



CLASnotes

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The Dean's Musings

On the Laming of Ducks

After Tom Osborne announced his impending departure as football coach at Nebraska, he was asked whether his influence had waned. "Well," he said, "when I blow the whistle, the players still come." This is hardly a good analogy for faculty and department chairs, who don't respond particularly well to whistles. Nor would we want them to.

As I move into the last few months of my tenure as dean, I have not noticed any measurable change in how people interact with me. The phone still rings a lot. My e-mail seems heavier than ever. In short, there is no real sense yet of being bypassed and neglected by those with problems to be solved. Actually, I wouldn't feel entirely hurt to miss some portion of this action. Lame duck status could be greatly undervalued.

People do tell me from time to time that they assume things are beginning to slow down for me. Well, not exactly. What is sometimes overlooked is that the Spring Semester in CLAS is an exciting, non-stop blur of activities. And I am very pleased to be a part of all this. At the same time, I am looking forward to the upcoming sabbatical year to catch up on a serious backlog of chemistry manuscripts, book chapters, and unread literature.

While my daily routine of the deanship remains essentially intact, I have detected a few subtle signs of my authority being eroded. For example, you worry that people are trying to tell you something:

- when your secretary commandeers your reserved parking space
- when your admin occasionally forgets your name
- when your budget officer replaces

See *Musings*, page 12

Pushing the Envelope

CLAS botanist considered "Godmother" of genetics subfield

Though it wasn't until graduate school that CLAS botanist Alice Harmon got "hooked on plants," her cutting edge work here at UF is contributing significantly to the burgeoning field of plant genetics. Harmon always excelled in science, a fact she attributes to her parents, teachers, and "Mr. Wizard" on television. Growing up somewhat isolated on Hutchison Island (a barrier island off Florida's Atlantic coast) didn't hurt either. "The lack of many playmates meant there was ample time to develop my curiosity," she says.

A chemistry major as an undergraduate at the University of Florida, Harmon left the state in 1970, degree in hand, to spend most of the next decade working in California, South Carolina and Georgia, where she held positions in research and worked for the EPA. Upon returning to school to study biochemistry at the University of Georgia in the 1980s, however, she was introduced to the subject that would become her life's work: calcium binding proteins and plant protein kinases.

"As specialized enzymes, protein kinases are biological molecules that trigger chemical reactions," Harmon explains. "They are part of the control network of cells and help regulate cellular chemical pathways so that each cell is doing the appropriate thing at the appropriate time."

Protein kinases are components of "stimulus/response pathways," which are networks of biological molecules that interact with each other in a specified sequence. When an external stimulus is present, such as light or an environmental stress (cold, heat, drought, pathogens), that signal is perceived by the molecular machinery of cells and converted into chemical messages that initiate the molecular interactions of the pathway.



Alice Harmon

The protein kinases' specific job during this process is to use the ubiquitous energy-rich compound ATP to transfer a phosphate group to proteins. This "phosphorylation" changes the activity of the protein, which in turn contributes to a change in the cell's physiology, enabling the cell (and the organism as a whole) to respond appropriately to the original signal.

Harmon is especially interested in protein kinases that are activated by the chemical messenger calcium. In fact, as a post doctoral researcher, Harmon and graduate student Cindy Putnam-Evans were the first to purify and characterize a member of the calcium-dependent protein kinase (CDPK) family, a feat which CLAS Botany chair George Bowes calls "a major step forward in understanding how communication and signaling processes operate in plants." Harmon's pioneering efforts and extensive current research in this field have earned her the title "Godmother of CDPK," says Bowes.

"Almost every stimulus that affects plant growth, development, and physiology

See *Harmon*, page 8

This month's focus: **Botany**

Around the College

DEPARTMENTS

Anthropology

Maxine L. Margolis was an invited participant in the conference, Luso-Brazilian Strategies for the Teaching of Portuguese Language and Culture in the United States, held in Rio de Janeiro in December 1999.

Irma McClaurin recently completed two policy papers for the Department of Women in Belize on Domestic Violence, and her manuscript, "Black Feminist Anthropology: Theory, Praxis, Politics and Poetics," will be published by Rutgers University later this year. In November, she gave invited talks at Spelman and Emory Colleges in Atlanta. McClaurin was also awarded the David C. Gallup Fellowship in American Literature from the Beinecke Rare Book Library, Yale University, where, in May, she will begin conducting research for her latest project: "Zora Neale Hurston and Anthropology, Challenging the Old, Forging the New."

English

Susan Hegeman's *Patterns for America* was included in *CHOICE's* list of outstanding academic books for 1999. At the last MLA, Susan gave a paper on "Culture and Anthropomorphism," and organized and chaired a session on "Clifford Geertz and Literary Studies," in which Geertz himself served as a respondent. She has just been appointed to the MLA Delegate Assembly.

Mark A. Reid's "New Wave Black Cinema in the 1990s" is included in *FILM GENRE 2000: New Critical Essays*, (SUNY Press, 2000).

History

Geoffrey Giles gave a keynote address at the annual meeting of the History of Education Society in Winchester, England, last December. The conference focused on gender issues, and his talk was entitled "Through Cigarette Cards to Manliness: Building German Character through an Informal Curriculum."

Linguistics

As part of her Fulbright work, **Diana Boxer** taught sociolinguistics in the first graduate program in applied linguistics in Paraguay last fall. In August, she gave the opening plenary address entitled "Ten misconceptions about second and foreign language learning" at the ParaTESOL (Paraguay Teachers of English to Speakers of Other Languages) annual conference. She also visited the University of San Andres, Buenos Aires, where she lectured on second language acquisition. In October, she was invited to give short courses on face-to-face discourse at two universities in Brazil.

Mathematics

Krishnaswami Alladi gave the Ramanujan Millennium Lecture in Mathematics (as part of the Millennium Series of Lectures on various subjects) at the M. S. Swaminathan Research Foundation in Madras, India, on December 22, the birthday of the late mathematical genius Srinivasa Ramanujan.

