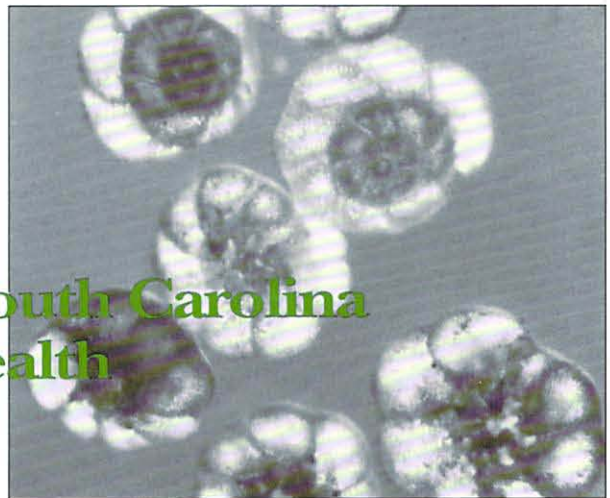
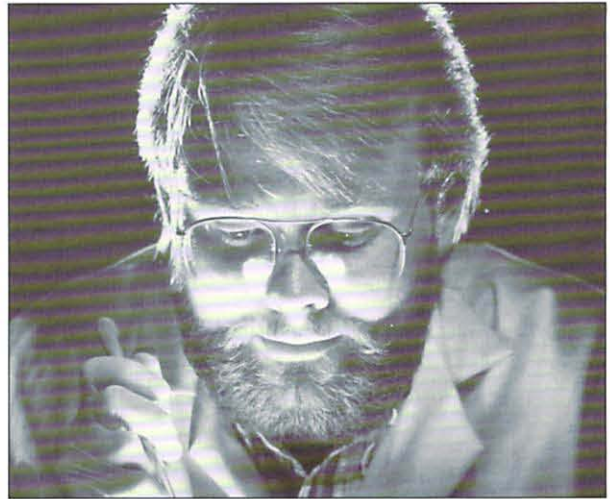


# HealthBeat

## MAGAZINE



**The University of South Carolina  
School of Public Health**

Fall 1992

# HealthBeat

## MAGAZINE

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### On the Cover:

**Tom Chandler, Ph.D., looks at ocean critters (benthic foraminifera) for clues about the earth's history and future. Their shells are made of calcium carbonate and are often well-preserved as microfossils. The animal's shell captures carbon dioxide gas dissolved in seawater which when measured, has been used to reconstruct the oceanic conditions that were present while the critter lived.**

# From the Dean

The 1990s are shaping up to be a decade of enlightenment for women's health concerns, and the nation is discovering that women's health care is by no means simply a "woman's issue." Every life is touched in some very meaningful way by a woman, whether it is by a gentle mother, a supportive sister, a dynamic friend. Everyone has a stake in the lives of these women.

The diseases and disorders that in the past have afflicted primarily men — cardiovascular disease and lung cancer, to name but two — are now being recognized as banes for women, as well. A surprising number of women who have a family history of heart disease and who exhibit the classic signs of a heart attack are assured by their physicians that they are not suffering from heart disease. They are too young, they are told, and they are female. It seems an unlikely combination for a heart attack.

According to recent figures from the American Heart Association, it is not such an unlikely combination. Roughly half of the 520,000 Americans who die from heart attacks every year are female. Heart attacks are the number one killer of women over 55 years old in the United States, and they claim more female lives than all forms of cancer combined. More research in this area will alert physicians to the very real likelihood of heart disease in women, and frightening statistics like these can be lowered.

Unfortunately, recognition of the seriousness of women's health concerns is coming slowly. Toward that end, our goal as women is to



*Dean Winona Vernberg*

take care of ourselves; our goal as human beings is to further the study of women's health care. The USC School of Public Health continues to stand at the forefront of this research.

The School of Public Health has long been concerned with the health of mother and child. Cheryl Addy, Ph.D., (BIO), and Robert McKeown, Ph.D., (EPI/BIO), are currently involved in Healthy Start, an infant intervention program in a six-county area in South Carolina. You can read more about this program within these pages.

The Breast Cancer Network is convincing women to take charge of their lives and their health. By offering free Pap smear services and incentives such as a chance to receive free groceries, the Network has motivated thousands of women in South Carolina to begin yearly exams. John Ureda, Dr.P.H., (HPRE), is the principal investigator for this project.

Ann Coker, Ph.D., (EPI/BIO), is conducting a series of cervical cancer studies. She is studying a

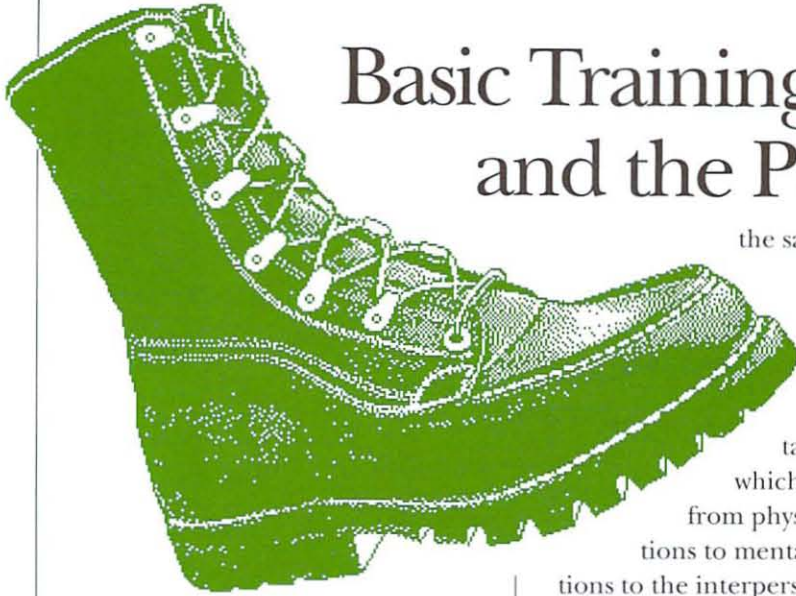
possible link between a wart virus and cervical cancer, and is looking at smoking as a risk factor in cervical cancer.

Larry Durstine, Ph.D., (EXSC), is doing research in the vital area of women and cardiac rehabilitation.

Vincent Murray, Ed.D., (HPRE), has been doing research in the area of teen pregnancy prevention for several years. He is currently involved in PATHS, a teen health program in Hampton County. This much needed program is discussed in this issue of *HealthBeat*.

Roger Sargent, Ph.D., (HPRE), continues in his studies of women and nutrition, and women and eating disorders. His thoughts on "Bulimia Nervosa" are included in this issue of *HealthBeat*.

Working alongside some of the finest health care organizations and researchers in the world, the USC School of Public Health will help make a change in the lives of women. On behalf of future generations of women and the people who love them, we will continue in our quest for answers.



# Basic Training Tests the Body and the Psyche

Today's movie-makers want us to believe that new Army recruits spend their days in boot camp doing sit-ups and running in the rain. But through a cooperative study involving USC and the United States Army, researchers are directing a more realistic picture. Martin Weinrich, Ph.D., (EPI/BIO), and Col. Ronald E. Prier, M.D., M.P.H., know that basic training is a test of both the body and the psyche.

"There is a physical challenge to basic training, but I believe the biggest challenge is psychological," says Weinrich, principal investigator for the project. Carol Garrison, Ph.D., (EPI/BIO), and Sally Hardin, Ph.D., from the College of Nursing, are also involved in the Office of Sponsored Programs and Research-funded study.

"There are quite a few psychological challenges for the recruits," says Prier, who is chief of the Department of Psychiatry at Moncrief Army Hospital and an adjunct associate professor in the USC School of Public Health. "There's the challenge of being separated from family, living in a new environment, and being in a close group situation with people of

the same age.

"And just the stress of meeting expectations — which can range from physical expectations to mental expecta-

tions to the interpersonal requirements of getting along with their drill sergeant and the other trainees — is challenging," he continues. "It is certainly different from high school and the relatively sheltered environment they're accustomed to."

Prier and Weinrich are very interested in how well recruits do in this new environment. By administering a questionnaire and utilizing the Army's database, they have collected data on thousands of new recruits. Using this information, they hope to find indicators of how well a new recruit will do in basic training. "We are hoping to determine some psychological factors which might make someone less able to tolerate the stress," says Prier.

