



# THE NICHE

Department of Biology Student-Faculty Newsletter

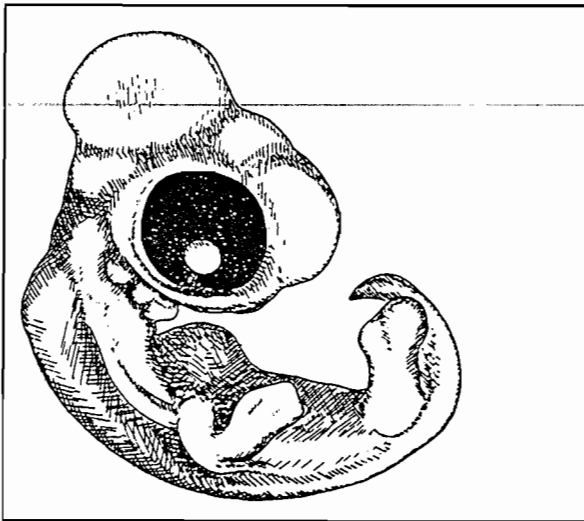
Volume 5, Number 2

College of William and Mary

March 1993

## Wiseman Resigns As Department Chair To Direct William and Mary Self-Study: Professor Bradley To Become New Chair

Professor Lawrence Wiseman, accepting appointment by the Provost as Director of The Self-Study at the College, has announced his resignation as Department Chair effective July 1, 1993. Professor Eric Bradley has been appointed the new Chair of the Department. The self-study is a university-wide evaluation of all facets of William and Mary and is required every ten years. It will be a two-year process during which time Wiseman will be on leave from the Department with an office in Bridges House, home of the Vice President for Administration and Finance.



Wiseman became Chair of Biology in 1982 and is in the second year of his fourth three-year term. In 1987-88 he was on leave as Special Assistant to the President at the University of Colorado, and Professor Robert Black, now in his first year of retirement, was Department Chair.



Professors Bradley and Wiseman arrived together as new Assistant Professors of Biology at William and Mary in the Fall of 1971, both having received their Ph.D.'s in 1970 and having spent one year as post-doctoral (continued page 2, NEW CHAIR)

### Graduation Requirements and the Change from Old to New Curriculum

For students caught in the transition from old to new curriculum, the Department has directed the Chair to decide which courses will count in "unusual cases." If you are such a case, please see the Chair.

The most common question has been: "I've taken Biology 101 and want to fulfill the requirements of the new curriculum. What do I do?" Rule of thumb: *Biology 101* and *Genetics* will substitute for *Biology 203* and *204*. But, in that case, *Genetics* will not count as one of the Molecular and Cellular courses (see page 69 in the Undergraduate Program Catalog, 1992-93).

Everything else should follow the new curriculum.

### Searches For Three New Faculty

The Department of Biology is in the midst of searching for three new faculty members. As of early March, five candidates had visited the Department to talk with students and faculty and to present research seminars for two positions: Cell Physiologist and Neurobiologist. It is expected that at least two more candidates will be interviewed for these two positions. Professor Bradley has chaired the search committees for both positions.

Additionally, a search for a Molecular Geneticist has just begun as Professor Gregory Phillips has decided to leave the College for a position as a bacterial geneticist in the Department of Microbiology, Immunology and Preventive Medicine at Iowa State University in Ames, Iowa. Phillips said, "My time at the College has been enjoyable," but expressed the feeling that his research goals might be more easily obtainable in a Ph.D.-granting department. Also the move to Iowa will bring Phillips and his wife closer to their families in southern Illinois.

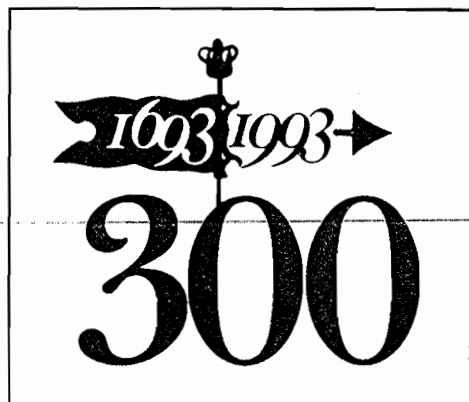
Professor Bruce Grant is chairing the molecular geneticist search and reports that as of March 14, more than fifty candidates have presented their credentials.

# Alumnae/i Invited To Biology Activities at Homecoming

Charlotte P. Mangum, Chair  
Biology Department Tercentenary Committee

The Charter Day activities for Biology alumnae/i were a great success, and we look forward to seeing even more of you at Homecoming. In the works are Friday talks on developmental biology by **Larry Wiseman** and endangered species by **Donna Ware**. Donna will also lead a nature walk on Saturday morning. After the football game on Saturday, less serious reminiscences on the history of Biology at William and Mary will be given by **Marty Mathes** and **Stewart Ware**. A reception will follow.

We will re-mount the exhibit of alumnae/i publications, which is very impressive. If you have already sent us one, many thanks; it was seen by a lot of people over Charter Day weekend, and it will be used again for Homecoming. Many of you, however, did not receive



the request in time to respond. It's not too late!! Please send a photocopy of the *title page only* of one of your favorite scientific publications. On a separate sheet attach to it your name (maiden, if no longer used), W&M degree(s) and date(s). If you don't have a scientific publication, send us newspaper clippings, posters, or anything else that describes your activities.

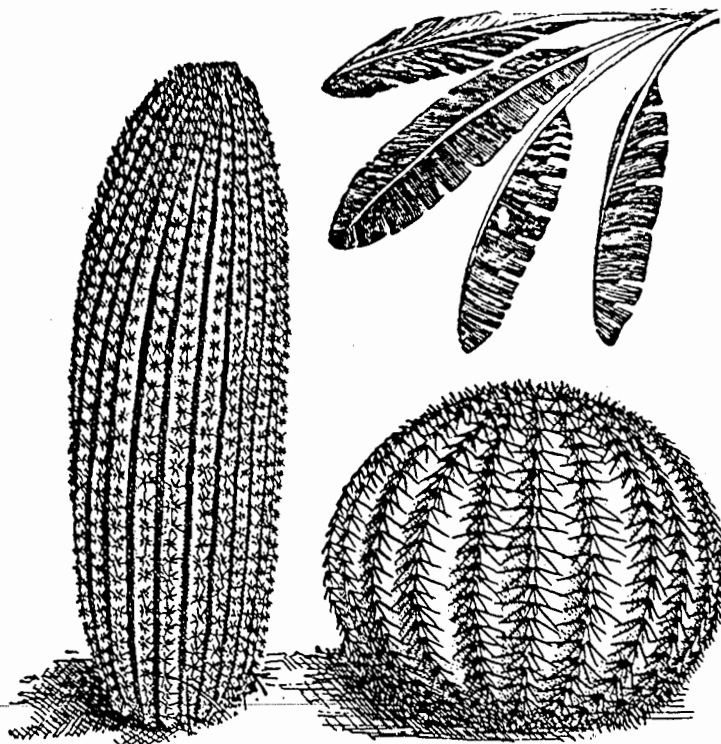
Also in the works is a professional directory, which will be available at Homecoming or by mail for a nominal sum. Again, if you have not already done so, send your professional address and a brief description of your Biology-related job or other Biology-related activities. If you can't come for Homecoming, keep a lookout in **THE NICHE** and the *Alumni Gazette* for ordering information.