Alexandre Turull has been appointed as an editor of *Communications in Algebra*, one of the leading international journals in the field of algebra published by Marcel Dekker. This journal is a premier forum for the exchange of ideas in all areas of algebraic research including classical number theory.

Edouard Glissant to Visit UF Campus

Edouard Glissant, a prominent Caribbean writer from Martinique, will make two presentations in French:

"La Littérature du Tout-Monde"

Thursday, March 30, 4:30-6:00 pm
Downtown Library, 401 East University Avenue,
Room A

"Multiculturalisme et Créolité"

Friday, March 31, 2:00-3:15 pm
Dean's Conference Room 2014, TUR
(especially, although not exclusively,
for a student audience)

This visit was initiated by **Bernadette Cailler** (Romance Languages and Literatures) and will be co-sponsored by the Departments of Romance Languages and Literatures, History, English, the Center for Latin American Studies, the Humanities Council, the Cultural Services of the French Embassy in the United States, and Cailler (in memory of her husband, concert violinist Elwyn Adams).

Math Speaker Addresses Six Degrees of Separation

In delivering the Second Mathematics Department Ulam Colloquium on January 10, Professor **Gilbert Strang** (MIT), *right*, President of the Society for Industrial and Applied Mathematics, used Graph Theory to mathematically explain the "six degrees of separation" phenomenon.



Romance Languages and Literatures

Geraldine Nichols has been elected to a three-year term on the Executive Committee of the Association of Departments of Foreign Languages (ADFL), the foreign language subsidiary of the Modern Language Association. She will be one of four members representing PhD-granting departments, serving alongside three members from BA/MA-granting departments, and one representing two-year colleges. The ADFL publishes a journal on issues in the foreign language field, organizes sessions and mock interviews at the MLA, and offers two summer workshops for chairs of foreign language departments.

Around the College

CLAS Women of Achievement

On January 29, **Connie Shehan** (Sociology, UCET) was presented with the Faculty Women of Achievement Award at the 2000 Women's Leadership Conference. The award recognizes "outstanding leaders who have shown commitment and dedication to a cause; who put others before themselves; who face challenges head on; and who are decisive and persistent."

Maria Teresa Baquero, an undergraduate with a double major in sociology and molecular biology/biochemistry received the UF Student Women of Achievement Award.

UF-Utrecht Faculty Exchange Deadline

The UF-Utrecht Faculty Exchange Committee invites faculty from UF to apply for the exchange program in 2000-2001. Faculty may teach in the fall or spring semester. A letter of interest with some indication of the courses or research that one would conduct in Utrecht should be sent to **Albert Matheny**, AAC 100, P.O. Box 112015, no later than **April 15th**. If you have any questions about the program, you can contact Albert at 392-1521 or matheny@polisci.ufl.edu.

CLAS Chemist Honored by Clemson

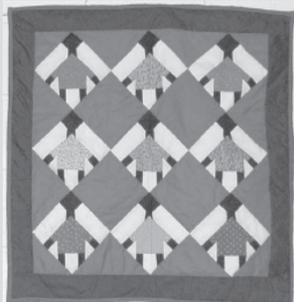
Ken Wagener (Chemistry) was inducted into the Thomas Green Clemson Academy of Engineering and Science at Clemson University on February 24. The Clemson Academy was established to recognize the university's outstanding engineering and science alumni and a select few extraordinary faculty or supporters. Wagener, who is the Butler Chaired Professor of Chemistry and Director of the Center for Macromolecular Science here at UF, grew up in the town of Clemson and graduated from the South Carolina university with a BS in chemistry and a math minor in 1968. He has maintained close ties with the university and the town, which he says makes his induction an even greater honor.

"My grandfather, also a chemist, was a member of Clemson's first graduating class of 1896, and I still have plenty of relatives in the area, including my older son and his wife (both UF grads in mechanical engineering). Additionally, Wagener's wife of 30 years, Margaret, grew up in Clemson, and one of his UF PhD students, Dennis Smith, now teaches at Clemson.



Women's Studies Hosts Quilt Exhibit

Momma D's Quilts are on display until May 4 at the Center for Women's Studies and Gender Research offices in 3357 Turlington. For more information call 392-3365.



Religion Professor Presents at Smithsonian

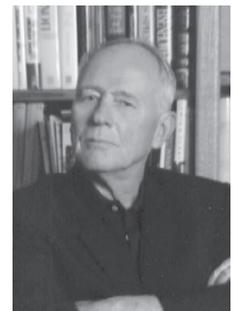
In January, religion professor **Gwendolyn Zoharah Simmons** (see new faculty, page 4) participated in the Smithsonian Institute's "Of Songs, Peace, and Struggle," a celebration of the birth of Dr. Martin Luther King, Jr. The event was presented by the Program in African American Culture at the National Museum of American History in Washington, D.C. Simmons is pictured, above, with **Dr. James Forman**, the executive secretary of the Student Non-violent Coordinating Committee (SNCC) during the thick of the Civil Rights Movement. As part of her presentation, Simmons, also a SNCC member, shared stories of her civil rights work in Mississippi and Georgia in the mid 1960s. Simmons and the other panelists were introduced by Dr. Bernice Reagon Johnson, founder and director emeritus of the Program in African American Culture at the Smithsonian, SNCC member in the 1960s and 70s, and founding member of the world famous Sweet Honey In The Rock Singers.



Noted Historian and Author to Visit UF as First Gus Burns Memorial Lecturer

To commemorate long-time CLAS history professor **Gus Burns** (1939-1999), last summer Burns' friends **Julian Pleasants** (History) and UF graduate **J.R. Kirkland** initiated the Gus Burns Memorial Fund in his honor. Their efforts, supported by the Department of History, have generated an endowment of over \$22,000, which will fund the new Augustus M. Burns, III Memorial Lecture Series. **Dr. Stephen Ambrose** will make the series' first presentation on Wednesday, March 15, with a talk entitled "American Soldiers in Europe in WWII." Ambrose will speak at 7pm in the University Auditorium.