Weinrich compares the study to the college admissions process. "Imagine being able to look for certain predictors of how a student will do in college just by looking at his family background and other significant life events," says Weinrich. "College admissions counselors would love to be able to do that."

So would Army recruiters. By identifying factors or characteristics of their recruits, the Army would be able to offer more support to those

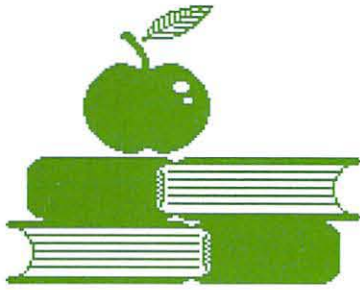
recruits who may be at a greater risk of failing. "I am continually impressed by how much the Army cares about their people and about their new recruits," says Weinrich.

The researchers began their study by asking incoming recruits to complete a 45-minute, pencil-and-paper questionnaire. Recruits were asked about their family background, life events, self-perceived social support network, coping mechanisms, and self-expectations. Out of the approximately 4,800 recruits who were tested over a four-month period, about 4,400 provided usable test results.

The researchers have also been granted permission to use a United States Department of Defense personnel database located in Monterrey, Calif. This access helps them ensure the accuracy of questionnaires and keep track of the recruits they have tested. "It doesn't give us the names of the recruits we are studying because their identities are kept confidential," says Weinrich. "But we do have data about whether these recruits did finish basic training."

According to Weinrich, preliminary analysis of the study reveals a possible link between domestic violence in a recruit's background and that recruit's inability to complete basic training. These data are not yet confirmed since the study is still in the analysis stage.

"This is a huge amount of data and it will take a long time to thoroughly analyze it," Weinrich says. "But we should have some very interesting results in a couple of months."



## Meet the School's Seventeenth Entering Class

The School of Public Health's seventeenth entering class began its continued quest for knowledge Aug. 27, 1992. Total enrollment for 1992-93 is 672 students, with 502 graduate students and 170 undergraduates in exercise science, the only undergraduate program in the School of Public Health.

When the very first class entered the USC School of Public Health in August 1975, there were 34 incoming students. This year there are 244, and they come to us from varied backgrounds.

Forty-four percent are residents of South Carolina; the rest are from 23 other states or from one of 12 foreign countries. The average age of these students is 35 years old. Roughly 35 percent of these incoming students are male, while approximately 65 percent are female.

This year's incoming students are graduates of more than 35 universities and come from many other academic fields, including: accounting, anthropology, biology, business management, chemical engineering, chemistry, communications, economics, finance, geography, health education, health physics, industrial management, journalism, medicine, dentistry, osteopathy, microbiology, nursing, physics, political science, social work, psychology, public administration, and zoology.

Fourteen of these students have master's degrees in fields other than public health. Forty have prior

(continued on p. 6)

## Manning Foundation Makes Research Possible

The James Hilton Manning and Emma Austin Manning Foundation is an independent foundation devoted to health and medical research. Since 1982, the Manning Foundation has been a generous supporter of research within the USC School of Public Health.

During those 10 years, the School has received \$170,000 in research funding from the Manning Foundation. This support has made a great impact on the School and its students, and has provided much-needed data for researchers around the world.

"The Manning Foundation made possible the single most important piece of work that I have done in my career," insists Gale Coston, Ed.D., (SPAD). "It will very probably lead to specialists more effectively screening for genetic defects around the world." With Manning Foundation support, Coston and fellow researchers created the Craniofacial Screening Profile, a method for screening birth defects.

Carol Macera, Ph.D., (EPI/BIO), and her colleagues conducted an exploratory study that looked at head injury as a risk factor in Alzheimer's Disease. "Although our initial project was just a pilot study, it was very important for us to have the money to try to explore this area of Alzheimer's Disease research. You don't have justification in pursuing research until you can prove that it will be fruitful. The Manning Foundation funding allowed us to discover that this is a very fruitful area, and it is one that we continue to pursue. We would not have had the opportunity to even try if they had not given us the support," she said.

With Manning Foundation support, Harriet Williams, Ph.D., (EXSC), and her colleagues gathered normative data on physical

functional capacities of the elderly. "We studied about 250 women and men between the ages of 50 and 95 and gathered data on motor functions including balance, agility, and eye-hand coordination," Williams recalls. "We created a guide to the 'typical' person of 50, 60, 70, 80, and 90, and what changes occur during that span of an individual's life."

"We would not have been able to conduct our research without Manning Foundation support," Williams concedes. "It enabled us to buy equipment that we needed and allowed us to hire and train professionals to collect and analyze the data. Other projects have grown out of this research. We are currently in the process of doing a balance training study to help prevent a decline in balance in the elderly."

Manning Foundation monies have also allowed the School to begin other new programs of research. These include an aquatic aerobics study for people with arthritis, and cardiac rehabilitation for people who have had heart attacks and/or bypass surgery. The USC Speech and Hearing Clinic has been able to establish an Assistive Listening Devices Center where elderly people with hearing loss can find devices to enhance their quality of life and foster independence.

Within the School of Public Health, the Manning Foundation influence can be seen everywhere: in our faculty, who are able to pursue exciting, leading-edge research; in our students, who are able to participate in and learn from that research; and in our outreach to the community and the world, where we will share our new knowledge. The School of Public Health is fortunate to have the Manning Foundation as both benefactor and partner in these endeavors.



*As a part of the Winnsboro Primary Health Care Education Project, public health student Leslie Ochs conducts a community health risk survey. The project links USC students with a rural community in need of health care.*

## Interdisciplinary Project is a First for USC

The Winnsboro Primary Health Care Education Project is an interdisciplinary effort that links a rural community in need of health care and USC students in need of rural health care training.

"The lack of primary health care practitioners is really acute when you get to the rural level," says Gale Coston, Ed.D., associate dean. "Our goal is to provide quality interdisciplinary care to a rural community and to train students to provide interdisciplinary care in a rural setting. We hope our project will be a national model for that."

The project involves faculty and students from five areas of the University: the School of Public Health, the School of Medicine, the College of Nursing, the College of Social Work, and the College of Pharmacy. It is the first time in the history of USC that students from these health-related disciplines have interacted. "Few, if any, universities in this country have this type of interdisciplinary interaction on their campuses," reveals Coston. "This truly is a landmark effort."

Project components include establishing a rural health practice

and a learning resource center. "The practice involves a family practitioner, a nurse practitioner, and a health educator," says Coston. "In addition to providing services for the residents of Winnsboro, this practice is also a training ground for students in those five health-related disciplines."

The Learning Resource Center is a classroom housed within the practice. Here, students are linked by computer and television to the USC Columbia campus. Students also perform community service, such as free blood pressure screenings.

Funds to support the start-up costs of the Center came from the Fullerton Foundation two years ago. Since leasing space for the Center was not cost efficient, the construction of a new building is being planned. It will be built on the grounds of Fairfield Memorial Hospital and will forge a beneficial relationship between the two health care providers.

Another component of the project is the development of a seminar course that centers on rural health care. It, too, involves each

health-related area at USC. Funded through a grant from the Bureau of Health Professions, "Interdisciplinary Training for Health Care for Rural Areas" was offered for the first time this past summer.

During the semester, students discuss ethical issues in rural health care and hear highly qualified speakers address related topics.

"This course gives the students an opportunity to learn about other students' disciplines," says Coston. "During the first class meeting, no one knew what an epidemiologist was except, of course, the one epidemiology student in the class. They soon learned to draw from one another's disciplines and to work together."

The project has many rewards. "Winnsboro is a lucky community to get a whole host of services they have never had before," says Coston. "We are lucky to have the opportunity to provide those services and to interact on many levels with other schools and disciplines."

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### Student Profile from p. 5

doctorate degrees, 16 have medical degrees, and one has a Ph.D. Eighty percent are master's degree candidates, nine percent are entering doctoral programs, and 11 percent are in non-degree programs.

This year's class is an excellent one and, judging by their grade point averages and Graduate Record Examination scores, is among the best we have ever had. Now you know our secret for success: to produce the finest health care professionals, we start with the best.



Patricia A. Sharpe

## HPRE Alumna Returns as Faculty Member

Patricia A. Sharpe received a master's degree in HPRE from USC in 1986 and, with the guidance and support of School faculty, decided to pursue a Ph.D. in Health Behavior and Health Education at the University of Michigan in Ann Arbor. Six years later, she happily returned to the USC School of Public Health as an assistant professor.