## NEW CHAIR *(continued from page 1)*

students at their doctoral institutions. Bradley, an endocrinologist, came from the University of California at Santa Barbara while Wiseman, a developmental biologist, arrived from Princeton University.

"Being Chair of Biology has been one of the most satisfying experience of my career," Professor Wiseman said. "I will miss it very much I'm sure, but the challenge of directing the university's self-study should be interesting. It is an enormous undertaking and one which can have profound effects for the future of William and Mary."

The outgoing and incoming Chairs have already been working together on the searches for new faculty and other departmental issues. "Eric Bradley will be an excellent Chair. The Department is fortunate he has agreed to take on this important job," says Wiseman.



## Professor Mathes and The Greenhouse Volunteers

by *Laura Romano*

Perhaps you have had the opportunity to browse through the greenhouse on the roof of Millington. If so, you are probably familiar with the humidity which makes it such a suitable habitat for the approximately 1100 species of plants growing there. Despite the humidity, a handful of retired Williamsburg residents are devoted to the maintenance of the facility and care of its plants. For instance, **Betty West** continues volunteering although "it takes the curl out of [her] hair!"

The task of a greenhouse volunteer includes sweeping, watering, clipping dead leaves, and repotting. Sometimes **Dr. Mathes**, the greenhouse coordinator, gives specific instructions. For example, he often requests clippings which are either given to visitors or used for decorative purposes during a campus event such as Homecoming or Graduation. Also, two or three times each year a plant sale is held in Millington lobby, and small plants or clippings are sold to the students at a modest price.

The greenhouse volunteers donate their time as well as gardening supplies. **Ann Gregory**, who has worked in the greenhouse for about a year, explains that items such as potting soil, clay pots, and even plants are frequently donated by members of the group. The brooms are "nasty looking" claims West, who predicted that the greenhouse would receive new brooms for Christmas. Another volunteer, **Audrey Haitsma**, has even donated the services of her husband... he is currently scrubbing algae off of the floor!

The volunteers agree that the greenhouse is a pleasant atmosphere in which to work. Haitsma claims that it is a "marvelous place to be for anyone who enjoys horticulture." Also, **Dr. Mathes** "gives us a lot of pleasure" says Gregory, who appreciates his sense of humor. More importantly, he makes **Lucy King** and her companions feel "wanted and appreciated."

# Cheryl Granger and Frank Probst: Goldwater Scholars

by Natalie Weber and Sally Hunsucker

The Goldwater Scholarship recognizes excellence in science. The scholarship requires that nominated candidates submit a proposal for possible research. While many students may be nominated, the scholarship is given to very few students. Two of William & Mary's scholarship winners, Cheryl Granger and Frank Probst, are biology majors.

Cheryl Granger presented a proposal on examining the ozone destroying reactions. She is majoring in both Biology and Physics. She became interested in biology primarily because, while growing up, she was surrounded by biologists. Almost everyone in her family is a scientist of one sort or another.

She became interested in physics during high school. Because she had superb physics professors here at William and Mary, Cheryl was further enticed to go into physics. While both disciplines interest her, she is interested in studying genetics in graduate school. Earlier, she changed her mind many times, thinking she would study astronomy or even ecology in graduate school. She made her tentative decision to study genetics after taking the lecture course and its lab here, both of which she has really enjoyed.

What does Cheryl plan to do with her biology and physics background? For the future, she intends to teach high school or younger students. Cheryl feels that children below the high school level do not get enough exposure to science and she doesn't think enough women are involved in science and would like to see that change as well.

Cheryl's research experience is outstanding. While at William & Mary, she has done some physics research; during the summer she worked at NASA Langley Research Center in Newport News, and she is currently doing some astronomy

research on variable stars. While she has much physics experience, her biology experience is even more impressive because most of her work involved experiments conducted from grades seven to twelve. Many of her experiments were ecologically based, such as the effects of chemicals on microbial activity

or on the effects of chemicals on photosynthetic activity of leaf cuttings.

While not studying biology or physics, Cheryl is involved in Alpha Phi Omega - a national service fraternity, the Society for Physics Students (SPS), and the handbell choir for the local Presbyterian Church.

Frank Probst is a senior Biology and Chemistry double major. He is currently working on an honors thesis with Dr. Phillips in which he is using genetic engineering to study protein transport in bacteria. This summer Frank did research in the Chemistry department. He is interested in a combined M.D./Ph.D. program, molecular biology or human genetics for graduate school. Frank plans to work on developing ways to use genetic engineering to treat human diseases.

Although classes have sometimes been stressful, Frank believes that he got the best undergraduate education he could here. He says that the best class he took at William & Mary was the Biotechnology

Seminar which he attended freshman year. It gave students an idea of what science was like in the real world and showed students that biologists are people, too.

Aside from hours of research in the Biology department, Frank is a member of William & Mary's swim team and a Hall Council representative. His favorite movies are Disney movies, and he was "psyched to see Aladdin."

## The Step By Step Approach to Doing Research in the Biology Department

by Kristen Albright

Anyone with an interest can do research in the biology department, but few people know how to get started. Whether you are an art major, a kinesiology major, a sophomore, or a senior, just follow these few easy guidelines and you'll be on your way to exploring cutting edge research.

**Step 1 - Find out who's doing what** --- a list of faculty research areas can be obtained from the secretary's office or in a review of the biology department which can be found in the biology library. You can also ask your professors!

**Step 2 - Be bold** --- You must take the initiative and make the first move. Call those professors with whom you are interested in working. Ask about their work, discuss possible research projects, and see if there is room in their lab for you. If all goes well, develop a written proposal with the professor. Plan on doing this step the semester before you would like to begin your research.