A well-known author and historian, Ambrose has written over 20 books including *New York Times* best sellers *D-Day June 6, 1944: The Climactic Battle of World War II* and *Undaunted Courage: Meriwether Lewis, Thomas Jefferson, and the Opening of the American West*, a two-volume biography of Dwight Eisenhower, and a three-volume biography of Richard Nixon. Ambrose is frequently interviewed on the *NBC Nightly News*, the *PBS Newshour with Jim Lehrer* and *Nightline*, and among his many other TV and film projects, he acted as a historical consultant for Stephen Spielberg's *Saving Private Ryan*. **For more information about the lecture, contact Julian Pleasants at 2-6584.**



Dr. Stephen Ambrose

New Faculty



Michael Heckenberger

Michael Heckenberger, an assistant professor of anthropology, received his PhD in 1996 from the University of Pittsburgh. His research focuses on the development and transformation of sociopolitical systems in Amazonia, particularly relating to the emergence of complex societies in the 1000 years or so preceding European expansion into tropical America, ca. 1492-1500, and the transformation of these societies in the face of colonialist expansion. His co-edited volume *História e cultura no alto Xingu: visões antropológicas* (Federal University of Rio de Janeiro Press) is scheduled for release in April, to correspond with the quincentennial of Pedro Cabral's "discovery" of Brazil.



Cassandra Moseley

Cassandra Moseley, an assistant professor in political science, completed her PhD in political science and environmental politics at Yale University last year. Her dissertation studied the rise and spread of community-based conservation in the Pacific Northwest. She is also interested in collaborative natural resource management, forest politics, fisheries politics and the American West. Her current project is a comparison of environmental conflict and political institutions in Oregon and British Columbia. Cassandra will be teaching Introduction to Political Science, as well as courses in political ecology and community-based conservation.



Gwendolyn Zoharah Simmons

Assistant professor of religion **Gwendolyn Zoharah Simmons** expects to earn her PhD from Temple University in August of this year in Islamic & Women's Studies. Her dissertation, for which she received research fellowships in the Middle East from both Fulbright and the American Center of Oriental Research (ACOR), is titled "The Impact of Islamic Law on Women In Jordan, Contemporarily." Simmons brings a wealth of life experience to her new position: among other distinctions, she is a civil rights activist who was a Student Non-violent Coordinating Committee (SNCC) field secretary in the 1960s, and she has traveled throughout the Middle East, including Saudi Arabia, and in China as part of her work in women's rights and religion.



Jonathan Williams

Jonathan Williams, an assistant professor of astronomy, comes to UF from the National Radio Astronomy Observatory in Tucson, where he was a Jansky Postdoctoral Fellow. He earned his PhD from the University of California-Berkeley in 1995, with a concentration in star formation and the interstellar medium. Through his research, Williams seeks to better understand how stars, stellar clusters, and planetary systems form. Outside work, his interests include basketball and backpacking.

Judd, *continued from page 5*

the flowers, look at the leaves and fruits...they get a real hands-on feel for tropical flowering plant diversity.

This is one of my most enjoyable courses; I've done it fifteen times in the last twenty years. There aren't many places in the world that a class like that can be taught, and as far as I know, ours is one of only two in the country.

Cn: What makes North Central Florida unique for botanists?

Judd: If you look at the plants around Gainesville, the flora here is often very similar to the Appalachians or even forests in southern Michigan. And yet it is only a few miles away from typical neo-tropical plant communities in southern Florida, where you have a West Indian floristic element. There's a wonderful variety. When I took plant taxonomy at Michigan State, we had to examine frozen plants that gradually thawed and turned into a pile of mush while we dissected them. Here, I try to bring all sorts of living material into class. This is a great place to be a plant systematist. 📧

—John Elderkin

DNA Analysis Revolutionizes Taxonomy

An interview with botanist Walter Judd

Botany professor Walter Judd was raised in rural southern Michigan, where he developed a keen interest in natural history. He came to UF after receiving his PhD from Harvard in 1978, and his research primarily concerns the systematics and evolution of flowering plants. He has twice received the CLAS Award for Excellence in Undergraduate Instruction and is currently the president-elect of the American Society of Plant Taxonomists.

Cn: *Plant taxonomy, or the identification and grouping of plants, has been undergoing rapid change. Why is this happening?*

Judd: This is a very exciting time in our field. In fact, taxonomy is actually in a state of uproar as a result of revolutionary advances in the way we do our work. One of the main things I'm involved with is called revisionary studies—we are trying to reconstruct the history of evolutionary events that have occurred within a particular group of organisms. In the past, when we named and grouped plants, we relied heavily on morphology (a plant's structural and physical characteristics) and chemical analysis. However, with the recent advent of cladistic analysis of DNA data, we are now able to construct and test our evolutionary hypotheses. As a result, plant taxonomy, or systematics, has become more objective and scientific.

Cn: *How have cladistics and DNA changed the way plants are named and grouped?*

Judd: Cladistic analysis and DNA information work in conjunction with each other. Cladistics involves using shared, derived plant characteristics as a means of

hypothesizing evolutionary relationships. To give an example, if two species of plants share the derived characteristic of toothed leaves, while a third lacks such teeth, we could

hypothesize that the two species with teeth were most closely related to each other. It sounds very straightforward, but cladistics has only been used for about twenty years.

DNA testing, which is even newer, allows us to make the same kind of analysis, but using many, many more characteristics from the plants. When the two methods are used together, along with morphology, they become very powerful tools...the traditional plant classifications that have been used for a hundred years or so are being dramatically altered. We've probably learned more about the evolutionary relationships of plants in the last ten years than in the previous 100.

Cn: *How are these new methods of classification being employed?*

Judd: Some people think plant taxonomy is long-finished with naming the earth's organisms. After all, we've been doing this for several hundred years. But actually less than five percent of the world's plants have up-to-date monographs (comprehensive cataloging of all available information) with explicit evolutionary hypotheses. And the existing names and groupings need to be re-tested and potentially re-classified based on our new methodologies.

