many of them in our research laboratories.

George C. Shields
Winslow Professor and Chair of Chemistry

Hamilton College
Department of Chemistry
198 College Hill Road
Clinton, NY 13323

Office: 315-859-4729
Fax: 315-859-4744
E-mail: chem@hamilton.edu
Web: www.chem.hamilton.edu

❖ *SUPER COMPUTER UPDATES*



Danielle Massee '07 at the MERCURY Conference

As part of a continued effort to bring more computing power to Professor Shields' research laboratory, the department acquired an SGI Origin 2000, a 32-processor supercomputer, this past spring. The acquisition of this computer, purchased with grant money that Professor Shields obtained from ACS/PRF, NSF, and New York State Department of Health research grants, brings the total amount of server resources available to students doing computational chemistry research up to 92 processors–40 in the two supercomputers purchased last year as part of the MERCURY Consortium NSF-MRI grant, and 20 processors in 5 Origin 200 computers which have been purchased over the last five years. In addition, Professor Shields' lab has added 5 Linux workstations to the 5 SGI workstations that were already in use, enabling up to 10 students to work simultaneously on research projects. The additional resources have allowed the group to expand, and to take on increasingly complex research problems.

❖ *FACULTY UPDATE*

Karen Brewer

Associate Professor of Chemistry Karen Brewer had a paper, "Low temperature metalorganic chemical vapor deposition growth of InP using the new precursors pentamethylcyclopentadienylindium(I) and white phosphorus" published in the *Journal of Crystal Growth*. This paper is a result of a collaboration with O.T. Beachley, Jr. (Chemistry, SUNY-Buffalo) and H. J. Haugan of the research group of B.D. McComb (Chemical Engineering, SUNY-Buffalo). Brewer was also the invited speaker in the Chemistry Department Seminar Series at Texas Christian University and at Southern Methodist University. Her talk was titled "Rare Earth-Doped Sol-Gel Glasses: Synthesis, Processing and Spectroscopy" and she discussed the most recent results of her collaborative work with Ann Silversmith, professor of physics, and Dan Boye, professor of physics, Davidson, and several Hamilton students.

Tim Elgren

Associate Dean of Faculty and Associate Professor of Chemistry Tim Elgren gave two presentations at the Ninth National Conference of the Council on Undergraduate Research. The talks were titled "Innovative Chemistry Curricula that Support Undergraduate Research" and "Institutionalizing Research for All". The Council on Undergraduate Research (CUR) is a national organization that strives to support faculty members and their research activities at primarily undergraduate institutions. Elgren is finishing his second three-year term as an elected member of the council. He

continued on page 5

❖ CONFERENCES AND SUMMER RESEARCH

George Shields with Matthew Liptak '03

Hamilton College Professor and Chair of Chemistry George Shields attended the 43rd Sanibel Symposium on Atomic, Molecular, Biophysical and Condensed Matter Theory, Feb. 26 - March 1, 2003, in St. Augustine, FL. He chaired the plenary session on Membrane Proteins. In addition, three Hamilton College seniors presented their fundamental research focused on anti-cancer drug design, based on their senior thesis work. **Matt Liptak '03** presented his poster, "Modeling the Inhibition of Cdc25B using QM/MM." **Chantelle Rein '03** presented her poster, "An Investigation of the Usefulness of the ONIOM QM/MM Method for Studying the Energetic Pathways of Esperamicin A1." **Sarah Taylor '03** presented her poster, "Computational Approaches to Breast Cancer Drug Design." Each student gave a brief talk before an international audience of more than 100 scientists, and then discussed their work during the poster session. **Sarah Tschampel '00**, currently a graduate student in computational biochemistry at the University of Georgia, won the award for top graduate student poster at the conference. All four of these students have spent multiple summers pursuing their research through the chemistry summer research program at Hamilton College.

Twenty-seven students and six faculty summer researchers gathered for this photo.