**Step 3 - Get credit** --- If you are interested in getting credit for undergraduate research, sign up for biology 403. You can take 1-3 credits per semester, with a maximum of 6 and no more than 3 counting towards a biology major. A written report is required which may satisfy your writing requirement if you are a biology major. If you are interested in honors research, sign up for honors 495-6. You must be a senior and have a concentration GPA of 3.0. At the end of your project, you must present a thesis and an oral presentation, as well as pass an examination in the topic area. A committee of your choice, consisting of your advisor, two department members, and someone outside the department, will award you no honors, honors, high honors, or highest honors accordingly. **Both of these options for credit require the permission of the Departmental Committee on Honors and Undergraduate Research chaired by Professor Fashing.** Remember also that you can do research for no credit.

**Step 4 - Summer opportunities** --- Sometimes professors prefer that you begin research during the summer in order to familiarize yourself with the lab. There are several grants and scholarships available for this work. Some of these include Howard Hughes, Barry Goldwater, and the Wilson Scholarship. Check out the Charles Center, and keep your eyes open in Millington, especially the bulletin board across the hall from Room 117.

If you have any questions, contact Dr. Fashing.

## TOP TEN LIST

### Top Ten Bio Honors Topics

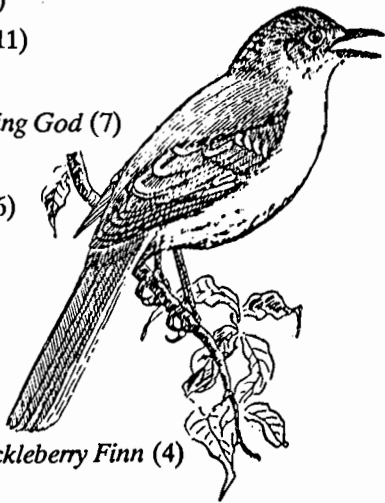
10. 2000 pressed wildflowers from the refuge
9. Animal behavior: social organization of the fish in the greenhouse pond
8. Landscaping the Sunken Gardens
7. How NASA faked the moon landing: a biologist's perspective
6. Biogeographical study of Millington cockroaches
5. Bacon's vault: the best kept secret under the chair museum
4. The new Jefferson statue as a Chia Pet
3. UFOs: why they make crop circles in Britain and not America
2. Migration and puddle use in the Crim Dell ducks
1. Anything you get to run a gel on....

## Introductory Biology Students Vote TO KILL A MOCKINGBIRD Best Novel

*To Kill A Mockingbird* is the best novel read by students in the new Principles of Biology: Molecules, Cells, and Development course. Course instructor Professor Wiseman, when pressed, said "I'm not exactly sure what this tells us about student attitudes toward ornithology."

A bonus question on the final exam last semester asked students to list "the one best novel you ever read...." A total of 307 votes named 168 different novels:

1. *To Kill A Mockingbird* (12 votes)
  2. *Catcher In The Rye* (11)
  2. *Gone With The Wind* (11)
  4. *Jane Eyre* (7)
  4. *Their Eyes Were Watching God* (7)
  4. *Watership Down* (7)
  7. *The Grapes Of Wrath* (6)
  7. *The Great Gatsby* (6)
  7. *Moby Dick* (6)
  7. *The Prince Of Tides* (6)
  11. *Catch 22* (5)
  11. *The Scarlet Letter* (5)
  13. *The Adventures Of Huckleberry Finn* (4)
  13. *The Firm* (4)
  13. *Jurassic Park* (4)
  13. *1984* (4)
- (10 tied with 3 votes and 30 with 2; 112 received 1 each)



## Professors' Offices Receive First Annual NICHE Awards

by The Entire Staff Together

One day last semester THE NICHE staff, which has never been known for minding its own business, spent the afternoon poking our noses into various professors' offices just to get a feel for that old decorating thing. We decided to give our first annual awards for office decoration as follows:

**Beck:** The "Birds Everywhere!" Award

**Bradley:** The "Neatest Office" Award

**Broadwater:** The "Most Education Buttons" Award

**Brooks:** The "Best Aboriginal Art" Award

**Byrd:** The "Coolest Old Books" Award

**Capelli:** The "Most Interesting Filing System/Couch Full of Manila Folders" Award

**Coursen:** The "Mushroomiest" Award

**Fashing:** The "Office That Makes Us Itch" Award

**Grant:** The "Best Security System/We Couldn't Even Get Past the Door" Award

**Guth:** The "Most Functional Office" Award

**Hoegerman:** The "Best Door Reading Material" Award

**Phillips:** The "Best Plants/Best Window To Jump Out Of" Award

**Mangum:** The "Best Fossils on the Wall" Award

**Mathes:** The "Most Pointers or This Is Like Going Into A Souvenir Shop" Award

**Sanderson:** The "Most Colorful Fish" Award

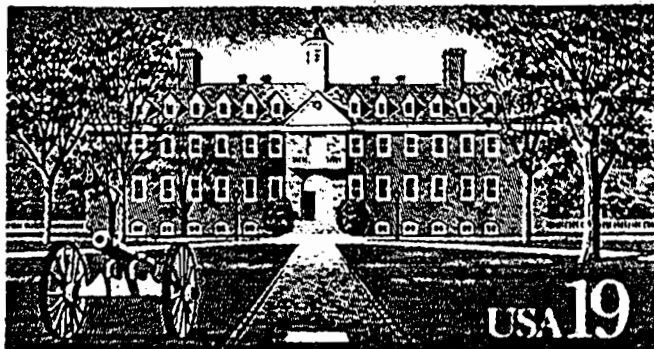
**Scott:** The "Nicest Gray Magazine Boxes" Award

**Terman:** The "Dillard of Millington Offices" Award

**Vermeulen:** The "Biggest Polyhedron" Award

**S. Ware:** The "Best Dressed Office Chair/Ever-Present Coke Bottle" Award (when we arrived the chair had pants, coat, and tie!)