Cn: *How do these changes affect your work?*

Judd: Previously, if a botanist wanted to find out which species were most closely related to each other in terms of common ancestry, there was no way to really test this. But now if I make an evolutionary hypothesis, my ideas *can* be tested and verified. For example, a few years ago I examined a small tree in the higher elevations of Puerto Rico, a particular species called the *Calycogonium squamulosum*. Looking at its morphology—its form and structure—this tree seemed a better fit for the genus *Henriettea*. So I published a paper proposing the plant be renamed *Henriettea squamulosum*. Later, another botanist, using DNA data, tested my hypothesis and also found this species to be more closely related to *Henriettea*. So that is a big change.



Judd examines *Bulbine alooides* (a grass-like plant with yellow flowers) with tropical botany students.

Cn: *What are the practical implications of these new plant names and groupings?*

Judd: There are many kinds of implications. There's this tremendous diversity of organisms in the world, and if we can figure out their evolutionary relationships, then our classifications can have great predictive powers. Say somebody finds a secondary chemical compound that has medicinal value. When they find it in one species, they don't search for further versions of it at random. They'll look in the same family or genus. The same is true for a plant breeder who is looking for genes with disease resistance. So these [more accurate] classifications matter.

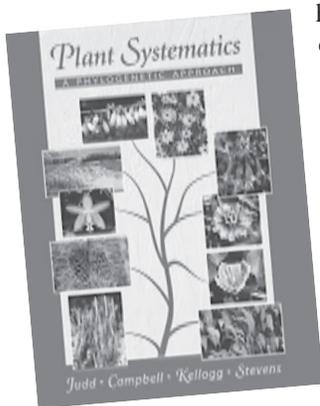
Cn: *What else are you working on?*

Judd: One result of these rapid changes in plant taxonomy is that there are no accurate texts. A large number of plant systematists don't even use a text...they rely on primary literature as hand-outs. So I and several other botanists decided to write a textbook, and it's just been published. It's called *Plant Systematics: A Phylogenetic Approach*, and it is the first text that uses the approach of basing the names of plants on evolutionary (or phylogenetic) hypotheses. I am also preparing for the tropical botany class that I teach nearly every summer at Fairchild Tropical Garden and the National Tropical Garden near Miami.

Cn: *What does this course involve?*

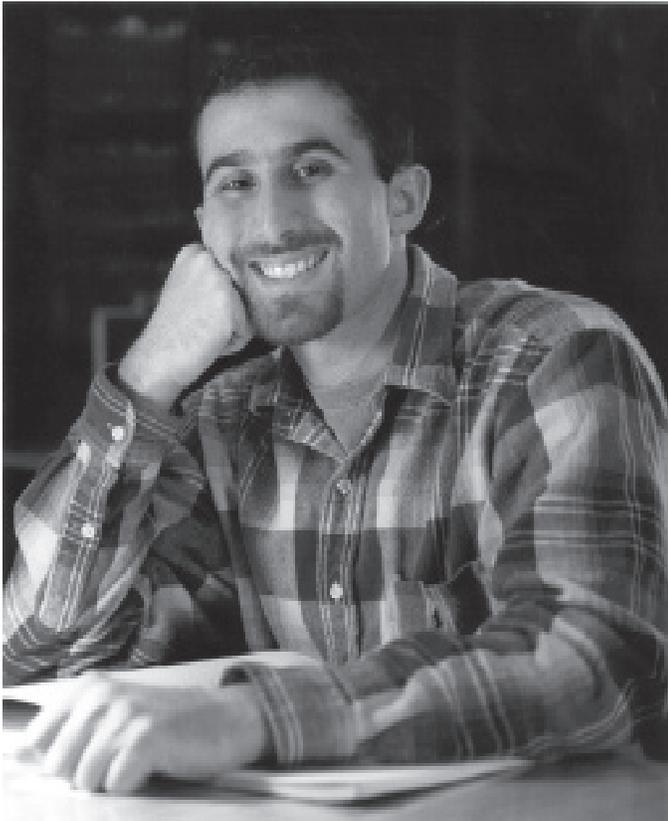
Judd: It's an intensive field and lab course in tropical systematics. I go with twelve students during summer B term, and we work eight or nine hours a day. Graduate students are surrounded by plant families from around the world: they can dissect

See Judd, page 4



CLAS Student Named Rhodes Scholar

Patrick Leonard



English major and new Rhodes Scholar, **Newman Nahas**.

English major Newman Nahas w

Senior English major Newman Nahas, UF's first Rhodes Scholar in over twenty years, cites his background as the son of Orthodox Syrian immigrants as an important catalyst for his intellectual curiosity. "I grew up in a complicated cultural mix, with Arabic, Christian, and American influences," he says. "I think not being a part of any dominant culture nurtured my interest in my surroundings."

Though Nahas was raised in Miami, he can trace his family's roots in Syria back a thousand years. The Orthodox Christian minority there has survived a variety of political conditions, and Nahas' interest in their circumstances led him to the topic he will focus on while he pursues a PhD in history at Oxford University. "There have been times in the Middle East when Christians, Jews, and Muslims have gotten along relatively well—especially before the Crusades," he explains. "But these periods remain understudied. I'd like to examine them and see if understanding those eras might help us with contemporary problems."

Nahas says he began to seriously consider the practical applications of such historical studies while he volunteered as a counselor at an Orthodox summer camp in Pennsylvania last summer. "There were a lot of Greek and Arab kids

there, and I realized that many of these kids are disconnected from their culture and religion," he says. "I realized that many people would benefit from someone translating the Orthodox experience into the Western idiom, making it relevant to their lives."