"It's very nice being back," says Sharpe, who returned to Columbia in August. "A move is always a big event, but I moved back to a place where I had friends and relatives and was already hooked into a professional network. That makes it even nicer."

Sharpe's specialty area is health gerontology. She is particularly interested in preserving functional independence in older adults, especially women. Toward this end, she designs educational programs to promote continuing physical activity through old age.

(continued on p.9)

# Ambitious Infant Mortality Intervention Program Aims Low

South Carolina has one of 15 sites implementing an infant mortality intervention program that is aiming low — toward low infant mortality rates, that is. Cheryl Addy, Ph.D., and Robert McKeown, Ph.D., in the Department of Epidemiology and Biostatistics have been involved in the development of the state's comprehensive plan.

The goal of the Pee Dee Healthy Start Consortium is to reduce infant mortality rates by 50 percent in a six-county area surrounding Florence, S.C. Infant mortality rates in these counties are high and range from 16 percent to 22 percent per 1,000 births. Lowering these rates by 50 percent is an ambitious goal, admits Addy.

"Healthy Start administrators will strive to reach this goal through several strategies," she says. "The main strategy will be to increase the number of health care providers in the project area and to get more of these providers to accept Medicaid patients. A second strategy will be to convince women that prenatal care and getting babies to well-care visits are important."

Another major component of the program is the Rural Outreach Advocacy and Direct Services (ROADS) team. The team in each county consists of six full-time staff members: a clinical social worker, a certified nurse practitioner, a health educator, an addictions specialist, a resource mother, and an early intervention specialist. "These teams will take a holistic approach and look at the client's entire situation," says Addy. Comprehensive and continuous care will be delivered within the client's community.

Another program strategy is the creation of Teen Life Centers that will offer various educational programs, provide some job training, and teach responsible sexual behavior. "Teens will be working at the center, too, which will provide peer counseling," Addy says. "There will be an added incentive: teens who finish high school and who do not become pregnant will be reimbursed for one semester's tuition at a state technical college or other postsecondary institution."

A 50 percent reduction in infant mortality is not the only yardstick that will be used to measure the success of Healthy Start. "Whether or not we meet the 50 percent reduction, we need to be able to say which programs are effective," says Addy. "If we reduce the number of teen pregnancies, then that might be attributable to the Teen Life Center. If we reduce neonatal fatalities, then that might point to the effectiveness of prenatal care and counseling."

Healthy Start is a federally-funded program that is entering its second year, although the first year was primarily a planning year. The United Way is acting as the managing agency. Other agencies, such as the South Carolina Department of Health and Environmental Control, Health and Human Services Finance Commission, the South Carolina Department of Education, and the South Carolina Commission on Alcohol and Drug Abuse are also involved. Addy and McKeown have been responsible for the project's evaluation plan.

# Keep us Informed

Alumni, please send us information about your job changes, research activities, honors received, and personal and professional activities. Send a recent photo whenever possible. Send your news to:

Lucy Hollingsworth  
School of Public Health, HealthBeat  
University of South Carolina  
Columbia, S.C. 29208



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## Alumni Information Update

(Please complete and return.)

The School of Public Health is interested in knowing your news.

Please take a moment to answer and comment on the following questions so we can improve our alumni network. Did this magazine arrive with your correct name and address? If not, please help us.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Year of Graduation: \_\_\_\_\_ Program and Major: \_\_\_\_\_

Have you changed employment since we last heard from you? \_\_\_\_\_

Job title and position: \_\_\_\_\_

Employer: \_\_\_\_\_

Have any significant personal events occurred in your life? \_\_\_\_\_



# Health Administration Adjunct Faculty Are Asset To Program

Adjunct faculty members are welcome additions to the School of Public Health. Their knowledge, talent, and skill are real assets for all of us, especially for the students who benefit from the adjunct's unique perspective on health care issues.

We acknowledge and thank all our dedicated adjuncts. Here is a look at three special HADM adjunct faculty.

This marks **Randy Lamkin's** fifth year as an adjunct. He holds a Ph.D. in Sociology from the University of Connecticut and is director of educational services at Richland Memorial Hospital. He is responsible for "non-clinical" education there, he says, such as professional development and wellness. At USC, he teaches the graduate-level Sociology of Health for Health Services Managers (HADM 722) course.

"In that course, we try to understand health and illness as a part of society. The way people deal with illness is very consistent with the way they deal with lots of things in their society. We contrast the old-fashioned way of looking at illness — just looking at the physiology of the illness, and the organisms and toxins that are responsible — to the psychological and cultural aspects of the illness, such as stress," he says.

Lamkin makes time in his schedule to teach because, quite simply, he loves it. "I enjoy the interaction with the students very much. And I like this particular subject a lot, and I know an interested instructor really helps the students."

**Jan Probst** has been an adjunct in the department since January

1991. She received a Ph.D. in Health Administration from USC and is now a self-employed policy consultant. Projects she has worked on include a study for the South Carolina Coalition for Public Health and an analysis of the Healthy Start infant mortality program. She also does a lot of grant writing.

This semester she is teaching HADM 700, a survey course on Approaches and Concepts for Health Administration. "The students who take this course are not in Health Administration, and this is probably the only management course they will take," she says. "What I try to do is cover one topic a week — one on policy, one on functions of management, one on strategy — to give them a flavor of these topics and to make it practically-oriented."

Probst says she teaches because it is good experience and she likes the student contact. "I also teach partly because it's fun," she says. "It is a little like stand-up comedy: when you get to the punch line, all the students look down and take notes."

**Howard West** is vice president and general counsel for Richland Memorial Hospital. He holds a law degree from the University of Virginia and a master's degree in Hospital Administration from the University of Alabama. He teaches a graduate course in health law at the School.

"I try to present the students, many of whom are going to be hospital administrators, with a framework in which they can recognize and analyze the potential legal implications of their decision-making or policy-making. Health

care is a heavily regulated industry and, unfortunately, it is also a heavily litigated industry. I don't treat the students like they are going to be lawyers, but they will be working in this environment and they should be aware of the implications of their decision-making."

Like the other adjuncts who fit teaching into a full schedule, West teaches because he enjoys it. "I enjoy meeting the students and listening to what they have to say. Since I spend my days doing what I'm teaching, I can bring theoretical experience and day-to-day experience to the classroom."

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## Patricia Sharpe from p. 7

"My research is applied in nature," she says. "I'm making linkages with organizations and groups in the community concerned with aging. I want to reach the poor elderly, the minority elderly, and the rural elderly. Most programs do not target them. I would also like to work with caregivers in finding information and emotional support for this group."

"The population is aging, and this area of research is going to expand in the future. Health promotion and disease prevention is usually not associated with older people. I would like to get health professionals to see prevention as part of not just the younger years, but also the later years," she says.

Sharpe is teaching the graduate-level Applied Measurement in Health Education Research. "Teaching is important," she stresses. "Interaction with students is one thing that keeps faculty fresh and creative. At some institutions it gets put at the bottom of the priority list. That isn't the case at this School of Public Health; it isn't now and it wasn't when I was a student here."

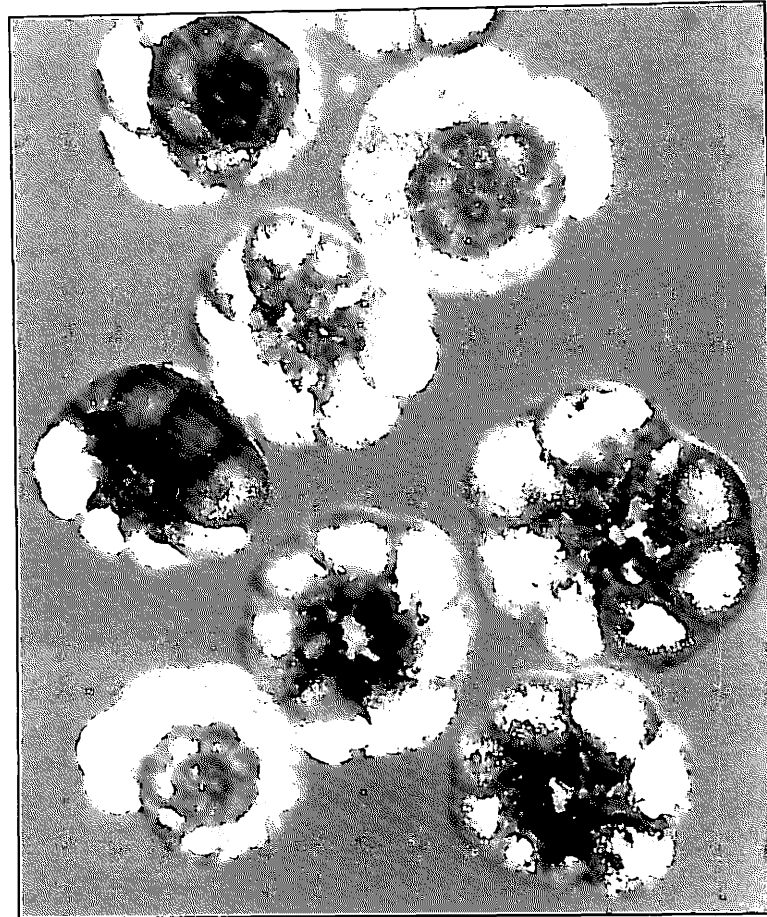
# Ocean Critters Provide Clues About Earth's History— and Future

They have roamed the oceans for millions of years. They have survived the Ice Age, the extinction of the dinosaur, and the polluting of the seas. Oh, the things they could tell us, if only the little critters could talk.