**Wiseman:** The "By Far Most Square Feet" Award



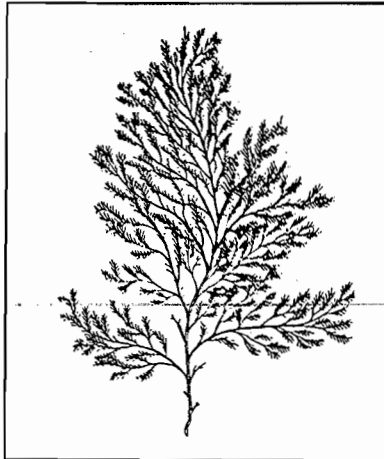
Wren Building, College of William & Mary



# Our Current Graduate Students

by Amanda Allen '92

The current crew of graduate students encompasses a medley of personalities, research interests and backgrounds. Almost tripling in number since last year, we grads are a force to be reckoned with, be it in the laboratory doing research, in the classroom, or up in front of the intro. labs as teaching assistants. Needless to say, while we up-and-coming Biologists often go incognito in the hallways, I thought it would be a great idea to introduce this years group of grads.



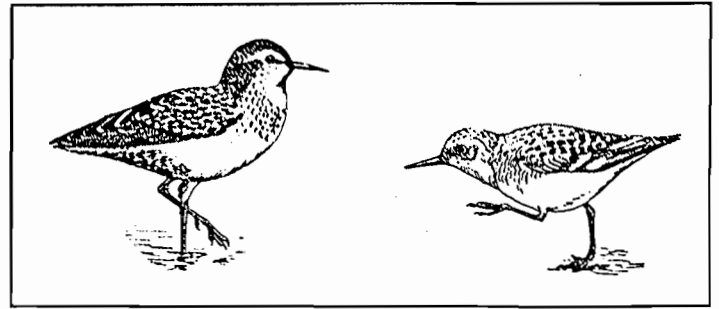
school next fall.

Dan Shelly (2nd year/Lehigh grad.) is Graduate Student Representative to the department and works in Dr. Mangum's lab studying polymorphism of Croaker fish hemoglobin. So far, Dan has identified 5 morphs and plans to measure the oxygen binding capacity of the morphs by placing whole hemoglobin cells in a solution like that of the fish's body. Dan is applying to Ph.D. programs (hoping to study ecomorphology of coral reef fish) and trying to live up to the "humiliating loss Lehigh suffered" to the Tribe in football.

Steve Goss (W&M'91, 2nd year) is the one who always wears his fluorescent cap on backwards, works with Dr. Scott on the ultrastructure and mitotic process in *Glaucosphaera vacuolata* ("big gloppy circle with lots of vacoules") and TA'd Cell Biology last semester with a flare all his own. With plans to receive a Ph.D. in Cell Biology, Steve admits an enjoyment of physics and scuba diving ("anything with water").

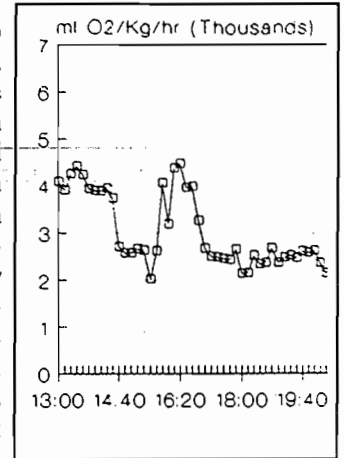
Coming to W&M from Bard, Christina Wilson (2nd year) is currently working with Dr. Scott to document the ultrastructure of tetraspore formation in red algae. She likes working with coralline algae because they are "aesthetically pleasing" and while her first three projects just did not work out, Christina knew this one would when the first TEM picture had a smiley face in the nucleus (It really does). She TA'd in the non-majors lab and plans to continue in medical microbiology.

A former undergrad, Matt Harrison (2nd year) has returned to W&M to work with Dr. Phillips on the function of a heat shock protein, *groEL*, on *E. coli*. Matt is using a knock-out mutation of the *groEL* gene, which will then be introduced into *E. coli* in the form of a plasmid and the *E. coli* then checked for defects introduced by the mutant gene. Matt currently TA's in the intro lab and hopes to attend medical



From snow swept Buffalo, Ellen McLean (2nd plus year) spent February through June walking the beach counting shorebirds and people to study the effect of human disturbance on migrating shorebirds and is now analyzing the mass of data from her counts. Ellen currently works with Dr. Watts on mapping eagle habitat parameters (when not organizing the grad. raquetball tournament) and plans to work in environmental policy.

Michelle Mabry (1st year) will be working with Dr. Terman at the population lab to study the regulation of population size in *Peromyscus*, the white-footed mouse. After graduating from VA Tech. ('91), Mabry spent a year as a lab tech for an environmental consulting firm. If by some chance she suddenly becomes extremely rich, Michelle says she would start an angora rabbit ranch, although she is thinking about a Ph.D. if that does not work out.