Returning for his senior year with a clear vision of what he wanted to accomplish, Nahas decided to apply for the Rhodes Scholarship. The application process was formidable. Nahas was required to submit eight letters of recommendation, write a study proposal, and also write a discussion of his principal activities. "They

CLAS Professors Impressed with Nahas as Scholar and as Person

"Newman has been challenged to integrate what he has inherited with what he has encountered in his studies, even if that means he must rearticulate his personal position. Here is where his integrity has shone through—his strongly held convictions have in no way inhibited an openness to new ideas....Newman combines a genuine humility with honest intellectual searching in a manner that is quite rare."

—Fred Gregory, History

"Newman's intellect and his modesty are of a piece, as are his mind and heart. His intellectual curiosity is great, but it is no greater than his love for others."

—Richard Brantley, English

"When Newman joined my Arabic class, there was nothing in his comportment to indicate that he was an outstanding student. I later realized that although he knew the answers to almost all of my questions, he would give his classmates priority to answer and participate."

—Aida Bamia, African and Asian Languages and Literatures

"Newman is an exceptional scholar. He has a deep sense of responsibility to humanity and a flair for understanding people and how to reach out to them."

—Neil Sullivan, Physics and CLAS Associate Dean for Research

ins Rhodes, prepares for Oxford

don't ask for a résumé. In fact, the application is so open to interpretation that simply figuring out how best to complete it was a real challenge."

After receiving UF's endorsement, Nahas attended the state interview in Tampa. "The first evening was a social event, but it was nerve-wracking. You try to relax, but you

have to assume that how you socialize is part of the formal assessment," Nahas explains. "The entire next day consists of interviews, and any topic is fair game. I spent a lot of time explaining and defending my study proposal."

At the end of the day, candidates learn whether or not they will fly to Atlanta the next morning for the final interviews. "When I learned that night that I would be going to the district interview, my adrenaline was really pumping. I didn't sleep much," Nahas admits. "And the next thing I know, I'm competing with all these amazing people in Atlanta."

But with his extraordinary credentials, Nahas had nothing to be nervous about. At the end of the final interviews he was named one of the Southeast-

ern district's four Rhodes Scholars. Among his many accomplishments are a 4.0 grade point average, qualifi-

cation for Phi Beta Kappa while a junior, and command of both Greek and Arabic. Nahas is also president of the Orthodox Christian Fellowship, founder of the St. Romanus Choir—a traditional Byzantine and

Russian choral group—and a volunteer in the "Best Buddy" program, which mentors mentally retarded children.

In the past, American Rhodes Scholars met and bonded while sailing to England. These days, they participate in a special preliminary week-long program of activities in Washington, DC, before flying to Oxford together each September. "I'm particularly

excited about going to the White House and meeting with President Clinton, who was also a Rhodes Scholar," Nahas says. Bill Bradley, William Fulbright, and Kris Kristofferson are other no-

table Rhodes Scholars.

Cecil Rhodes, the Scholarship's founder, envisioned that recipients of the Scholarship should in some way dedicate their lives to public service. Mindful of this charge, Nahas would one day like to act as a political advisor on Middle Eastern issues. "I'm not interested in running for office, but I'd like to help the people who are elected," Nahas says. "We often criticize our public officials, but somebody has to do this work, and I'd like to assist them."

Concern for helping others is central to Nahas' character. "It's very important to me that my faith bears fruit. I don't believe God cares how many Nicene Creeds

"It's very important to me that my faith bears fruit. I don't believe God cares how many Nicene Creeds I've recited if I haven't also helped others. This is something I keep in mind; it's something that drives me."

—Newman Nahas



Patrick Leonard

Nahas sings byzantine choral music in the St. Elizabeth's Greek Orthodox Church choir here in Gainesville and is a subdeacon in the Antiochian Orthodox Archdiocese of North America.

I've recited if I haven't also helped my fellow man. This is something I keep in mind; it's something that drives me."✍

—John Elderkin

Rhodes Facts

The prestigious Rhodes Scholarships—created in 1902 by the will of Cecil Rhodes, a British philanthropist and colonial pioneer—are the oldest international study awards available to American students. Through his bequest, Rhodes hoped to encourage future leaders to make positive contributions throughout the world.

- Rhodes specified the award be based on: high academic achievement, integrity of character, spirit of unselfishness, respect for others, physical vigor, and potential leadership.
- While studying at Oxford University in England, Rhodes Scholars receive all education fees and a stipend for necessary expenses. The annual value of the award averages approximately \$25,000, and students may stay at Oxford for up to three years.
- This year, 32 Americans were chosen from 935 applicants who were endorsed by 323 colleges and universities. About 95 Rhodes Scholars are selected worldwide each annually.
- The University of Florida boasts a history of 12 Rhodes Scholars, though Newman Nahas is the first since football quarterback and philosophy major Billy Kynes, in 1977.

Botany Department Staff

Pictured from left: **Judy McGrady**, clerk typist; **Debi Folks**, fiscal assistant; **Patricia Pasden**, word processor; and **Paula Rowe**, program assistant. Not pictured, **Corine Arnold**, office manager. Paula, Debi, Corine and Pat hold down the fort in Bartram 220, while Judy staffs the department's McCarty Hall office.



Harmon, continued from page 1

is associated with changes in cytoplasmic free calcium," Harmon says of her interest in CDPKs. Similar to the process in all protein kinases, the chain of events for the calcium-dependent variety goes something like this: A stimulus is perceived by molecules in cells, which in turn cause release of calcium ions into the cytoplasm of the cell. This increase in calcium ions activates the calcium-dependent protein kinases (CDPKs). The activated protein kinases "phosphorylate" a set of proteins, which may include other enzymes or structural proteins. The activity, location, or ability of the proteins to interact with other proteins is changed by the phosphorylation, and this contributes to the physiological response of the cell to the stimulus.

"The hope is that understanding the molecular events that underlie the responses to stress (environmental, not emotional!) will be useful in engineering plants that are better able to grow in areas plagued by sub-optimal growing conditions," Harmon

says. "This should improve crop yield and help to feed the population, which is growing at a rate that will soon outpace food production."