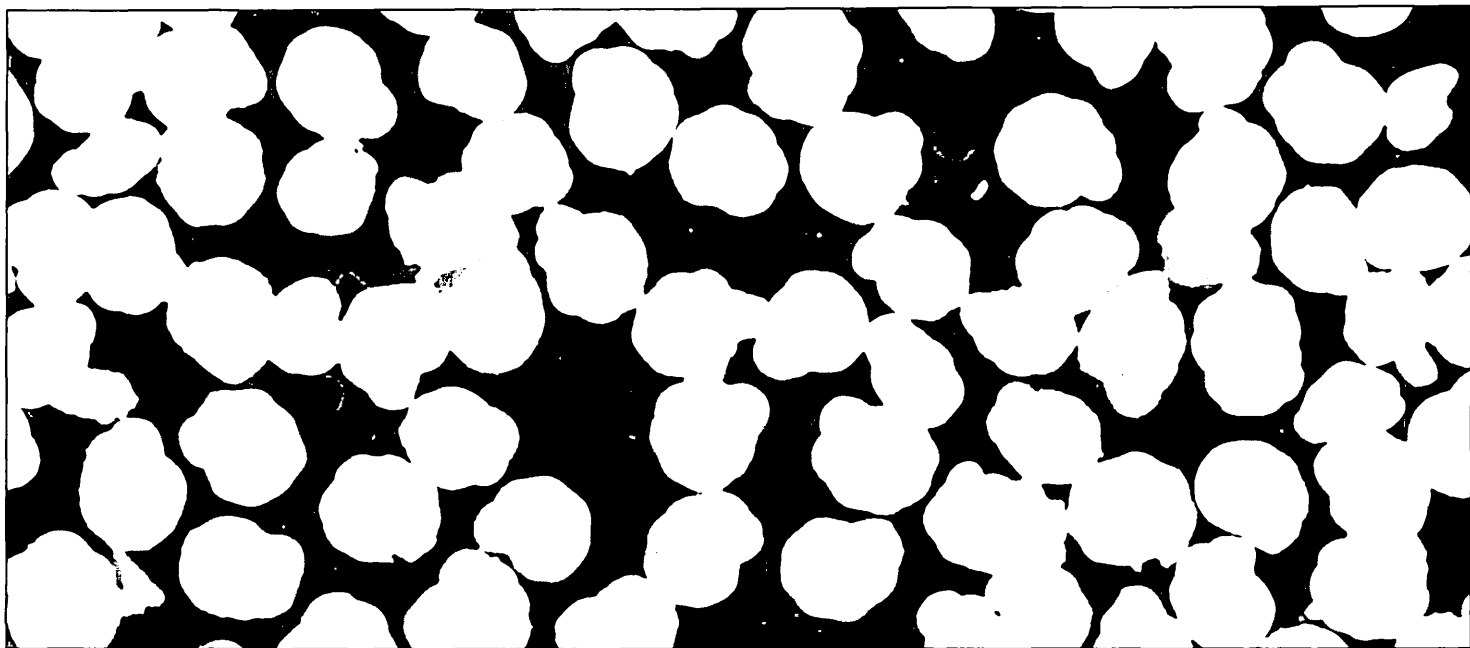
In a way, they can. And researchers at USC are listening.

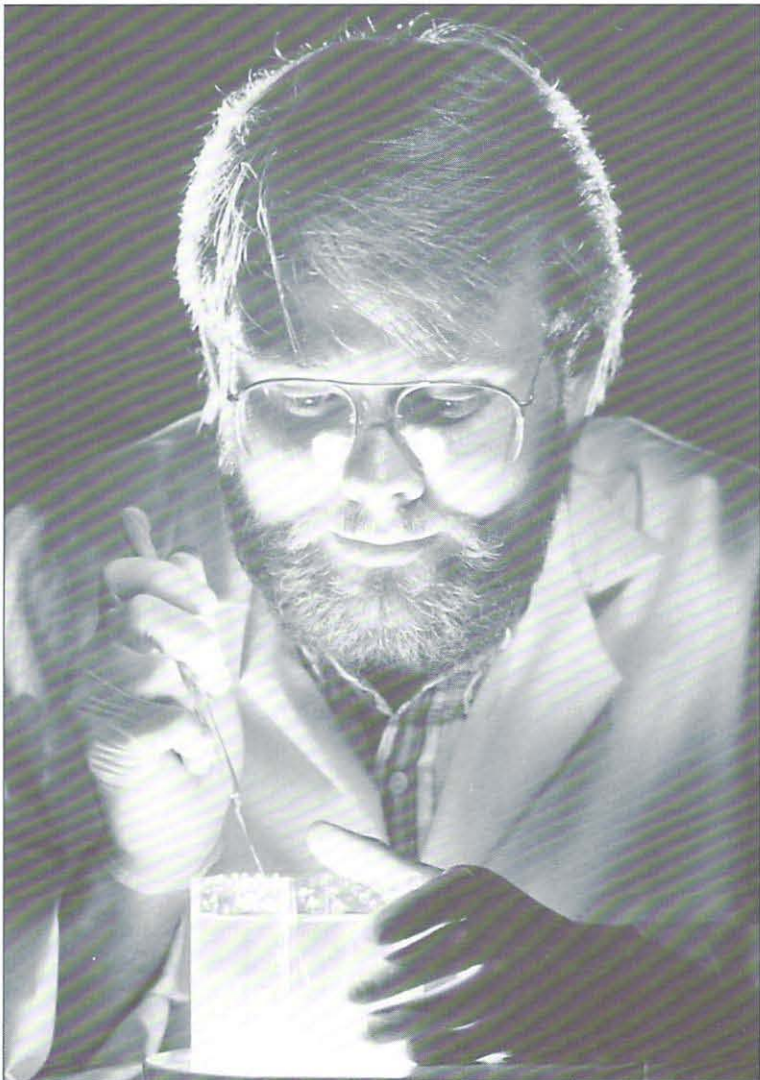
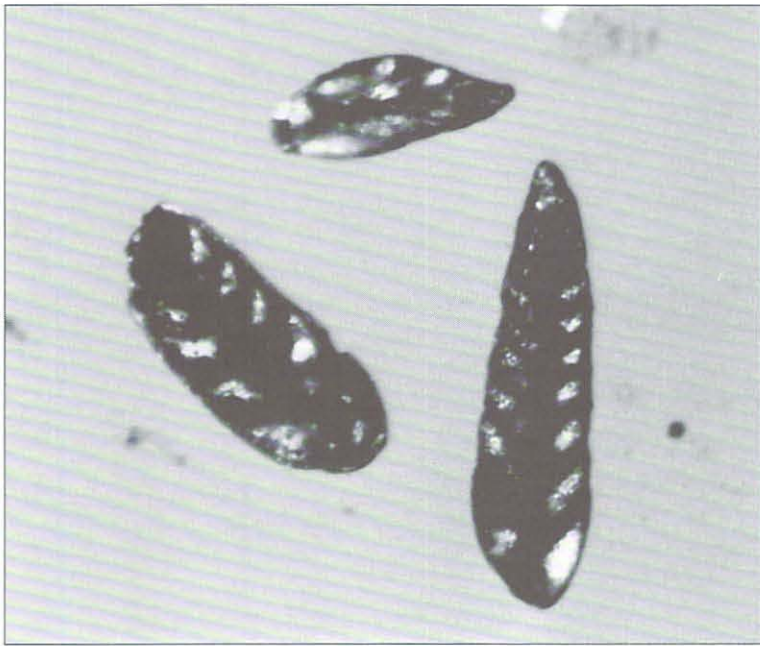
Benthic foraminifera are shell-bearing amoebas. Their shells are made of calcium carbonate and are often well-preserved as micro-fossils. The animal's shell captures carbon dioxide gas dissolved in seawater which, when measured, has been used to reconstruct the oceanic conditions that were present while the amoeba lived. Since about 1950, this method has been used to gauge ocean current patterns, temperatures, and polar ice volumes of the ancient past.

Tom Chandler, Ph.D., ENHS, Nancy Healy-Williams, Ph.D., of the USC Marine Science Program, and Bruce Corliss, Ph.D., of the Duke University Department of Geology, are involved in a cooperative project that is taking a closer look at foraminifera living in today's oceans. The work, which is being funded by the



*Clockwise, starting below: dead shells of ammonia beccarii or benthic foraminifera (shell-bearing amoebas) are used to reconstruct the oceanic conditions that were present while the amoeba lived; living ammonia beccarii in sea water photographed with a light microscope; bolivinid foraminifera collected from 800 meters in sea water; Tom Chandler; and ammonia beccarii photographed while in the process of burrowing in mud.*





National Science Foundation (NSF), is a paleoclimatological collaboration between biologists and geologists.

"Right now, we are going out on three deep water cruises to bring back live benthic foraminifera of importance to paleoceanography. We will then try to grow them in the lab. If we are successful, the NSF has agreed to fund us to do experimental work on the animals to test how reliable they are for measuring ocean temperatures and salinities," says Chandler.

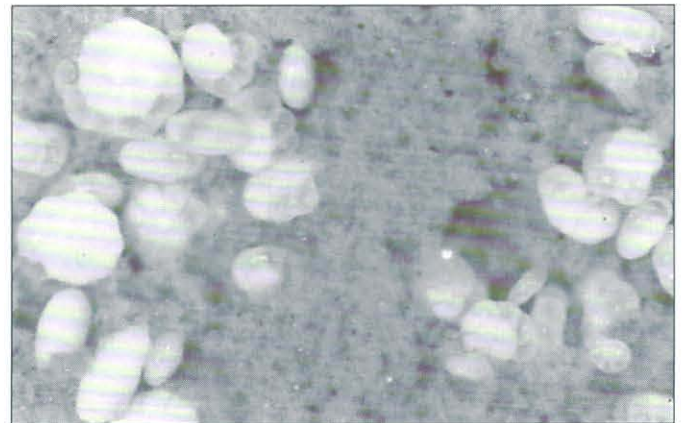
The two-year project is funded for \$100,000 the first year and \$80,000 the second year. This funding will allow Chandler to grow the foraminifera in the laboratory under stringently controlled conditions. "My lab is really the first to be able to grow environmental foraminifera for extended periods in muddy sediments in laboratory microcosms. I'm convinced this is why we got the funding to do this work," he says.

Chandler and several graduate students will be testing different culturing techniques to get the foraminifera to grow in the lab. "We will use different food sources, different sediment types (muds that are organically rich versus muds that aren't), and different sea waters (natural sea water versus artificial sea water)," he says.

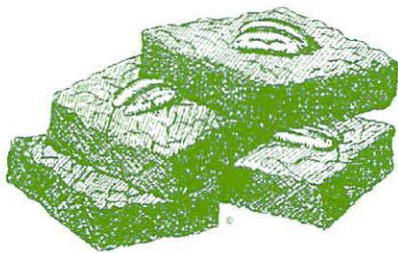
The experimental work that Chandler and his colleagues want to conduct includes using a Stable Isotope Mass Spectrometer to measure the ratio of Carbon 13 to Carbon 12 within the foram shell. "Stable isotopes are useful tools for determining paleotemperatures in the ocean, even tracing the movement of food through food webs," he says.

So why should we bother to "listen" to these creatures at all? Why should we be concerned with the ocean temperatures of thousands of years ago? Interestingly, data of this type is being used to chart global warming trends, a crucial issue for today's world. By looking back at the past, researchers believe they will be able to see ahead to the future.

"It is hard to get a picture of where we're going without regard to where we've been," says Chandler. Using the past as a guide, he and his colleagues are charting new waters.



# Bulimia Nervosa: A Common Eating Disorder in Women



by Roger Sargent, Ph.D.

*Roger Sargent is a professor in the School of Public Health's Department of Health Promotion and Education specializing in public health nutrition. He has a Ph.D. in biology and has for the past several years specialized in the relationship of nutrition and human health. This is the third article in a series on eating disorders.*

Bulimia Nervosa has received a great deal of attention during the past two decades. Several well-known public figures have revealed their struggle with the disorder and have created a greater public awareness of the problem.

Bulimia has commonly been described as the "binge-purge cycle." Binging involves the consumption of large quantities of high-calorie foods in a short amount of time. The amount of calories that can be consumed during a two- to four-hour bingeing period can range from 2,000 to 3,000 Kcal to 40,000 to 50,000 Kcal. This is frequently followed by a food voidance, or purging, practice such as vomiting,



diuretics, laxatives, and enemas. This binge-purge cycle may result in weekly or even daily binges, followed by purging. Clearly, this is a cycle that is both dangerous and destructive.

Recent studies indicate a dramatic increase in bulimia since the earliest epidemiologic data became available in the late 1960s. The best estimates suggest that about one percent of all adolescent and young females are bulimic. The true prevalence of the disorder is not known because of the secretive, shameful nature of the disorder and because of a lack of good, nationally collected data on the subject. Several studies do indicate that certain groups are more prone to bulimia. Up to 38 percent of sorority members, for example, have reported bulimic behaviors.

There are several diagnostic criteria to follow when diagnosing bulimia. These include recurrent episodes of binge eating; a feeling of lack of control over eating behavior during the binges; regularly engaging in either self-induced vomiting, use of laxatives or diuretics, strict dieting, fasting, or vigorous exercise; and persistent overconcern with body shape and weight.<sup>1</sup>

Typically, bulimics are college-educated, white females who are about 10 pounds overweight. They commonly exhibit a wide range of health risk behaviors, including smoking and alcohol and substance abuse. Many bulimics indulge in

secretive binge eating and never overeat in front of others. They frequently eat when they are depressed and they feel great shame and embarrassment, especially after a binge. Many bulimics are perfectionists and "people pleasers" whose only comfort is food. Diagnosed bulimics are more likely to engage in illegal activity, such as theft, to support their food bingeing demands.<sup>2</sup>

The age of the onset of bulimia is usually during late adolescence (ages 15 to 19) or early adulthood. While the original motivation is to lose weight, most bulimics are unsuccessful in this endeavor. This lack of success contributes to the institutionalization of the binge-purge cycle.

Long-term bulimia results in a number of health risks. These include menstrual irregularities, erosion of the teeth, swollen glands, acute gastric dilation or rupture, and aspiration pneumonia.

While psychotherapy is frequently used in the intervention of bulimia, a preferred method of intervention has not yet been clearly established. Self-help groups such as Overeaters Anonymous (OA) appear to offer help to those seeking support in their efforts to control their binge-purge behaviors.

Bulimia should be of particular importance to public health professionals because it occurs in young women who are of reproductive age. These young women are establishing health patterns for themselves — and possibly their children and families — that will greatly influence their health and their lives.

<sup>1</sup> American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, ed 3, revised. Washington, D.C., American Psychiatric Association, 1987, pp 65-69.

<sup>2</sup> Wardlaw, G.M. and Insel, R.M. *Perspectives in Nutrition*, St. Louis, Times Mirror/Mosby College Publishing, 1990, pp 283-299.



Dr. David Essig

## New EXSC Faculty Finds it All at USC

David Essig, Ph.D., (EXSC), was looking for a better quality of life, room for his five kids to grow and play, a department where he could pursue his muscle research, and a university that offers opportunity for interdisciplinary research. He found it all when he joined the USC faculty Aug. 15.

Essig spent three years as a post-doctoral fellow at the University of Chicago and the last five years as a faculty member at the University of Illinois in Chicago. During those years, traffic and urban sprawl had their effect on him and his family. To get away from it all, they vacationed in the Carolinas.