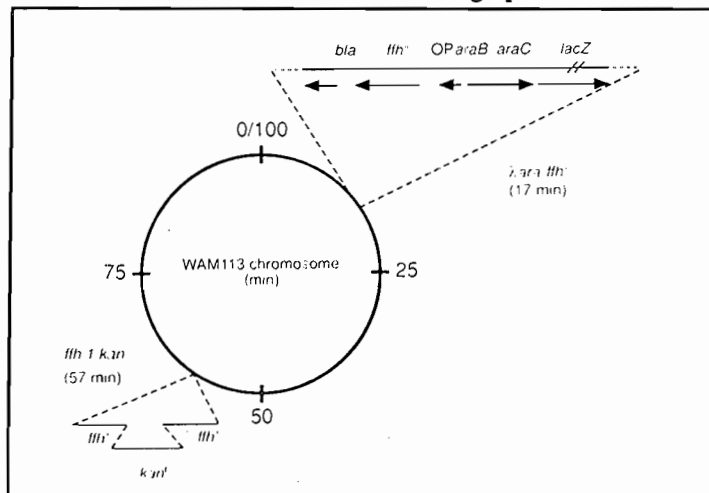


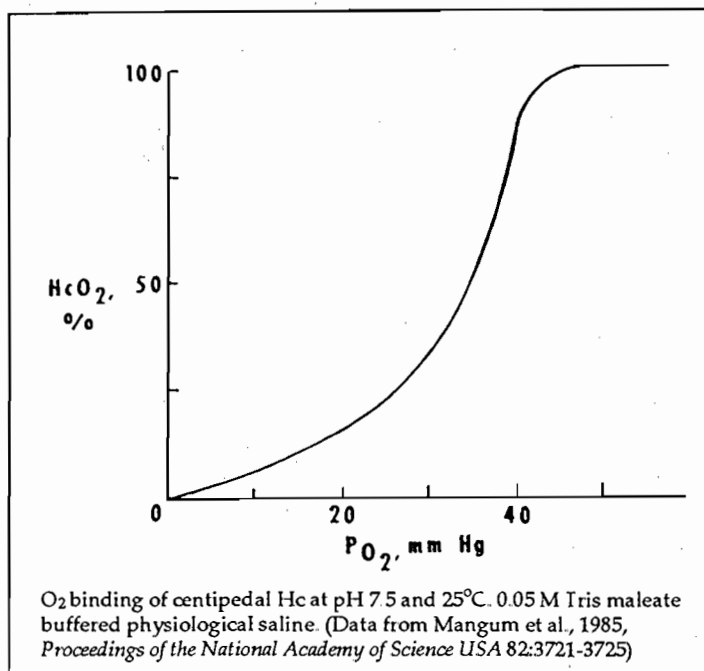
Rebecca Miles (Indians Wesleyan U. '90/1st year) is a "mean raquetball player", likes to sew, and is TA in the intro lab. Having spent her intervening years after graduation working first with an environmental lab as a chemical tech and then at University of Chicago working on breast cancer, Rebecca plans to work with Dr. Bradley. Ultimately, she vows to return to her alma mater.

Opting for the non-thesis masters, Katie Baskette (Va. Tech.'92/1st year) ultimately hopes to teach high school and is also working at the Malcolm Pirnie Inc. environmental consulting firm in Newport News. While Katie likes living in Williamsburg, she admits that the 'burg is not

nearly as nice as her summer spent in Greece this year.

A Pocomoke, MD native, Crystal Matthews graduated from the University of Maryland ('90) where she worked (and published) in Dr. Lin Chao's lab studying the evolution of sex. After graduation, Crystal worked in California as a research assistant at a biotech company where she worked on a transgenic mouse mutagenesis system (and 3 more publications!). Crystal enjoys behavior and ecology and wants to both get a Ph.D. and work with endangered species.



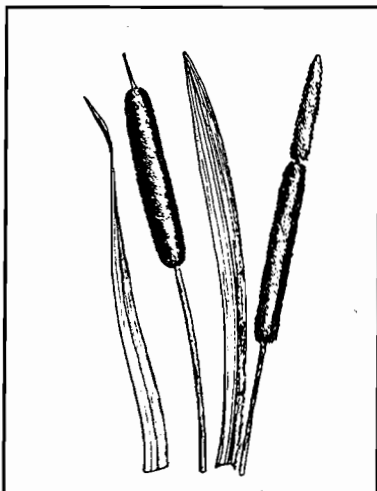


**Cleve Sinor** (Va. Tech. '88/1st year) spent a year at ODU studying biology (he was a Psychology undergrad) before entering the program here. Cleve aims to work with **Dr. Guth** on a neuroscience topic and ultimately, would like to enter an M.D./Ph.D. program.

**Brian Nicholson** (W&M '91/1st year) has returned to work with **Dr. Phillips** to study protein folding and protein export. With aims to get a Ph.D. and a molecular biologist at heart, Brian also spent the summer after graduation releasing peregrine falcons in the George Washington Forest for **Dr. Byrd**.

A Williamsburg native, **Brad Cherry's** (1st year) interests lie in endocrinology and he intends to enter medical school after receiving his Masters. After receiving a degree in biology from UVA, Brad spent time this summer in the Netherlands (although now he can usually be found on the 3rd floor where he adamantly propounds that he likes poetry).

The "toughest Zoo TA on earth," **Jeff Hager** (1st year) is a Transylvania (Kentucky, not the country) University grad ('92) who avidly pursues the realm of the outdoors, whether it is camping or mountain biking. An ecology buff, Jeff is unsure of his research goal for now, but seems to be leaning towards ecology and perhaps wetland conservation. Jeff is in charge

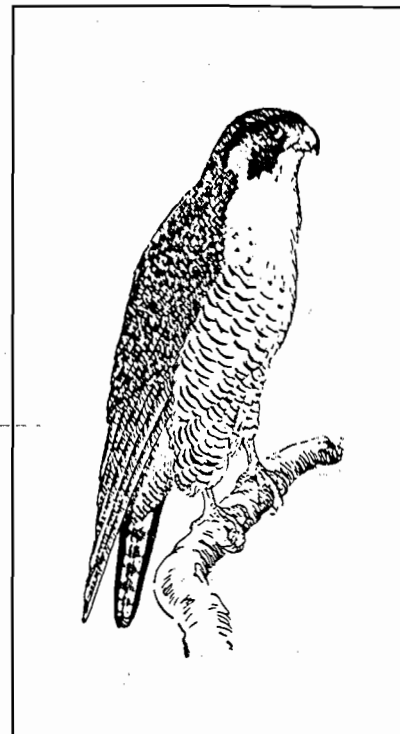


of the newly established grad. late night food box.

Proud of her N.C. State ('91) Wolfpack ties, **Kristine Clements** (1st year) is happy to be in a small and close knit grad program where she was a non-majors intro lab TA. Still undecided (as most of us) about future plans (although Kristine says she may want to teach), she will probably be working on an aspect of avian ecology on the Eastern Shore of VA.

Toxicology and ecology are his research interests and **Mark Mort** (Indiana University of Penn. '92/1st year) will be working with **Dr. Sanderson** on the uptake and distribution of lipophilic xenobiotics in suspension feeding fish. A non-majors intro. TA, Mark spent the summer doing physiology and toxicology work at the Mount Desert Island Biological Lab in Maine under a Pew Foundation fellowship on little skates.

And, since everybody I interviewed wanted to know who was going to interview me, I guess I will end with my plans. After graduation (W&M '92) I spent my 3rd summer releasing peregrines (and trapping bears, catching salamanders, and learning about GPS) in Shenandoah N.P. before "doing eagle maps" for **Dr. Watts**, who will be my advisor as I study avian utilization of tidal salt marshes and tidepools. After W&M (where I TA non-majors intro) I hope to earn a Ph.D. in ecology/ornithology/conservation biology to teach, do research, and work in natural resource and species conservation.



## SOME OTHER PEOPLE IN BIOLOGY

by Chong Shin

Not all pre-med students choose a hard science major as preparation for medical school. **Stuart Harris** chose the other extreme, English, as his major at University of the South (Sewanee). But, he did not rush into medical school after graduating. Instead, he went to Japan with the Japanese Exchange Teaching (JET) Program for two years. There, he had lots of free time to work on his creative writings. However, he still kept in touch with the scientific community by reading *Science* regularly. While he was on the other side of the world, he traveled for 6 months, spending 2 months in Nepal climbing. When he came back to the States, Stuart taught for a semester at a private high school in North Carolina. He is now taking some Biology and English classes at William and Mary to prepare for graduate school in English and eventually medical school.