This past summer **Amanda Bennett '06**, **Henry Chicaiza '04**, **Rebecca Levinn '07, Grant McSurdy '06, Sarah Stewart '05, and Adam Weisz '07** worked in Ian Rosenstein's laboratory. **Jessica Callahan '04** worked with Karen Brewer. **Christopher Butts '04, Hillary Gamble '07, Jeff Rubino '05, Kate Schirmer '05**, and **Brendan Sullivan '07** worked in Tim Elgren's laboratory. **Scott Huntington '05, Shayna McHugh '05, Lindsay Rubenstein '07, Jakub Sroubek '04**, and **Emma Timmins-Schiffman '06** worked with Robin Kinnel. **Margo Rockwell '05** and **Dan Roston '06** worked in John LaGraff's laboratory. **Mary Beth Day '07**, **Meghan Dunn** (a Clinton Central School graduate who attends George Washington University '06), **Christy House '06, Danielle Massee '07, Sean McGovern '07, Matt Palascak '07, Frank Pickard '05**, and **Becky Shepherd '06** worked with George Shields. Rebecca, Adam, Hillary, Brendan, Lindsay, Mary Beth, Danielle, Sean, and Matt were all supported by our recent NSF-STEP and Dreyfus grants, which provide incoming Hamilton students an opportunity to perform hands-on research prior to their matriculation at Hamilton!

Posters Presented at ACS

Posters Presented at the American Chemical Society's National Meeting, the 225th meeting of the American Chemical Society, New Orleans, La., March 23-27, 2003: **Shayna R. McHugh** and R. B. Kinnel, "Investigation of Bioactive Compounds from Stylotella aurantium from Guam," **Julie A. Rizzo** and R. B. Kinnel, "New Aqueous Constituents from the Sponge Stylotella aurantium from Palau." Timothy E. Elgren, Ian Rosenstein, Robin B. Kinnel, Ram Subramaniam, and **Ryan Palmitesso '03**, "Integrated Context for Introducing Research Methods in Chemistry." **Rob Parker '04** and **Jeff Rubino '05** presented the results of research they conducted with chemistry professor Timothy Elgren, "Sol-gel encapsulated peroxidases: Catalytic materials for peroxidation." **Julianna Allport '05** presented her poster, "Structure-function relationships of human serum albumin modified by the dicarbonyl sugar-methyl glyoxal," that she co-authored with chemistry professor Ram Subramaniam and Hamilton students, **Christopher Butts '04, Sara Edeiken '02** and **Leah Budiansky '02**. **Andrea Stroud '03** presented her poster, "Ester chiral auxiliaries for the control of stereochemistry in addition reactions of tertiary electrophile radicals," co-authored with chemistry professor Ian Rosenstein.
Sarah Taylor presented her poster, "Computational Approaches to Anti-Cancer Drug Design," co-authored with Professor Shields.

❖ *WHERE ARE THEY NOW?*

Chemistry Majors:

Damien Ellens '03 is working at the New England Center for Children this next year and then plans to attend medical school. **Alicia Fucile '03** is working on her master's of public health at George Washington University. **Robert Gordon '03** is a research scientist at the Dana Farber Cancer Research Institute in Boston, and will apply to medical school this year. **Alison Lin '03** has a Bristol Fellowship to study Women's Literacy. **Matthew Liptak '03** is enrolled in graduate school at the University of Wisconsin. **Fletcher Malcolm '03** spent the summer directing a school that teaches sailing, and is currently looking for a position. **Jennifer McGuire '03** is at the University of Pennsylvania Dental School. **Dathalinn O'Dea '03** was accepted to Dartmouth medical school, but decided to teach high school chemistry at the Rocky Hill School in Rhode Island. **Ryan Palmitesso '03** has been hired to manage Aspen Dental (aspendent.com) and plans to attend dental school next year. **Julie Rizzo '03** is attending graduate school at the University of Rochester. **Andrea Stroud '03** is looking for a job in San Diego.

BioChemistry Majors:

Leah Budiansky '03 is teaching at the Phillips Andover School. **Audelyn Budihardjo '03** is attending the University of Toronto, working on a master's degree in finance. **Mike DePetrillo '03** is working at NIH. **Sara Edeiken '03**, has moved to the Washington, D.C. area, and is looking for a suitable position. **Lorena Hernandez '03** is working on her MD/Ph.D. at Albert Einstein. **Kristin Patrick '03** is going to graduate school at Yale. **Chantelle Rein '03** is attending graduate school at the Oregon Health Sciences University, in Portland, Oregon. **Sarah Taylor '03** has a Fulbright Fellowship in Spain and has been accepted to medical school at New York University.