"We did a lot of vacationing in this area, in North Carolina in particular. In a dreaming way, we thought we might live in this region," he says. "We were looking for space for the kids and a slower pace to life. We've found it in Columbia.

"Also, this is a unique department. I am interested in basic muscle research and it is refreshing to work with colleagues who are scientists with similar interests. There is a real willingness to work

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# PATHS Leads Teens Down the Road to Self-respect

The residents of Hampton County are faced with a problem that plagues many American communities: their children are having children. During the past decade Hampton County has consistently reported a high pregnancy rate among 14 to 17-year-old females.

Recognizing the seriousness of this problem, county residents formed a group to study programs that have addressed teen pregnancy in South Carolina and other states. Using the Bamberg School/Community Sexual Risk Reduction Project as a model, Preparing Adolescents by Teaching Health Skills (PATHS) was formed. This human sexuality program takes a multi-faceted community approach to reduce unintended pregnancies, to educate, and to instill self-respect in the adolescents of Hampton County.

"The Bamberg project seemed to incorporate all the elements, and it was a strong education-based program, and not just anatomy and physiology. Our kids know anatomy; it's the self-esteem and conflicts in risk-taking behavior they need help with," says Helen Dills, Hampton County project director for PATHS, which started delivering services in August.

Although it is headquartered in Estill, PATHS offers health education and health counseling services to the entire county. Dills and her staff of six counselors working with children in their homes with their parents, as well as in schools and churches.

PATHS is also offering case management services including other community referrals. For example, if a teen has an alcohol

problem, they will be referred to an alcohol abuse program while PATHS continues to deal with any sexuality problems.

"In the past, most educational programs have been geared toward young ladies. We are also taking a strong educational approach with our young men. If we're ever going to have a grasp of the situation, the boys are going to have to be educated as to what it takes to raise a child, financially and emotionally," says Dills.

"We also deal with students who are no longer in school. In this state you do not have to be 16 to drop out of school: once you deliver a child you are considered emancipated. Without intervention, it's pretty likely that they will have a second or a third child.

"Also, statistics show that if a young woman has a child out of wedlock, her siblings are at greater risk for unwanted pregnancy. We immediately approach the younger siblings, male and female, to counsel them," says Dills.

One recent Friday was Teacher Planning Day, which left the county's children alone at home all day. PATHS offered a free, day-long Red Cross-certified baby-sitting course. "While the kids are here, they will have lunch and two snacks. They'll be learning responsibility, a way to earn extra money, and the great demands of child care from infancy to pre-adolescence. An Emergency Medical Services team demonstrated infant CPR and the Heimlich maneuver," says Dills.

PATHS is funded on a yearly basis through the South Carolina Health and Human Services Finance Commission Department of Alternative Delivery Systems. It is also a part

(continued on p. 14)

# Speech and Hearing Center Welcomes New SPAD Faculty: Nalty and Tillman

The USC Speech and Hearing Center welcomed two new faculty members this fall: Lily Nalty, M.A., CCC-SLP, and Patricia Tillman, M.A., CCC-A.

A native of Texas, Lily Nalty received B.S. and M.A. degrees from the University of Texas at Austin. She spent seven years working at the South Carolina Department of Mental Retardation (SCDMR). She served first as administrator for residences for clients with mental retardation, and then as director of speech language pathology services for clients with mental retardation. Finally, she was a SCDMR regional office consultant in the area of communication. Her duties included traveling a 10-county region in the Midlands and attending different adult and child day programs.

"I assisted with the communication needs of persons with mental retardation, infants through adults," she says. "My biggest emphasis was on feeding and augmentative communication and assistive technology. Electronic communication devices, or even the simplest adaptation of an existing device, many times can help set up an optimal learning, participatory, and communication environment for persons with disabilities."

Nalty was the speech-language pathologist at Richland Memorial Hospital for a year before coming to USC. She began a program there for speech language services. She also was an adjunct in the USC Speech Pathology and Audiology Department, where she taught a swallowing disorders course. It is an area in which she specializes.

As a clinical faculty member at the Speech and Hearing Center,

Nalty sees a lot of children and adults who, for one reason or another, aren't speaking well. "We need to find out why and develop a plan to improve it, or come up with assistance for their needs," she says. "If they can't speak, it becomes a challenge to find ways to enable them to communicate, ways to capitalize on their strengths and abilities."

Nalty also teaches and supervises students at the Center. "It is a real pleasure to interact with students. I like being able to combine teaching, supervision of clinical practicum, and being able to focus on my areas of interest."

Patty Tillman is a native of Iowa who spent the last five years working in Kansas City. She has a B.A. in communication disorders from the University of Northern Iowa, and an M.A. in audiology from the University of Iowa. Her professional background is quite varied and includes audiology experience in a medical setting, an industrial setting, private practice, and the public schools. She most recently worked in a program that provided audiological services and hearing aids to 24 school districts.

"I have always been interested in the field of hearing aids," Tillman reveals. "Dr. David Hawkins here at the Center is very well-known and well-respected in this field. In fact, he had been at the University of Iowa and had helped to establish their hearing aid dispensing program. When I began my graduate work there, the program was very strong. I believe he is responsible for its success," she says.

As clinical instructor of audiology at the Speech and Hearing Center, Tillman coordinates the

hearing aid dispensing program, coordinates the hearing conservation program, oversees equipment maintenance and calibration, and supervises graduate students in the audiology clinic.

"We want the students to be able to function as independent practitioners when they leave here," says Tillman. "We want to avoid the academic ivory tower effect of some facilities, where the students are told to follow certain procedures for the program, and then they go out in the real world and it is not done that way. We are constantly updating our program so that the students are not only the best academically, but also clinically. We want to ensure that their training is reflective of the real world. That is one of the things that drew me here."

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## **PATHS from p. 13**

of the USC Sexual Risk Reduction Project headed by Murray Vincent, Ed.D., (HPRE).

"We are very fortunate that our State Finance Commission is willing to invest Medicaid dollars in our community and school health education interventions," Vincent says. "Their support for primary prevention, rather than after-the-fact rehabilitation, shows their support for public health programs."

Dills believes PATHS will bring many changes to Hampton County. "I hope our children will have a healthy attitude toward their own sexuality, including respect for themselves and others, to reduce sexually transmitted diseases and early child bearing," says Dills. "It would allow them the opportunity to become productive, valuable citizens."

# SPHA News

Keeping up with the Student Public Health Association (SPHA) lately has not been easy; so much activity has been going on, it is impossible to be involved in all of it! As always, the association has been having regular meetings, currently twice a month on Tuesdays. Our goal for the coming year is to offer a diverse set of activities for our students; the major areas of interest are academic/professional issues, service projects, and social events. On behalf of the officers and members of the SPHA, I would like to invite everyone in the School of Public Health student body, staff, and faculty to become involved in this year's activities.

Kicking off the 1992 school year, SPHA hosted new student orientation. The orientation was a rousing success, boasting participation from both new and returning students and ending with a vibrant social at the School of Public Health building.

Our first membership meeting provided us with many ideas for activities for this school year. Some of the events include monthly discussions of public health issues, sporting events (like the ever-present volleyball games), and service projects like the November Harvest Hope Food Bank canned food drive.

SPHA has a communications board in the 2nd floor lounge. A calendar of events will be posted on that board, as well as requests for feedback on events, notices of opportunities for involvement (there are ALWAYS opportunities), and a list of people to contact with suggestions or for more information. Each department has a representative who serves as a liaison to SPHA for those students; he or she will be able to tell you what's going on.

We're looking forward to an active, exciting year. However, there is one factor more important than any other in guaranteeing success: your involvement. SPHA is an organization by and for the students; without participation, SPHA doesn't work. So GET INVOLVED and let's make 1992-1993 a great year to be at USC!

Bill Scott  
SPHA President



*After the opening ceremonies of the orientation sponsored by the Student Public Health Association, students were advised by faculty in their respective departments.*

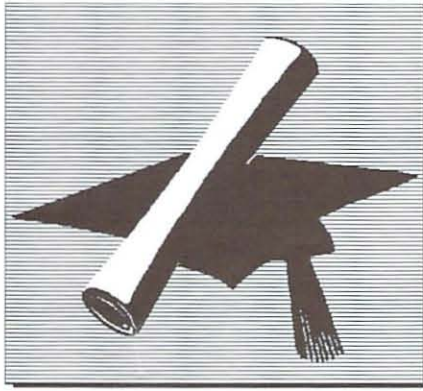
## Essig from p. 13

together here," he says.