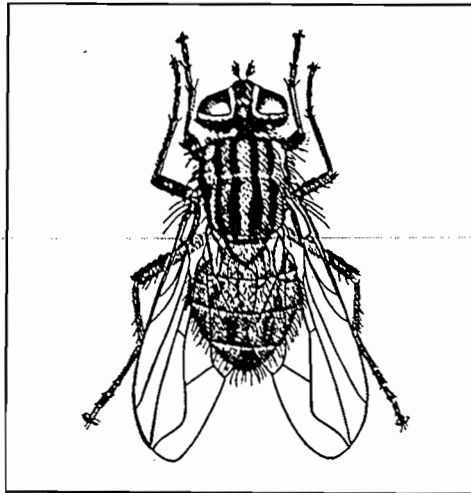
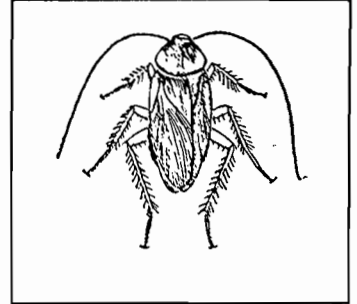
During a semester off from William and Mary, **Mark G. Miller** did research in platelet biology using molecular genetics techniques at the Maine Medical Center and Research Institute (MMC&RI). He continued his research this summer. And during his research, he co-authored three papers. Mark graduated last year as a Philosophy major interested in medical ethics. But now he's taking graduate courses in Biology and doing research in **Dr. Vermeulen's** lab. Looking back, Mark realizes a Biology major would have been more practical as background for medical school.

# Cockroaches and Boas and Rats, Oh No !!!

And Flies and Mites and Beetles and Crayfish and Leeches: The Millington Zoo

by Dan Stimson

Rummaging through the folds of plastic, *Periplaneta americana* scavenges for its evening meal. The creature brushes its delicate antennae over its surroundings. The foods it encounters are unpalatable by human standards, but *P. americana* is not a picky eater. With its strong mandibles, the omnivore grasps a small morsel and begins to eat, but its feeding is abruptly interrupted. Light suddenly floods its environment, and a wad of paper falls on the insect, knocking it to the bottom of the trash can. Alerted to the possibility of danger, the cockroach scurries to the rim of the trash can. Its auditory receptors are immediately assaulted by a high-pitched, shrieking noise. Stunned by the intensity of light and sound, the cockroach stands motionless, taking measure of the encroacher. The human towers over the insect, but *P. americana* is armored and swift. In a fit of terror, the human flees, and the cockroach, perched over its foraging grounds, stands victorious.



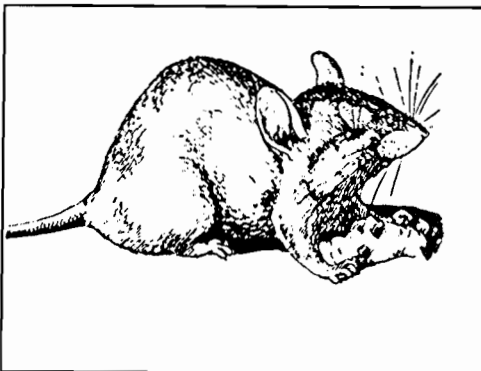
The preceding scene is a common episode in Millington Hall, shared by the departments of Biology and Psychology. Cockroaches are perhaps the building's most prominent residents, though they are hardly the most liked. Wary of the insects' constant presence, students and faculty members harbor different attitudes over the unavoidable co-habitation. The cockroaches strike fear into the hearts of most individuals, elicit indifference from some, and evoke admiration from a few (i.e., Dr. Fashing, resident entomologist). Though cockroach anecdotes often generate amusing conversations in Millington, other resident arthropods are integral to research and classroom activities carried out in the building.

Mites, beetles, and giant house-flies are current subjects of research in Dr. Fashing's lab. Approximately 15 strains of *Drosophila* (fruit fly), which are relatively easy to breed, serve as specimens for the genetics laboratory. Barrels of *Biston betularia* caterpillars can usually be found in Dr. Grant's lab, where Grant and student researchers have been studying the caterpillars' color polymorphisms.

The largest arthropods in the building (even larger than the cockroaches) are the crayfish, located in a tank in the greenhouse. These crayfish are sometimes used in Zoology lab demonstrations. Laboratory Coordinator **Nora-Anne Bennett** maintains that these demonstrations supplement standard laboratory dissections. Bringing live animals into classes, she explains, gives students an opportunity to observe aspects of animal behavior that they cannot appreciate by simply examining deceased animals.

Leeches, procured from Carolina Biological Supply, have similarly been used in annelid lab demonstrations. However, students are not required to observe the leeches' feeding behavior. Actually, Bennett attests that the leeches are quite content eating goldfish food. She adds that in the laboratory the leeches appear innocuous and even "graceful," dispelling their media image as insatiable blood-suckers.

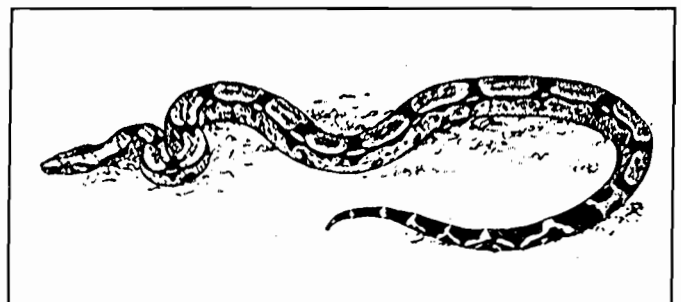
More unfairly portrayed by media and folklore than leeches are snakes, which are occasionally brought into classes to entertain



some students and de-sensitize others. The snakes that most commonly make appearances in Millington classrooms are three boa constrictors; Hiss, Kiss, and Boa-Derek; and a python, Angelique. The snakes' owner, Instrument Maker **Rick Scherberger**, keeps them in his office in the Millington's basement. According to Scherberger, Kiss, his eight foot female boa, is pregnant.

Though Scherberger is eagerly awaiting Kiss's delivery day, if the laboratory rats that also live in Millington's basement could perceive the ensuing event, they would probably be restless with anxiety. The rats, well-fed and well-protected from the snakes, are an indispensable part of Dr. Guth's research. Guth and undergraduate researchers are using the rats to study certain interactions between the nervous system and endocrine system.