17 of the 19 graduates received one or more Honors at Commencement

❖*NEW FACULTY MEMBER*

Stephen Waratuke

Stephen Waratuke obtained a B.S. in chemistry from the University of Pittsburgh and his inorganic chemistry doctorate from Purdue University. His graduate work focused on the use of organometallic catalysts for performing organic reactions. He has studied polymerization catalysts and developed environmentally non-toxic PVC additives at the C.P. Hall company and Akzo Nobel. Prior to coming to Hamilton he has taught organic chemistry at Susquehanna University where he was a visiting assistant professor. He has published articles in the *Journal of Organometallic Chemistry* and the *Journal of the American Chemical Society*.

❖*SCHOLAR ATHLETES*

Along with being exceptional students, many of the 2003 graduates from the Chemistry Department were also accomplished athletes, thus setting a portrayal of the ideal well-rounded individual. **Robert Gordon** was a member of the men's ice-hockey team for four years; his senior year **Gordon** was the captain, and the team's leading goal scorer. **Fletcher Malcom** was a member of the men's cross-country and track teams throughout his tenure at Hamilton. **Ryan Palmitesso**, a four year member of the men's outdoor track team was the team's best high-jumper; he won NESCAC's in high jump. **Andrea Stroud** was a successful runner on the women's outdoor track team. **Chantelle Rein** was a four year starter for the women's soccer team. **Sarah Taylor** was a three sport athlete participating in women's squash, tennis and cross-country.

❖ *ALISON LIN SOPER-MERRILL PRIZE RECIPIENT SPEECH*

Alison Jeanne Lin '03, the 2003 recipient of the James Soper-Merrill Prize, spoke about the graduating class's inclination to make a difference both on-campus and off. Alison's speech is printed below:

"Good morning. Welcome, Class of 2003, to commencement.

"I would like to thank our invited guests, faculty, staff, friends, and families for sharing in this day of celebration and transition. Without your support, sacrifice, encouragement, and compassion, we would not be here today.

"The last time I was standing in front of a microphone, I was at an outreach center in Utica. I was listing the reasons why I went to college while 24 children ate French toast, pineapple slices, and vanilla pudding.

"Why come to college? Everyone has their own reason: to gain independence, to meet new people, to get a lucrative job, to have a good time, or maybe just because your parents made you.

"Education is the foundation and the means to attaining all these expectations. But what is an education?

"We came to college expecting academic challenges and we found them, but the social and personal challenges that we encountered were equally vital and demanding. Academics expand your perception and knowledge base, but experiences cement this knowledge into an everyday tool. Thus, an education cannot be attained without participation in a larger reality.

"Volunteering in Utica added to my Hamilton experience and reminded me of the diverse realities in which people live. These experiences push me to question the deeper levels of inequality and injustice, including classism, racism, and sexism. Direct service, as well as political participation, community building, and other forms of activism also lead us to ask questions and become fully engaged citizens.

continued on page 6

❖ *FACULTY UPDATE continued*

co-chairs the CUR Summer Fellowship Committee. Elgren published a paper on "Catecholase Activity Associated with Copper-S100B" in *Biochemistry*. This is a project funded originally by the Institute of Neurological Disorder and Stroke of the National Institutes of Health, a Cotrell Award from the Research Corporation and the Petroleum Research Fund of the American Chemical Society. Three undergraduate co-authors contributed to this project with summer research, and senior thesis projects. Kim Kelly '96 completed her Senior Fellowship on this work. Staff member Sue Senior also co-authored this paper as she was a technician working on this project with three years of NIH funding.

Robin Kinnel

Robin Kinnel, the Silas D. Childs Professor of Chemistry, has been awarded a $238,357 National Science Foundation, Major Research Instrumentation Grant, "Acquisition of a High Field NMR for Chemistry Research," for 2004-2007. Kinnel also received a $9,000 grant from the 2003 Pittsburgh Conference, Memorial National College Grants Program, for "A Spectrofluorimeter for Research and Teaching." He also co-authored three posters which were presented by Hamilton students at the national meeting of the American Association for the Advancement of Science in Denver in February, and at the 225th meeting of the American Chemical Society in New Orleans in March.

John LaGraff

Assistant Professor of Chemistry John LaGraff was awarded a $100,000 grant from the National Science Foundation (NSF.) The grant for "Integrating Nanoscience into the Undergraduate Liberal Arts Curriculum" is from the NSF Division of Molecular and Cellular Bioscience for 2003- 2004. LaGraff also presented his research on "Fabrication and Imaging of Protein Crossover Structures" at the fall meeting of the Materials Research Society held in Boston, Mass. He also had a paper on the topic published in the conference proceedings (2003). LaGraff received the Research Corporation Cottrell College Science Award. The award will go toward funding his research in "Structure-Function relationships of microcontact printed protein patterns by in situ scanning force microscopy."

Ram Subramaniam

Visiting Assistant Professor of Chemistry Ram Subramaniam published "Methylglyoxal-BSA stimulates TNF-a secretion in RAW264.7 cells through activation of MAPK and NF-KB and intracellular oxidation," with Xing-Jun Fan, Miriam Weiss and Vincent Monnier in *Archives of Biochemistry and Biophysics* 409, 274-86 (2003). Subramaniam published a paper, "Cellular oxidant stress and advanced glycation endproducts of albumin: caveats of the dichlorofluorescein assay" in *Archives Biochemistry and Biophysics*. His co-authors are Xing-Jun Fan, Vincenzo Scivittaro, Jianqi Yang, Chung-Eun Ha, Charles Petersen, Witold Surewicz, V. Bhagavan, Miriam Weiss, Vincent M. Monnier.

❖ Lin Speech

continued from page 5

"I have seen the power that our class has to promote positive change both off and on campus. I am amazed as I continually meet new classmates who are involved in creating Hamilton's vibrant life and in awe of my friends who contribute daily to that vibrancy. Al Ham Weekend, Celebrate Sexuality Week, Asian Cultural Week Hunger, Homelessness Week, and Carnival are only a few of the recent student-driven events on campus. These give me a sense of pride in Hamilton and assurance that our class will continue to make the world a better place.

"I don't always like to acknowledge the larger realities that exist off the Hamilton campus. For example, the poverty and oppression found locally in Utica or internationally in Iraq. But my time at Hamilton has taught me that ignoring these realities is not an option. I have learned that everyone holds the power of action within themselves. I challenge us, the class of 2003, to expand our realities, engage ourselves in the world's struggles, and connect with people of all kinds, affecting positive change for ourselves and others.
"Today we are all leaving the Hamilton community as we've known it. Maybe you can't wait to leave. Maybe you can't imagine life afterwards. It is probably a little bit of both. Either way, now is the perfect time to start dreaming.

"Welcome and thank you."

❖ CHEMISTRY STUDENTS RECEIVE AWARDS

Class and Charter Day Awards

This year on Class and Charter Day many biochemistry and chemistry students received awards for their achievements. **Julianna Allport '05**, a biochemistry major, received the Dr. Philip I. Bowman Prize Scholarship. **Damien Ellens '03**, a chemistry major, received the Norton Prize and Phi Beta Kappa honors. **Rob Gordon '03** was awarded the Gelas Memorial Prize. **Gordon** was also awarded the Norton Prize and received Phi Beta Kappa honors. **Alison Lin '03** received the Bristol Fellowship. **Lin** was also awarded the HAVOC Service Award, the Jenny Rubin Memorial Prize Scholarship, the James Soper Merrill Prize, as well as Phi Beta Kappa honors. **Matthew Liptak '03** received the Underwood Prize in Chemistry and Phi Beta Kappa honors. **Shayna McHugh '05** was awarded the American Chemical Society and Joint Polymer Education Committee Award, the Barry M. Goldwater Scholarship and Excellence in Education Foundation and the William John Schickler III Prize Scholarship. **Sinan Misirli '04**, a chemistry and mathematics major, was awarded the Raphael Lemkin Essay Prize. **Julie Rizzo '03**, a chemistry major, received he Norton Prize. **Jakub Sroubek '04** was awarded the Tompkins Prize in Mathematics. **Sarah A. Taylor '03**, a biochemistry major, received the Donald J. Denney Prize in Physical Chemistry. **Taylor** also received the Mary McMaster Hallock Prize in Science, The Senior Prize in Biochemistry/Molecular Biology and Phi Beta Kappa honors. **Andrea Stroud '03**, a chemistry major, was awarded Phi Beta Kappa.

Commencement Honors

Summa Cum Laude

Graduating with Summa Cum Laude honors were **Rob Gordon, Alison Lin, Dathalinn O'Dea, Andrea Stroud**, and **Sarah Taylor**.

Magna Cum Laude

Graduating with Magna Cum Laude honors were **Damien Ellens, Lorena Hernandez**, and **Matt Liptak**.

Cum Laude

Graduating with Cum Laude honors were **Leah Budiansky, Alicia Fucile, Jennifer McGuire, Kristin Patrick**, and **Chantelle Rein**.

Sigma Xi

Students elected to Sigma Xi, the National Scientific Honor Society, were **Rob Gordon, Alison Lin, Dathalinn O'Dea, Andrea Stroud, Sarah Taylor, Damien Ellens, Matt Liptak, Leah Budiansky, Alicia Fucile, Jennifer McGuire, Kristin Patrick, Chantelle Rein, Fletcher Malcolm,** and **Julie Rizzo**.

In addition, **Budiansky, DePetrillo, Hernandez, Patrick, Rein,** and **Taylor** graduated with honors in biochemistry/molecular biology. **Ellens, Fucile, Gordon, Lin, Liptak, McGuire, O'Dea, Rizzo** and **Stroud** received honors in chemistry. **Liptak, Patrick, Rein,** and **Rizzo** received Elihu Root Fellowships towards their graduate studies.

Alison Lin '03 Receives Bristol Fellowship

Alison Lin '03, has been awarded the college's Bristol Fellowship. The Bristol Fellowship was begun in 1996 as part of a gift to Hamilton College by William M. Bristol, Jr., (Class of 1917). Created by his family, the fellowship is designed to encourage Hamilton students to experience the richness of the world by living outside the United States for one year and studying an area of great personal

continued on next page

❖CHEMISTRY STUDENTS RECEIVE AWARDS (continued)

interest. Lin's project is titled "Grassroots Literacy for Women's Empowerment: Senegal, Haiti, Vanuatu, Cameroon, and Martinique." She will study grassroots literacy organizations in order to gain insight into how their projects empower women from Third World countries. Lin will examine literacy programs within those countries, analyzing the organizations, working with program participants and living within the communities to better understand the role of women. Lin says working within the literacy programs and immersing herself in these societies will help her determine the specific barriers that must be overcome to facilitate the process of critical literacy. Proposals are evaluated based on inquisitiveness, a spirit of adventure, depth of personal interest, and openness to other cultures.

Shayna McHugh '05 Awarded Goldwater Scholarship

Shayna McHugh '05, has been named a Barry M. Goldwater Scholar for the 2003-04 and 2004-05 academic years. This scholarship is the premier national undergraduate award in the fields of mathematics, the natural sciences and engineering.

McHugh plans to pursue a Ph.D. in chemistry, then become a medical research scientist focusing on the discovery and development of new drugs and medicines.

The Scholarship and Excellence in Education Program honoring Senator Barry M. Goldwater was designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, the natural sciences or engineering and to foster excellence in those fields.

The Goldwater Scholars were selected on the basis of academic merit from a field of 1,093 mathematics, science and engineering students who were nominated by the faculties of colleges and universities nationwide. This year 300 scholarships were awarded. The one and two-year scholarships will cover the cost of tuition, fees, books and room and board up to a maximum of $7,500 per year. The Foundation, in its 15-year history, has awarded 3,962 scholarships worth approximately $39 million.

McHugh is a graduate of Christian Heritage School, and a dean's list student at Hamilton.

Since 2002, she has conducted organic chemistry research under the guidance of Professor Robin Kinnel. The project has two objectives: to extract palau'amine, a recently discovered cancer-fighting compound from a marine sponge; and to isolate and identify other chemicals from the sponge and test them for antibiotic and anti-cancer properties. McHugh was one of 25 undergraduates selected nationally to present her research and results at the American Association for the Advancement of Science annual meeting in Denver in February. She also presented a poster of her work at the 225th American Chemical Society National Meeting in New Orleans, March 23-27.

She is a peer tutor for chemistry, physics and math, a writing tutor, and a founding member of Hamilton's Capoiera Club, for African-Brazilian martial arts and dance.

4th Hamilton College student, and the second sophomore, to win a Goldwater Fellowship

SUMMER RESEARCH PROGRAM FOR RECENT HIGH SCHOOL GRADUATES ESTABLISHED WITH DREYFUS AND NSF SUPPORT

The Chemistry Department has received a grant from the Camille and Henry Dreyfus Foundation to build a national model to increase the number of chemistry majors.

The initiative is a program that enables students to receive additional preparation and motivation for the study of chemistry and provide undergraduates with incentives to enter into the study of science and technology. The Hamilton College program will group together incoming first-year students who will actively participate in scientific research. Students will be introduced to the institution through Hamilton's summer research program. The chemistry summer research program is an intensive five-week program, which provides these students with interdisciplinary, hands-on, research projects. With the Dreyfus Foundation funding, the program will allow 8-12 incoming students per year the chance to attend Hamilton College and spend multiple summers working on research projects in biochemistry, chemistry, or chemical physics. In addition these students will have extensive interactions with the chemistry faculty, through small classes, frequent advising and social activities. The Camille & Henry Dreyfus Foundation was established in 1946 by chemist, inventor and businessman Camille Dreyfus as a memorial to his brother Henry, also a chemist and his partner in developing the first commercially successful system of cellulose acetate fiber production. In creating the

continued on next page

❖ *STUDENTS PRESENT AT MERCURY CONFERENCE*

Hamilton students, who have been using computational chemistry in their summer research, presented their findings at the MERCURY conference. MERCURY is a consortium of seven liberal arts institutions with access to high performance computing resources for chemistry students and researchers. The annual meeting is the only national conference devoted to undergraduate computational chemistry and was held at Hamilton College from July 30 - August 1.

Students working with George Shields, Winslow Professor of Chemistry, presented their work:

Christy House '06, presented a poster on "Comparison of Different Methods for the Determination of Energies of Deprotonation" .

Danielle Massee '07 presented a poster on "Recognition and Binding within the Minor Groove DNA" by Various Molecules

Matt Palascak '07 presented a poster on, "Experimental Free Energy of Hydration Values of H^+, OH^- and H_3O^+."

Rebecca Shepherd '06 presented a poster on "Abstraction of Hydrogen after Bergman Cyclization of Benzannelated Enedynes with Ortho Substituents."

Meghan Dunn, who is a sophomore at George Washington University, has spent a couple summers in Prof. Shields lab. She presented a poster on "Conformational Analysis of cEQ: The Functional Peptide of the Breast Cancer Inhibitor AFP" .

Frank Pickard '05 presented a poster on "The Enediyne Anticancer Antibodies: A Study of the Bergman Cyclization Energy Barriers of Esperamicin A_1" and **Sean McGovern'07** presented a poster on "Comparison of Different Solvation Methods for the Determination of the Free Energy of Solvation of Molecules and Ions".

Taylor Awarded Fulbright to Spain

Sarah Taylor '03, has been awarded a Fulbright Grant to Spain. The title of her project is "Theoretical Studies on Pharmacologically Important Proteins." Taylor has been invited to join a research group at the University of Barcelona with Professor Modesto Orozco, a prominent theoretical biochemist. She will study an enzyme that is thought to contribute to Alzheimer's disease.

The purpose of the Fulbright Program is to increase mutual understanding between the people of the United States and other countries through the exchange of persons, knowledge and skills. The program is designed to give recent college graduates opportunities for personal development and international experience.

It offers invaluable opportunities to meet and work with people of the host country, sharing daily life as well as professional and creative insights. The program promotes cross-cultural interaction and mutual understanding on a person-to-person basis in an atmosphere of openness, academic integrity and intellectual freedom.

The primary source of funding for the Fulbright Program is an annual appropriation made by Congress to the Department of State. The U.S. Student Program awards approximately 900 grants annually and currently operates in more than 140 countries worldwide. After completion of her Fulbright research trip, **Taylor**, who majored in biochemistry at Hamilton, will enroll in medical school at NYU, where she has already been accepted.

SUMMER RESEARCH

continued from page 7

Foundation, Camille Dreyfus directed that its purpose be "to advance the science of chemistry, chemical engineering and related sciences as a means of improving human relations and circumstances around the world." Since its first years of activity, the Foundation has sought to take the lead in identifying and addressing needs and opportunities in the chemical sciences.

The Chemistry Department has received a grant from the National Science Foundation to build a program that will increase the number of students participating in the sciences who are normally underrepresented in these fields. The initiative is a bridge program for entering first-year students that enables students to conduct hands-on scientific research before they begin their Hamilton education and provides incentives to enter into the study of science and technology. Selected students receive a stipend of $350 per week and subsidized on-campus housing. The Hamilton College Program will group together incoming first-year students who will actively participate in scientific research. Students will be introduced to the institution through Hamilton's summer research program. With the National Science Foundation funding, the program will enroll 14 incoming students per year, who will have the chance to attend Hamilton College and spend multiple summers working on research projects in one of the following scientific disciplines: biochemistry, chemistry, chemical physics, computer science, neuroscience, or physics. The National Science Foundation funds research and education in science and engineering through grants, contacts and cooperative agreements to more than 2,000 colleges, universities and other research and/or educational institutions within the United States.