In one of the many ways her work dovetails with the efforts of the new UF Genetics Institute, Harmon is using information from the Genome Sequencing Project to aid her study of the CDPK family. She is particularly interested in a plant called *Arabidopsis*, since its genomic sequence, already 75% complete, should be finished by the end of the year. *Arabidopsis* is the "plant equivalent of the lab rat," explains Bowes. "It has a rapid generation time, going from seed to seed in six weeks; in addition, mutants can be easily made, and it has a small genome that can be relatively easily sequenced. It is thus an ideal plant for molecular studies. The information in the *Arabidopsis* gene bank can be used to identify similar genes in other plants, for example, the soybean, which is one of the plants Harmon studies."

"I am also participating in a multi-institution proj-

ect funded by the National Science Foundation's Plant Genome Project that is focusing on plant protein kinases and phosphatases [enzymes that remove phosphate groups from proteins]," says Harmon. We are creating an electronic database for all protein kinase and phosphatase genes in *Arabidopsis*, and we are identifying plants in which genes encoding these enzymes are not functional." Called "knock-outs" because their functional gene (i.e., one that encodes a functional protein) has been knocked out, these plants will eventually be made available to the research community. "As these plants are missing the function of a particular protein kinase or phosphatase, they will be very helpful in determining in which physiological responses each enzyme participates," she

says.

Harmon also hopes to discover more about the evolutionary significance of calcium-dependent protein kinases, since they are found only in plants, green algae, paramecium, and in group of parasitic protozoa (including *Plasmodium falciparum*, the causative agent of malaria). "The first question we'd like to answer is: When did CDPKs arise?" Harmon says. "Did an ancestor common to all these organisms have CDPKs, and then plants and fungi lose them later in evolution? Or did CDPKs arise after ancestors of plants, green algae, and the parasitic protozoa split from the ancestors of animals and yeast?" A Godmother's work is never done.✍

—Jane Gibson

In the fall of 1999, Harmon was the recipient of a one-semester sabbatical award from UF to undertake collaborative "multi-institutional" research at UC San Diego and Scripps. She has subsequently received a very competitive NSF POWRE grant (Professional Opportunities for Women in Research) to continue the sabbatical this spring and summer at the University of Wisconsin, another of the institutions involved in the collaborative project on CDPK in plants.

Grants

(through the Division of Sponsored Research)

December 1999 Total: \$1,109,302

<i>Investigator</i>	<i>Dept.</i>	<i>Agency</i>	<i>Award Title</i>
Corporate.....\$226,152			
Lieberman, L.	ANT	FL Clinical Practice Assn	3,750 Center for Research on Women's Health.
Colgate, S.	CHE	Saga Petroleum	89,891 Down-hole multiphase flow metering.
Katritzky, A.	CHE	Abbott Laboratories	4,230 Chemical sample collection.
Katritzky, A.	CHE	Multiple Companies	6,240 Software research support.
Katritzky, A.	CHE	Multiple Companies	5,000 Software research support.
Katritzky, A.	CHE	Multiple Companies	6,000 Miles compound contract.
Katritzky, A.	CHE	Multiple Companies	14,015 Miles compound contract.
Katritzky, A.	CHE	Multiple Companies	500 Miles compound contract.
Reynolds, J.	CHE	Xerox Corporation	15,000 Miscellaneous donors.
Schanze, K.	CHE	Aerochem Inc	71,526 Advanced pressure and temperature sensitive paints.
Tanner, D.	PHY	Teracomm Research Inc	10,000 Effect of transport current on the infrared properties of superconductors.

Federal.....781,101			
Burns, A.	ANT	NSF	4,000 Graduate research fellowship program—cost of education allowance.
Dermott, S.	AST	NASA	80,750 Dynamics of Solar System dust.
Elston, R.	AST	NSF	92,456 Gemini shortened cycle near infrared multi-object spectrograph conceptual design study.
Hamann, F.	AST	NASA	31,050 Chemical evolution of QSOS and their host galaxies.
Bowes, G.	BOT	NSF	2,000 Graduate research fellowship program—cost of education allowance.
Harmon, A.	BOT	NSF	30,345 Functional genomics of plant phosphorylation.
Dolbier, W.	CHE	NSF	110,000 Structure-reactivity relationships in fluorinated and charged radical systems.
Hanrahan, R.	CHE	US DOE	1,000 Gas phase hydrogen-halogen systems.
Hudlicky, T.	CHE	NSF	180,000 Biocatalytic conversion of aromatic waste into useful compounds amaryllidaceae alkaloids and oligo inositols.
Reynolds, J.	CHE	US Navy	50,000 Redox switchable conducting polymers for interdigital electrode devices.
Scott, M.	CHE	NSF	82,000 Career: tripodal aryloxide ligands: from molecular receptors to organometallic catalyst.
Winefordner, J.	CHE	NSF	1,000 Advanced measurements & characterization.
Yost, R.	CHE	US DOA	30,000 Analysis of human and host animal emanations for the presence of attractants to hematophagous dipters.
Zerner, M.	CHE	US Navy	20,000 Media effect in molecular structure & spectroscopy.
Andraka, B.	PHY	US DOE	40,000 Non-fermi-liquids and magnetism of heavy fermions.
Williams, P.	POL	NSF	22,500 Outsmarting the state: a case study of the Colombian narcotics dilemma & the learning capacity of drug trafficking enterprises.
Kenney, M.			
Brockmann, H.	ZOO	NSF	4,000 Graduate research fellowship program—cost of education allowance.

Foundation.....36,182			
Boinski, S.	ANT	Leakey Foundation	18,000 Object manipulation and tool use among brown capuchins in Suriname.
Thiele, L.	POL	UF Foundation	3,182 Dissertation fellowships.
Emmel, T.	ZOO	Natl Fish & Wildlife Fdtn	15,000 Corridor establishment for an endangered south Florida butterfly.

Miscellaneous.....65,867			
Burns, A.	ANT	Chr Michelsen Institute	13,100 Dissertation fellowship for Gebre Yntiso.
Bowes, G.	BOT	Multiple Individuals	1,000 Miscellaneous donors.
Bowes, G.	BOT	Multiple Individuals	767 Miscellaneous donors.
Scicchitano, M.	POL	FL Dental Association	16,000 A study of Florida residents' attitudes about dental specialists.
Emmel, T.	ZOO	Assn for Tropical Lepidoptera	35,000 Unrestricted donation.

Welcome to the Homogeocene

Loss of diversity signals end of epoch

by botanist Jack Putz

If my goal was to attract public attention to the problem, I suppose it was a tactical error to declare the end of the Pleistocene and the commencement of the Homogeocene right at the end of a Roman millennium. Now that we have recovered from Y2K fever and people are adjusting to the fact that they are now relicts of the past century, perhaps they will recognize that they are also relicts of a now past epoch. Perhaps not. I do not claim any expertise in assessing public opinion.

Regardless of the temporary lack of attention to the proclamation of the Homogeocene, it seems important that more people recognize that during the past century our own species has managed to effect changes on our planet that can only be compared to earlier impacts of giant asteroids, continental collisions, and free radicals of oxygen. And perhaps some people will find it interesting that when the Pleistocene began some two million years ago, our species

population explosion and the explosive growth of human technology, transitions between geological eons, eras, periods, and epochs were caused by global events such as the onset of widespread glaciation, giant asteroid-induced plant and animal extinctions, or the breakup and reassembly of continents. Only one species, our own, has the dubious distinction of having wrought so much change on the earth as to warrant the naming of a new epoch. And we did it fast! And we did it with our internal combustion engines, guns, dams, agricultural clearings, toxins, suburbs, and invasive exotic species. Why is the new epoch being called (at least by me, members of my immediate family, and some friends when I am present) the *Homogeocene*? Etymologically, this epithet is based on the Greek *homogenes*, which means “of the same kind,” as in homogenized milk. I tried the *Borocene* from the root word “boring,” as in too much of the same, dull, tedious, and tiresome, but it didn’t

Biology is the study of life and every day there is less life to study. More correctly, every day there is more life of a few kinds (people, cats, rats, crop clones, and cockroaches) and a lot fewer of many other kinds. At the current rates of deforestation, human population growth, global warming, and toxin production, probably only half of the species present at the end of the last century will still exist at the end of this century. This tragedy is unparalleled in the history of our planet not in the number of extinctions, but in their rapidity and mono-specific causal agent.

A ground-swell of support from environmentalists is surely imminent, and I expect to be soon joined in my “Halt the Homogeocene” campaign by humanists concerned about losses of cultural and linguistic diversity. We shall be odd bedfellows, but human diversity is disappearing at rates only comparable to the rates of loss of biological diversity. For example, linguists have predicted that fully half of the world’s languages will completely disappear by the year 2050! Toppling of the Tower of Babel might seem like a blessing, but so much cultural diversity is lost when a language disappears that loss of even a single native tongue should concern us all.

As was probably the case dur-



Botanist Jack Putz, with field assistant (and son), Juan Antonio.

ing past transitions between epochs, the onset of the Homogeocene is itself not particularly homogeneous. It came earlier to Europe than it did to the Americas, earlier in New Jersey than in New Caledonia, and has yet to wend its way into some parts of the Amazon and Antarctica. Even within the most Homogeocenic of places, there are enclaves of biological and cultural diversity like that of the Pleistocene.

Another difference between the current epochal transition and previous ones is us, the culprits but also the potential protectors of diversity. Much of what has to be done to avoid sinking deeper into the morass of the Homogeocene is well known—more nature reserves, fewer people, smaller lawns, bells on cats, more recycling—we’ve heard it all before. There are even ways to restore bits of the Pleistocene in areas that have long since succumbed to the monotony of the Homogeocene. If each of us commits to minimizing our impacts on the planet, we will be able to celebrate diversity of all sorts forever. ☺

HALT THE HOMOGEOCENE

Plant Natives - Celebrate Diversity



Putz’s Homogeocene bumper sticker.

didn’t exist. To the extent that we were present in one form or another, we were having to deal with (or more likely trying to avoid) our australopithecine-cousins, not to mention mammoths, saber-toothed tigers, and the now more familiar lions and rhinoceri of our ancestral African home. Prior to the recent human

sound as scientific. Whether it’s the Borocene or the preferred, Homogeocene, the key feature of this new epoch is lack of diversity.

As a professional biologist, my main gripe about our having driven the planet into the Homogeocene is the extinction of so many species of plants, mammals, birds, insects, etc.

No Evidence for Homogeocene

Professor Putz going overboard says geology senior Ryan Bitely

While I applaud my illustrious professor's article on the Homogeocene as a wake-up call to all of us about the changing state of the world, as a student (undergraduate) of geology, I worry that he has made too bold a suggestion without sufficient evidence. Although current rates of extinction, global disequilibria, and general biologic chaos are truly alarming, one just does not *proclaim* the end of the Holocene without having satisfied a series of criteria. (Note: Dr. Putz seems to be epochally challenged—the Pleistocene ended with the last continental glacial retreat some 10,000 years ago.) The protocol for demarcating the transitions among geological eras, periods, and epochs are explained in the *North American Stratigraphic Code* (into which I admit to having only made short inroads). Many people would agree that something is terribly wrong with the world these days. Here in Florida, South American fire ants are wreaking havoc, along with Africanized bees, Australian pines, Asian air potatoes, and retroviruses of unknown origin. Change is natural, but the changes we are witnessing are occurring at uncomfortable rates and, if anything, seem to be increasing in speed and intensity. Our justifiable concerns notwithstanding, are these changes as substantial as the ones used to demarcate the transitions between previous geologic

time intervals? The history of the Earth has been long and tumultuous. Over the more than one billion years of life on our planet, tragic episodes of vast global mortality have rocked the balance of nature. Life has continually adapted to and capitalized upon these changes. The Paleozoic-Mesozoic boundary 250 million years