Whether intended resident or unwelcome guest, vertebrate or invertebrate, pet or pest, the animals of Millington play a significant role in the lives of students and faculty who share the building. Whether the animals are part of research or classroom activities, or are simply part of the Millington environment, individuals who interact with the animals can learn from, and sometimes laugh at their experiences with them. The human inhabitants of Millington appreciate the contributions that their non-human co-habitants make to scientific enrichment and everyday enjoyment.



# Cheryl Granger and Frank Probst: Goldwater Scholars

by Natalie Weber and Sally Hunsucker

The Goldwater Scholarship recognizes excellence in science. The scholarship requires that nominated candidates submit a proposal for possible research. While many students may be nominated, the scholarship is given to very few students. Two of William & Mary's scholarship winners, Cheryl Granger and Frank Probst, are biology majors.

Cheryl Granger presented a proposal on examining the ozone destroying reactions. She is majoring in both Biology and Physics. She became interested in biology primarily because, while growing up, she was surrounded by biologists. Almost everyone in her family is a scientist of one sort or another.

She became interested in physics during high school. Because she had superb physics professors here at William and Mary, Cheryl was further enticed to go into physics. While both disciplines interest her, she is interested in studying genetics in graduate school. Earlier, she changed her mind many times, thinking she would study astronomy or even ecology in graduate school. She made her tentative decision to study genetics after taking the lecture course and its lab here, both of which she has really enjoyed.

What does Cheryl plan to do with her biology and physics background? For the future, she intends to teach high school or younger students. Cheryl feels that children below the high school level do not get enough exposure to science and she doesn't think enough women are involved in science and would like to see that change as well.

Cheryl's research experience is outstanding. While at William & Mary, she has done some physics research; during the summer she worked at NASA Langley Research Center in Newport News, and she is currently doing some astronomy

research on variable stars. While she has much physics experience, her biology experience is even more impressive because most of her work involved experiments conducted from grades seven to twelve. Many of her experiments were ecologically based, such as the effects of chemicals on microbial activity

or on the effects of chemicals on photosynthetic activity of leaf cuttings.

While not studying biology or physics, Cheryl is involved in Alpha Phi Omega - a national service fraternity, the Society for Physics Students (SPS), and the handbell choir for the local Presbyterian Church.

Frank Probst is a senior Biology and Chemistry double major. He is currently working on an honors thesis with Dr. Phillips in which he is using genetic engineering to study protein transport in bacteria. This summer Frank did research in the Chemistry department. He is interested in a combined M.D./Ph.D. program, molecular biology or human genetics for graduate school. Frank plans to work on developing ways to use genetic engineering to treat human diseases.

Although classes have sometimes been stressful, Frank believes that he got the best undergraduate education he could here. He says that the best class he took at William & Mary was the Biotechnology

Seminar which he attended freshman year. It gave students an idea of what science was like in the real world and showed students that biologists are people, too.

Aside from hours of research in the Biology department, Frank is a member of William & Mary's swim team and a Hall Council representative. His favorite movies are Disney movies, and he was "psyched to see Aladdin."

## The Step By Step Approach to Doing Research in the Biology Department

by Kristen Albright

Anyone with an interest can do research in the biology department, but few people know how to get started. Whether you are an art major, a kinesiology major, a sophomore, or a senior, just follow these few easy guidelines and you'll be on your way to exploring cutting edge research.

**Step 1 - Find out who's doing what** --- a list of faculty research areas can be obtained from the secretary's office or in a review of the biology department which can be found in the biology library. You can also ask your professors!

**Step 2 - Be bold** --- You must take the initiative and make the first move. Call those professors with whom you are interested in working. Ask about their work, discuss possible research projects, and see if there is room in their lab for you. If all goes well, develop a written proposal with the professor. Plan on doing this step the semester before you would like to begin your research.

**Step 3 - Get credit** --- If you are interested in getting credit for undergraduate research, sign up for biology 403. You can take 1-3 credits per semester, with a maximum of 6 and no more than 3 counting towards a biology major. A written report is required which may satisfy your writing requirement if you are a biology major. If you are interested in honors research, sign up for honors 495-6. You must be a senior and have a concentration GPA of 3.0. At the end of your project, you must present a thesis and an oral presentation, as well as pass an examination in the topic area. A committee of your choice, consisting of your advisor, two department members, and someone outside the department, will award you no honors, honors, high honors, or highest honors accordingly. **Both of these options for credit require the permission of the Departmental Committee on Honors and Undergraduate Research chaired by Professor Fashing.** Remember also that you can do research for no credit.

**Step 4 - Summer opportunities** --- Sometimes professors prefer that you begin research during the summer in order to familiarize yourself with the lab. There are several grants and scholarships available for this work. Some of these include Howard Hughes, Barry Goldwater, and the Wilson Scholarship. Check out the Charles Center, and keep your eyes open in Millington, especially the bulletin board across the hall from Room 117.

If you have any questions, contact Dr. Fashing.

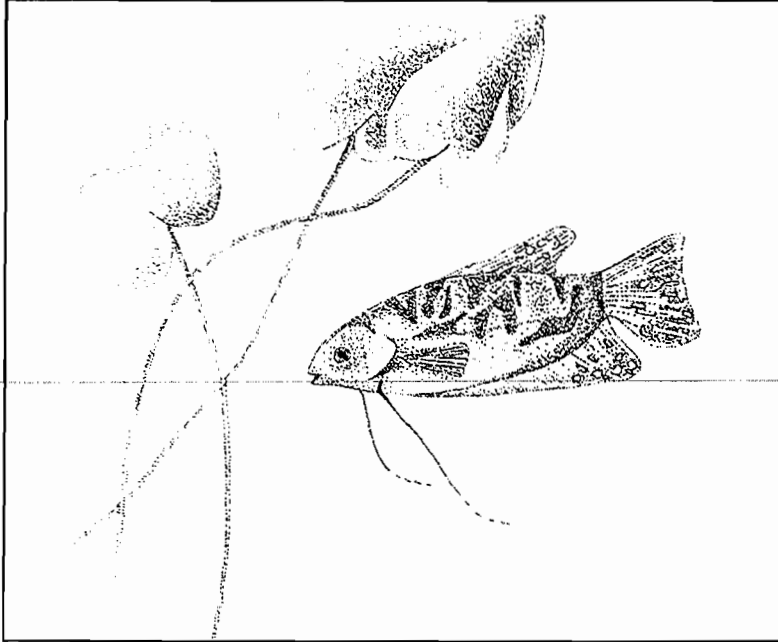


cellular, and developmental programs I think that the answer is readily apparent. But, why at schools like William and Mary? Under the old biology curriculum, I think that it is less likely. Under the new, watch out. A biology student at William and Mary can now graduate with only two classes in organisms, populations, ecology and evolution. Three if you count the new introductory course for majors. By the same argument, one could graduate with only two classes in molecules, cells, genes and development. Someone could graduate without a class so integral to a good understanding of biology as a discipline as genetics or ecology. Supposedly, the basics will be covered in the introductory courses, but in my opinion that can't compare to a full semester of genetics or a full semester of ecology. The jury is still out, and will be until this year's freshmen take the GRE's, but I fear the worst.