Essig has been studying muscle research since 1979. "I am now looking at the adaptation of muscle to contractile activity. Muscle undergoes structural and molecular changes when subjected to repeated exercise. I am using the tools of molecular biology to study how enzymes in the muscle respond to regular training," he says. He is currently working on a grant in this area from the National Institutes of Health.

Essig will teach an undergraduate course in exercise physiology in the spring. Eventually, he will teach a graduate course in the study of muscle, called myology.

When he is not studying muscles, Essig is using them to complete woodworking projects and to swim in the family pool. His wife, Debbie, is an accomplished designer and seamstress.



## Alumni News

### 1976

**Lillian H. (McCreight) Mood** is the director of assessment and quality assurance at the state Department of Health and Environmental Control. She has been selected to participate in the Community Partnerships Leadership Development program, sponsored by the Kellogg Foundation, that will explore ties between health education, institutions, primary health care providers, and communities.

### 1977

**Andrew W. Fairey** is the director of Water Resources for the Charleston Commissioners of Public Works. He is also the 1992-93 president of the South Carolina Water and Pollution Control Association.

### 1980

**Charles E. Jackson, C.I.H.**, is manager of Health and Safety

Services at the Kraft Division of Westvaco in North Charleston.

### 1982

**Timothy M. Putnam, A.D.**, works for Health Touch in Columbia. He is a certified neuromuscular therapist, certified sports massage therapist, with a doctorate in acupressure.

### 1985

**Margurita Pate** does feasibility studies and physician recruitment for a hospital in Lancaster, S.C. She has two daughters, a five-year-old and a 13-month-old.

### 1986

**Fred Fridinger** is the community intervention specialist at the Division of Chronic Disease Control and Community Intervention, Centers for Disease Control in Atlanta, Ga.

### 1990

**Lynnda P. Kilpatrick** is manager of anesthesia services and associate director of the residency program in anesthesiology at Richland Memorial Hospital in Columbia.

**William P. "Pete" Ritchey** obtained his Certified Industrial Hygienist status and is the plant industrial hygienist at Hoechst Celanese,

Celriver Plant in Rock Hill, S.C. He has two sons: Philip and Paul Daniel.

**Welford C. Roberts, Major, U.S. Army**, is an Army environmental science officer assigned to the U.S. Environmental Protection Agency as a toxicologist.

### 1991

**Noel Burke** is a health education coordinator and **Jeff Contardi** is an industrial hygienist, both at Dow Chemical in Midland, Mich. Noel and Jeff will be married Jan. 2, 1993.

**Daniel M. Letton** is an E.M.S. instructor/public health consultant with the Red Cross Hospital in Kunming, Yunnan, Peoples Republic of China. He is team-teaching with a family practice physician to train paramedics. Their teaching is part of a 10-year comprehensive public health project.

### 1992

**M.N. Bustan** is chairman of the Department of Epidemiology at the School of Public Health, Hassanudin University, Indonesia.

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**HealthBeat magazine has a new style to better coordinate with our other promotional materials. If you have any suggestions for features you would like to see please send them along with your Alumni updates. Your suggestions and comments are appreciated.**

**Lucy Hollingsworth**  
Editor



# School News

## Presentations and Other Activities

**C. Marjorie Aelion** received \$23,000 from the National Geographic Society, Committee for Research and Exploration, Geography of Fresh Water Initiative for a grant, "Assessment of Natural Process Technologies to Treat Fresh Water Contamination."

...with Widdowson, Ray, and Reeves, received \$129,400 from the Hazardous Waste Management Research Fund for a grant, "*In Situ* Stripping and Bioremediation of Petroleum-derived Contamination in Soil and Groundwater."

...received \$114,000 from the Hazardous Waste Management Research Fund for a grant, "Field Demonstration of *in situ* Bioremediation of Subsurface Jet Fuel Contamination: Microbial Processes and Contaminant Fate, Hanahan, South Carolina."

...and D.C. Dobbins presented a paper, "*In Situ* Bioremediation: Problems and Progress," at the 92nd Annual Meeting of the American Society for Microbiology, New Orleans, May 1992.

**Suzan Boyd** spoke to the National Association of Community Health Centers Annual Meeting on "Strategic Planning: Outcomes and Implementation," in Atlanta, September 1992.

**G. Thomas Chandler** presented "Application of High-density Meiofauna Culture to Bioassay of Sediment-associated Pollutants," at the Eighth International Meiofauna Conference, August 1992.

...along with G.I. Scott and M.J. Fulton received a grant for \$65,000 of \$130,000 from NOAA/NMFS Coastal Ocean Toxics Program to study, "The Acute Toxicity and Bioaccumulation of Azinphosmethyl in Benthic Copepods." He also received with B.C. Coull a grant for \$126,000 of \$364,000 from EPA Office of Exploratory Research - Environmental Biology to study "High-density Culture of Meiobenthos for Contaminated-sediment Bioassay and Trophic-transfer of Sediment-bound Toxicants."

B.C. Coull and **G.T. Chandler** presented "A Review of Pollution and Meiofauna," at the Eighth International Meiofauna Conference, August 1992.

L. Dipinto, B.C. Coull, and **G.T. Chandler** presented "Lethal and Sublethal Effects of the Sediment-associated PCB Aroclor 1254 on a Meiobenthic Copepod," at the Eighth International Meiofauna Conference, August 1992.

D.C. Dobbins and **C.M. Aelion** were symposium co-chairs for "Recent Advances in *In Situ* Bioremediation" at the 92nd Annual Meeting of the American Society for Microbiology, New Orleans, May 1992.

A.S. Green, **G.T. Chandler**, and E.R. Blood presented "Toxicity and Bioavailability of Sediment-associated cadmium to an Infaunal Harpacticoid Copepod," at the Eighth International Meiofauna Conference, August 1992.

**Robert M. Goodman** received the Early Career Award for 1992 from the American Public Health Association, Public Health Education and Health Promotion Section. The recipient of this highly prestigious award is determined by a panel of leading scholars in the Health

Promotion and Education field. The award is presented for outstanding contribution to the practice of health education to a recipient who received a terminal degree less than 10 years ago.

...was reappointed for a two-year term to the Editorial Board of *Family and Community Health*.

...was the plenary session speaker at the Society for Public Health Education (SOPHE) mid-year conference. He presented "Coalitions in Public Health" at the meeting in Austin, Texas.

...presented "Qualitative Methods for Evaluating Health Promotion Programs," at a three-hour workshop for the Society for Public Health Education (SOPHE) mid-year conference in Austin, Texas.

...presented "Maintaining Community Coalitions," at the meeting of the Robert Wood Johnson Foundation's 'Join together' National Fellows in North Hampton, Mass.

**David Hawkins** presented "Hearing Aid Selection; Probe Microphone Measurements; Methods of Output Limitation; Future Trends in Hearing Aids," at an invited workshop at the Florida Speech and Hearing Association Convention, May 1992.

...presented "Current Approaches to Hearing Aid Selection," an invited talk at Siemens Learning Center in New Jersey, June 1992.

**Ruth Huntley** presented "Listener Skill in Voice Identification," at the American Academy of Forensic Sciences in New Orleans, 1992.

...and K. Helfer presented "Maintaining Communicative Efficiency Throughout the Golden Years," at

the South Carolina Speech and Hearing Association in Myrtle Beach, 1992.

S.C. Long, **C.M. Aelion**, and F.K. Pfaender presented "An Investigation of the Potential for *In Situ* Bioremediation of a Jet-fuel Contaminated Aquifer," at the Hazardous Waste Conference, University of Notre Dame Center for Bioengineering and Pollution Control in Notre Dame, Ind., August 1992.

S.C. Long and **C.M. Aelion** presented "Metabolism of Hydrocarbon contaminants by Subsurface Microbial Communities from a Jet-fuel Contaminated Aquifer," at the First International Conference on Ground Water Ecology, American Water Resources Association in Tampa, Fla., April 1992.

**Carol A. Macera** received \$40,000 in funding for "Cardiovascular Disease Risk Factors among Hispanic Women," from the Hispanic Health Research Consortium.

**T. Shipp**, Q.Yingyong, **R.Huntley**, and H. Hollien, "Acoustic and Temporal Correlates of Perceived Age," *Journal of Voice*.

**Francisco S. Sy** presented, "AIDS and Tuberculosis," at the Second International Taipei AIDS Conference in Taipei, Taiwan, Republic of China.

...presented "AIDS and Parasitic Diseases," at the Philippine Society of Parasitology seminar in Manila, Philippines.

...presented "Relapse, Drug Resistance & Compliance to Anti-Tuberculosis Therapy in Patients with Tuberculosis & AIDS: A Case-Control Study," at the VIII International Conference on AIDS in Amsterdam.

...presented "The Changing Epidemiology of HIV" at the VI International Conference on AIDS Education in Washington, D.C.

**Shirley J. Thompson** participated in the planning meeting for the 6th International Congress on Noise as a Public Health Problem sponsored by the International Commission on the Biological Effects of Noise, which took place in Nice, France, March 1992.

D.A. Vroblesky, J.F. Robertson, M. Fernandez, and **C.M. Aelion** presented "The Permeable-membrane Method of Passive Soil-gas Collection," at the Sixth National Outdoor Action Conference on Aquifer Restoration, Ground Water Monitoring and Geophysical Methods, National Water Works Association, Las Vegas, May 1992.

**Robert Valois** presented "Adolescent Violence," at the 65th annual meeting of the South Carolina Association for Health, Physical Education, Recreation and Dance, Myrtle Beach, November 1992.

...was awarded a one-year grant of \$2,540 for "A Multivariate Analysis of Adolescent Risk-Taking Behaviors Among South Carolina Public High School Students."

... Donna Richter, Robert McKeown, and Murray Vincent presented "Correlates of Condom Use and Number of Sexual Partners Among High School Adolescents," at the annual national meeting of the American School Health Association in Orlando, October 1992.

The Medicaid Family Planning Education program has expanded to Hampton County as of June 1992. This program is an outgrowth of the ongoing School/Community Sexual Risk Reduction project by **Murray Vincent** which began in Bamberg

County in 1982. The Kansas Health Foundation will fund four Kansas communities over the next three years to replicate the School/Community Sexual Risk Reduction Project in Bamberg County. Vincent will serve in an advisory role for the replication study.

## Publications

S.P. Bailey, **J.M. Davis**, and E.N. Ahlborn, "Effect of Increases Brain Serotonergic Activity on Endurance Performance in the Rat," *Acta Physiologica Scandinavica*.

P.M. Bradley, **C.M. Aelion**, and D. Vroblesky, "Influence of Environmental Factors on Denitrification in Sediment Contaminated with JP-4 Jet Fuel," *Ground Water*.

J.L. Burgess, **J.M. Davis**, S.P. Wilson, T.K. Borg, and J. Buggy, "Effects of Intracranial Self-stimulation on Selected Physiological Parameters in Rats," *American Journal of Physiology, Regulatory, Integrative and Comparative Physiology*.

B.C. Coull and **G.T. Chandler**, "Pollution and Meiofauna: Field, Laboratory and Mesocosm Studies," *Oceanography and Marine Biology Annual Reviews*.

**J.M. Davis**, S.P. Bailey, J.A. Woods, F.J. Galiano, M.T. Hamilton, and W.P. Bartoli, "Effects of Carbohydrate Feedings on Plasma Free-tryptophan and Branched-chain Amino Acids during Prolonged Cycling to Fatigue," *European Journal of Applied Physiology*.

D.C. Dobbins, **C.M. Aelion**, and F.K. Pfaender, "Subsurface Terrestrial Microbial Ecology and Biodegradation of Organic Chemicals: A Review," *CRC Critical Reviews in Environmental Control*.

**J.W. Drane**, "Imputing Nonresponses to Mailback Questionnaires," *American Journal of Epidemiology*.

...T. Postelnicu and V.G. Voda, "New Inferences of the Raleigh Distribution," *Bulletin Mathematique de la Societe de 'Mathematique Romaine.'*

...C.Y. Fu and T. Postelnicu, "Theorems on Binary Responses to Combinations of Stimuli," *Biometric Journal*.

H. Friedman, P. Haines, **G. Coston**, D. Lett, and M. Edgerton, "Augmentation of the Failed Pharyngeal Flap," *Plastic and Reconstructive Surgery*.

**Robert M. Goodman**, K.R. McLeroy, and A. Steckler, "The Adoption Process for Health Curriculum Innovations in Schools: A Case Study," *Health Education*.

**Robert M. Goodman**, M. Tenney, D.W. Smith, and A. Steckler, "The Adoption Process for Health Curriculum Innovations in Schools: A Case Study," *Health Education*.

R.C. Grimson, T.E. Aldrich, and **J.W. Drane**, "Clustering in Sparse Data and an Analysis of Rhabdomyosarcoma Incidence," *Statistics in Medicine*.

L.A. Klingshirn, **R.R. Pate**, S.P. Bourque, **J.M. Davis**, and **R.G. Sargent**, "Effect of Iron Supplementation on Endurance Capacity in Iron-depleted Female Runners," *Medicine and Science in Sports and Exercise*.

S.L. Laurent, **S.J. Thompson**, C. Addy, C.Z. Garrison, and E.E. Moore, "An Epidemiologic Study of Smoking and Primary Infertility in Women," *Fertility and Sterility*.

S.C. Long and **C.M. Aelion**, "Me-

tabolism of Hydrocarbon Contaminants by Subsurface Microbial Communities from a Jet-fuel Contaminated Aquifer," *Proceedings of the First International Conference on Ground-Water Ecology, American Water Resources Association*.

**C.A. Macera**, R.K.P. Sun, K.K. Yeager, D.A. Brandes, "Sensitivity and Specificity of Death Certificate Diagnoses for Dementing Illnesses," *Journal of American Geriatrics Society*.

H. Mueller, **D. Hawkins**, and J. Northern, *Probe Microphone Measurements: Hearing Aid Selection and Assessment*.

Ernest A. Peterson, Jerome E. Singer, and **Shirley J. Thompson**, "Physiological and Psychological Effects in Combatting Noise in the '90s: A National Strategy for the United States, *Symposium Final Report and Recommendations from the Professional Community to the 102nd Congress*.

**Ruth P. Saunders** and B. Geiger, "Integrating the Comprehensive Health Education Act," *The Palmetto Administrator*.

**Ruth P. Saunders** and S. Balinsky, "Assessing the Cognitive Stress of Graduate Students," *Measurement and Evaluation in Counseling and Development*.

A. Steckler, K.R. McLeroy, **R.M. Goodman**, L. McCormick, and S.T. Bird, "Toward Integrating Qualitative and Quantitative Methods: An Introduction," *Health Education Quarterly*.

**Leiyu Shi**, "Determinants of Fertility: Results from a 1989 Rural Household Survey," *The Social Science Journal*.

... "The Impact of Increasing Intensity of Health Promotion Interven-

tion on Risk Reduction," *Evaluation & the Health Professions*.

... "The relation between Primary Care and Life Changes," *Journal of Health Care for the Poor and Underserved*.

...**M.E. Samuels**, R. Konard, T. Ricketts, **C.H. Stoskopf**, and **D. Richter**, "The Determinants of Employing Midlevel Practitioners in Rural Community and Migrant Health Centers," *Journal of Rural Health*.

S.S. Strawbridge, B.C. Coull, and **G.T. Chandler**, "Population Growth of a Meiobenthic Copepod Under Exposure to the Sediment-associated Pyrethroid Insecticide Fenvalerate," *Archives of Environmental Contamination and Toxicology*.

**Shirley J. Thompson** and Sanford Fidell, "A Review of Epidemiologic Studies of the Effects of Hearing Protection Devices on Cardiovascular Responses to Noise Exposure," *Proceedings of the 1992 Hearing Conservation Conference*.

**Dwight W. Underhill**, "Basic Theory for the Diffusive Sampling of Radon," *Health Physics*.

D.R. Van Houten, **J.M. Davis**, **J.L. Durstine**, D.M. Meyers, and L.J. Goodyear, "Effect of Exercise on the Cellular Distribution of Hexokinase in Rat Skeletal Muscle," *International Journal of Sports Medicine*.

D.A. Vroblesky, J.F. Robertson, M. Fernandez, and **C.M. Aelion**, "The Permeable-membrane Method of Passive-gas Collection," *Proceedings of the Sixth National Outdoor Action Conference on Aquifer Restoration, Ground Water Monitoring, and Geophysical Methods, National Ground Water Association*.



*The Department of Epidemiology and Biostatistics hosted a reception for seniors on the USC campus in the Honors College, Sociology, Geography, and Biology.*

# HealthBeat

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University of South Carolina  
Columbia, S.C. 29208

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