Although current rates of extinction, global disequilibria, and general biologic chaos are truly alarming, one just does not proclaim the end of the Holocene without having satisfied a series of criteria.

ago, for example, was marked by one such catastrophe, with up to 95% of known species becoming extinct. A similarly devastating period of extinction, apparently wrought by several global changes possibly including the earth's collision with a giant asteroid, marked the end of the Mesozoic (and the dinosaurs) some 70 million years ago. If such deluges of death were to occur today, they would certainly include humans in their roll calls. To give credit to Professor Putz, our knowledge of mass extinctions suggests that most occurred over periods of millions of years, whereas the devastating loss of diversity to which he has drawn our attention is unfolding over only few paltry centuries. There is certainly merit to his proclamation. Now to the problems with the professor's contention that the Holocene has ended and what

he calls the *Homogeocene* has begun. I am not yet an expert on the formal protocols for demarcating geological time periods, but I know that the rock record is incomplete and that fossilization is a state achieved by few organisms. Fossils and rocks are used in the division of the world's history into geological time intervals. But fossils of soft-bodied terrestrial organisms (without shells or other preservable features), like the ones being driven to extinction daily, have always been under-represented in the fossil record. Hard-shelled marine organisms are more often fossilized, but it is not so

clear to me that we are driving many of them to extinction. In proclaiming the beginning of the Homogeocene, is my professor showing his bias as a soft-bodied terrestrial organism? Professor Putz's opinion leaves this geologist with many questions: Can the rock record substantiate the beginning of the Homogeocene? What geologic event accompanied the supposed mass extinctions of the last few centuries? There is little geologic documentation, if any, supporting the delineation of a new epoch. Can Professor Putz

show convincing evidence of this major transition? I don't think so. More data on past mass extinctions and background extinction rates are needed so that we can evaluate present-day homogenization from a rock-solid paleontological perspective. 📧

Ryan Bitely is a geology major from Pace, Florida who is an Eagle Scout, a Florida Academic Undergraduate Scholarship recipient, and vice president of the Geology Club. As a University Scholar—mentored by Ellen Martin (Geology)—Bitely is conducting research on low temperature geochemistry.



Geology senior **Ryan Bitely** posed with Turlington's "rock."

your Mac with a PC

- when your provost addresses your mail as “Dear Occupant”
- when your password to CLAS accounts no longer works
- when your key to the CLAS executive washroom is recalled
- when your subscription to *Deans Today* is cancelled
- when your CLAS stock options are rescinded
- when your Nike shoe contract is not renewed
- and when your name on the door is now written on masking tape

These are probably all just simple coincidences, but they do give a body pause.

In spite of this growing paranoia, I still relish my job as dean, as I have for the past 12 years. How could one not enjoy being part of this terrific College, where so much is happening. In these remaining months, we have critical hires to complete, new academic programs to finalize, building renovations to solidify, and a great deal of fund raising to pursue.

I would like for you to know that I am not relaxing my efforts (aside from the recent bout with pneumonia) on behalf of CLAS. Too much of importance is out there calling for attention, and I count it an honor to have this opportunity to complete a number of projects. There is clearly no time to waste (quack, quack).

Will Harrison,
Dean
<harrison@chem.ufl.edu>

A Note From the Chair

George Bowes, Botany

As in other departments, Botany is facing a 30% turnover as senior faculty retire. This represents a substantial loss of experience, but it also provides an opportunity to project a new vision for the future. Two areas ripe for enhancement are tropical ecology/systematics and plant molecular studies. The University of Florida and the department have substantial strengths in both, with individuals whose academic programs can rightly be described as international in scope and reputation. However, botany in our department is not just an academic exercise, it also addresses real-world concerns and controversies, as the accompanying article by one of our plant ecologists, Jack Putz, demonstrates. Thus we have faculty, postdocs, graduate and undergraduate students investigating topics such as tropical forests



and their conservation, the response of crop and native species to global climate change, plant biodiversity, and the detrimental effects of invasive plants on natural ecosystems.

Botany faculty are no strangers to problems facing our campus, nation and world; in fact we thrive on them, which, unfortunately, is more than can be said for some plant species.

To give an example closer to home, the US, and particularly Florida, is experiencing costly problems with ornamental plants that escape and threaten native ecosystems such as lakes, Paynes Prairie and the Everglades. Kaoru Kitajima is collaborating in research on *Ardisia crenata*, a plant that is invading hardwood hammocks and state parks. Even closer to home, Walter Judd has documented a startling loss of biodiversity on our own campus during the recent building-boom. All departments, and especially Botany, need more space, so new construction is positive. Unfortunately, many native plants—rare and even federally endangered—have in ignorance been destroyed, and replaced by Home Depot-type ornamentals. Other significant plant populations on campus are in imminent danger. With a little forethought this situation could easily be avoided.

Three Botany faculty are in UF's Plant Molecular and Cellular Biology Program, and here, too, controversy cannot be avoided. Fear, largely based on misinformation and poor science, has been whipped up in Europe over GM (genetically modified) foods, and is impacting us. A safe food supply is of paramount importance, and environmental impacts must be minimized. But the fact is, humans have been genetically modifying plants for thousands of years, but using less precise techniques. As a result, most of the plants we use as food are very different from their wild ancestors, and far from “natural.” Critics in more affluent nations often overlook the potential advantages to developing countries of, for example, GM-rice with increased vitamin A that could reduce blindness, and enriched cereals that could lessen protein-deficiency disease.

Thus, Botany faculty are no strangers to problems facing our campus, nation and world; in fact we thrive on them, which, unfortunately, is more than can be said for some plant species. For more on what the Botany Department and faculty are up to, visit us at our home page <web.botany.ufl.edu>.



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FLORIDA**

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Contr. Editor: John Elderkin
Graphics: Jane Dominguez
Copy Editor: Bill Hardwig

<editor@clas.ufl.edu>