This brings me to my final point and the alternate title for this piece. (You didn't think that I would ever get there did you?) I think that the direction that biology is taking toward molecular, cellular, and developmental, and away from organismic biology and ecology is a mistake. Yet, I feel that biology as a discipline is making an even greater error. To quote Blockstein again, "Discontinuity marks our science as well. As the volume of knowledge increases exponentially, reductionism runs amok and disciplinary specialization triumphs." His last point -- disciplinary specialization -- is the key flaw in biology today as I see it.

We are no longer biologists. We are molecular geneticists, community ecologists, cytologists, herpetologists. We (well maybe not me, since I would only consider myself a student of biology at this point) call ourselves by these names, failing to remember that there maybe a connection between these disciplines. That one may not only infringe on another, but possibly lead to insights in another.

I think that this disciplinary specialization is the result of the direction that biology has taken. How can a student become a "biologist" when the only classes that they can take are in molecular, cellular, and developmental biology? I have heard that another idea behind the new curriculum at William and Mary is that it will allow a biology student to specialize more at the undergraduate direction. Again, the mad dash toward specialization occurs sooner and sooner. Even the course offerings reinforce the concepts of specialization. Although some of the courses do incorporate many of the disciplines of biology that have relevance to one subject, they only do so in a cursory way. In the course catalog, I can find only two courses that may step beyond this disciplinary specialization -- Physiological ecology of plants and Functional ecology.



At the graduate level, this pursuit of a small niche in the broad ecosystem of biology continues. I can understand why such specialization is necessary. Yet, it is a question of degrees. Should a biologist, a true biologist, specialize on one aspect of biology to the exclusion of all others? I would say not.

What is the solution? First, we must recognize that there is a problem. (Perhaps after reading this, we might have accomplished the first step.) Second, we must realize the validity and need for other sub-disciplines other than our own in the realm of biology. Next, and I think that this necessarily follows from number two, we must reevaluate the direction that biology is taking. This means not only restoring the realm of organismic biology and ecology to the same level as molecular, cellular, and developmental biology holds, but also finding new ways in both courses and research to integrate what each sub-discipline has to offer every other sub-discipline. It is only in this way that I think we will be able to return to the study of "biology."

I would just leave you with these questions. Is it truly biology that we are studying? Is it truly biology that we are teaching? Is it truly biology that we are researching? Are we truly biologists?

---

The Department of Biology has begun a new undergraduate curriculum this year. It is designed to give students more depth at the beginning of their study of biology and more flexibility in choosing areas of interest at the end of their studies with us than did the old curriculum. It has long been a tradition in William and Mary Biology to present and require of students a broad education in all areas of the biological sciences. That tradition continues with our new curriculum. In short, we believe that ecologists should understand molecular genetics and that molecular geneticists should understand ecology.

**THE NICHE** invites written responses to Chris Beck's piece which appears above. We hope that students, faculty, and alumnae/i will tell us what they think about modern biology, its practice and its teaching.

In the next issue, which should be out before final exams this Spring, we would like to publish your responses. We will also include information from the just-completed departmental self-study and should by then know who our new faculty colleagues will be.

L. Wiseman

## THE NICHE

Department of Biology Student-Faculty Newsletter  
BIOLOGY



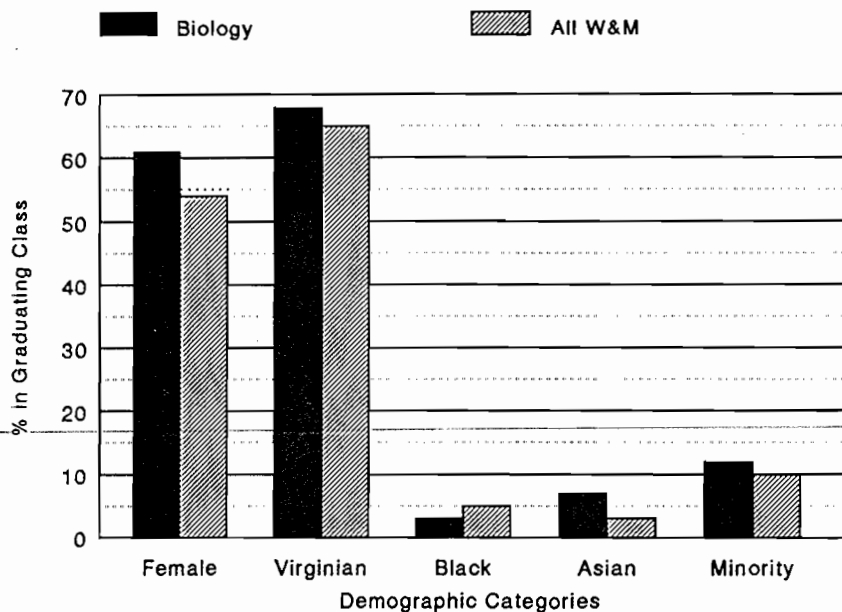
WILLIAM  
& MARY

Editors: Chris Beck and Sally Hunsucker  
Staff: Amanda Allen, Callan Bentley,  
Katie Eminger, Katherine Lieberknecht,  
Michelle F. Pratt, Laura Romano, Chong Shin,  
Dan Stimson, Natalie Weber  
Adviser: Lawrence Wiseman

# THE NICHE

Department of Biology Student-Faculty Newsletter  
College of William and Mary

## Biology and William & Mary Demographics 1989-1992 Graduates



**THE NICHE**  
Department of Biology  
College of William and Mary  
P.O. Box 8795  
Williamsburg, VA 23187-8795

Non-Profit Org.  
U.S. Postage Paid  
Permit No. 26  
Williamsburg, VA

PRE-SORTED  
BULK RATE

TO: