

The Foothills VIEW

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News Briefs

Children and young people in the Boiling Springs area are invited to participate in the children's and youth choir program of Boiling Springs Baptist Church. College-Youth Choir New Member Orientation begins Sunday, August 14th at 6:30 p.m. in the church choir room. Children's Choir Enrollment Day will be held after school on Wednesday, September 7th. The church van will pick up children from school at 2:30 p.m. Children who do not have a choir at their church or who do not attend church are especially welcome. For further information, call the church office at 434-6244.

Orientation will be held on Wednesday, August 17 at 10:30 a.m. and at 1:30 p.m. at Crest Junior High School. All new and transfer students are encouraged to attend this orientation.

All schedules will be available for pick-up at this time.

Merrily They Rolled Poor John



John White returned from a short absence to find that his friends and fellow employees at College Gulf had draped his car in honor of his 19th birthday Monday. This type of obser-

vance, one reported, was chosen because John has been known to do some clandestine auto artwork, himself. His enjoyment of this "gift" was unfortunately not recorded.

Watering Garden A Shallow Relief

A vivid demonstration of the long-term effects of summer drought is seen in the death of some large trees along roadsides and in towns as a result of several years of water stress. And a striking statistic emphasizing the needs for water: a single corn plant requires about 50 gallons of water during its growth cycle.

An occasional shower or sud-

den brief downpour does very little to alleviate the water stress of plants during a summer drought. It is instructive to dig a little way down in a garden bed after such a shower to see how dry the earth still remains. What is really needed is a slow, soaking rain.

When watering, therefore, water should be applied slowly over a long period. Shallow surface watering has a perverse ef-

fect; it forces plants to produce more root growth near the surface, making them even more vulnerable to drought!

A long soak once a week is thus much more useful than a little water every day. Many Southern plants wilt during the heat of the day but recover in the cooler evenings. If they remain wilted in the cool of the evening and early mornings, it is

time to bring out the hose for a long soaking, and hope for rain.

If you have questions about the individual water requirements of the plants you grow (some need much more water than others), call the N.C. Botanical Garden at (919)967-2246 or visit the garden at the University of North Carolina at Chapel Hill.

Telling It To The Congressman



Taking advantage of a visit by Rep. James Broyhill to Boiling Springs last Monday, Max Wease talks over a matter with the congressman at a table at the Snack Shop. In Cleveland all day Monday, at various locations. Broyhill was here as part of his annual tour of the 10th District, which he represents.

Cleveland Tech Classes Begin

The Continuing Education Department of Cleveland Technical College has scheduled the following courses:

Chine Painting beginning and advanced begins August 15, from 7-9 p.m. at the Senior Center. The class will meet each Monday evening until October 24. The instructor will be Doris Jones. Total Hours 20. The registration fee is \$15.00

Cleveland Technical College will sponsor a Notary Public

course on Monday, August 29, at 6 p.m. on the campus in room 222. Lynn Wilson and Sylvia Dixon will instruct. This course is required for persons wishing to make application for a notary commission.

Registration will be held at the class meeting. Anyone wanting to enroll in the course may call 484-4015 for reservation. A fee of \$10 will be charged, although persons age 65 and older may enroll free.

Chapel Hill Professors Batty

Despite associating bats with madness and the supernatural, man has long wondered at the animals' ability to navigate the night sky, to home in on flying prey with uncanny accuracy and to avoid crashing into the walls of caves that stand in absolute darkness.

Understanding that ability has come slowly, however, because man cannot hear most of the sounds a bat makes. In 1794, experiments by two naturalists suggesting that bats get around with the help of their ears instead of their eyes were ridiculed and soon forgotten.

And it wasn't for another century and a half that man proved the creatures had evolved a remarkably sophisticated sonar system.

Now, for the first time, scientists at the University of North Carolina at Chapel Hill are learning what bats hear during the pursuit and capture of insects.

The researchers have developed a computer-linked radio transmitter weighing less than a gram that Jamaican mustache bats wear like a hat while hunting. Connected to the animal's inner ear by an electrode, the device enables the scientists to "see" the high frequency sounds the bat emits and to record how the bat responds to echoes returning from fluttering insects and other objects.

Dr. O. Williams Henson, professor of anatomy in the UNC-CH School of Medicine, directs the research. Currently, he is in the mountains of central

Jamaica leading a team that includes this wife, Dr. Miriam Henson, a research associate professor of otolaryngology; wildlife photographer and physics teacher Russell Hansen; Blake Wilson, a senior research engineer at North Carolina's Research Triangle Institute; and UNC-CH graduate students James Kobler and Allen Bishop.

In a recent interview, Henson said the transmitter, coupled with a new photographic recording system, should teach them a lot about how the anatomy and physiology of the bat's ear affects its behavior.

"The ear of the bat is basically similar to the ears of other mammals, but other mammals aren't continuously making and responding to sounds," he said. "That's what makes the bat one of the best models for studying how the brain processes auditory information."

Henson said he and his colleagues are particularly interested in how bats alter the frequency of sounds they produce while careening at high speed through dense jungle vegetation. They also want to know how the only mammals that can fly perceive jamming signals that insects make during their frantic efforts to escape.

A key element in the research, he said, is understanding the way bats compensate for the Doppler effect, a natural phenomenon that has been incorporated into some radar systems.

The Doppler effect, he explained, is the change in the

For 80 Grads "It's Your Day"

"You worked hard for this day, but not really for this day," William Bondurant told Gardner-Webb College's 81 summer graduates. "You worked hard to develop the person you want to be from this day on."

Bondurant, who is the executive director of the Mary Reynolds Babcock Foundation in Winston-Salem, N.C., was guest speaker at Gardner-Webb's summer commencement exercises held Saturday, August 6.

During the ceremony, held at the Boiling Springs Baptist Church, 69 bachelor of science, 9 bachelor of arts, one associate of arts and two master of arts degrees were conferred. The honorary doctor of divinity degree was also conferred.

During his commencement address, Bondurant stressed to the graduates that a college education alone does not make a person successful. It is what the student does with that education after graduation that is important.

"If your college experience has helped you raise your own expectations of yourself as an active enthusiastic participant in the larger world outside, it and you have succeeded in the task which we celebrate today," said Bondurant.

Before Bondurant addressed the graduates, the college conferred the honorary doctor of divinity degree upon Alex Booth Jr., director of Fruitland Baptist Bible Institute in Hendersonville, N.C.

Booth who began his career at Fruitland in 1964 earned a bachelor's degree from King College in Bristol, Tenn., and a

master's of divinity degree from Southeastern Baptist Theological Seminary. He has also done advanced study at Yale Divinity School, North Carolina State University and Southeastern at Yale Divinity School, North Carolina State University and Southeastern Seminary.

Before joining the staff at Fruitland, Booth served as minister in churches in Tennessee, North Carolina and Maryland.

He has served on the board of trustees of Southeastern Baptist Theological Seminary, the first alumnus of the seminary to fill a trustee role and has served as secretary of the Southern Baptist Adult Education Association.

Gardner-Webb College conferred 80 associates, bachelor and master's degree during the 1983 summer commencement ceremony.

Receiving degrees during the commencement exercises were the following:

Janie Marie Camp, Management, Shelby, N.C.; Sherry Annette Canipe, Early Childhood Education, Shelby, N.C.; Gladys Marie Hunt Davenport, Social Science, Shelby, N.C.; Melissa Lynne Frazier, Management, Shelby, N.C.; Pamela Kay Harris, Intermediate Education, Shelby, N.C.; Glenda Kay Laney Harvell, Summa Cum Laude, Intermediate Education, Shelby, N.C.; Lisa Kay Ledford, Early Childhood Education, Cum Laude, Shelby, N.C.; Phillip Ronald Rice, Management Information Systems, Boiling Springs, N.C.

wavelength of energy—such as sound or light—that results from the source of the energy and its receiver getting closer together or farther apart from each other.

"A common example is the increasing pitch of a train whistle as the train approaches someone standing near the tracks and the sudden drop in pitch as the train passes by," he said.

Whether the bats compensate for echoes returning from stationary objects like trees or from insects or from both is a question Henson's team hopes to answer.

The UNC-CH scientist has demonstrated that bats adjust the sounds they emit so that the echoes from trees will return at about 61 kilohertz, a narrow frequency band to which the mustache bat's ear is particularly sensitive. He said he thinks echoes from insects pass in and out of that range.

"One might compare this to running at night through a forest where there are little lights attached to each tree," Henson said.

"If one of those lights suddenly started blinking, it would be very easy to find because all of the other lights would be shining steadily. We think bats use sound in a similar way to locate insects."

Another question is whether bats can identify different kinds of insects by their different wing beat frequencies.

A third goal is to evaluate and perfect the radioelectrometry system they devised which has never been used outside the laboratory

before.

"Although I developed the transmitter in 1964, the problem has been incorporating the computer and photography into the system to show exactly where the bat is and what he's doing at any given instant and where his insect prey is," Henson said. "This gets very complicated."

Two key advantages the new system has over earlier equipment are that remote microphones that pick up extraneous sounds are no longer needed and the electrode monitors exactly what happens in the bat's inner ear without disturbing the bat and without interference from the bat's heartbeat.

Although the UNC-CH team is confining itself to basic research, Henson said the new knowledge they generate on animal sonar may benefit other scientists who are trying to develop improved navigational aids for the blind.

One such device, based on bat sonar, already had been used successfully in a headset that helps blind children walk and run without bumping into things.

The bad reputation bats have in Western societies is mostly undeserved, Henson said, and he noted that they have long been a symbol of good luck in parts of the Orient.

Numbering in the millions in some caves, some bat species consume up to half their own weight in insects each day, he said. In addition, their droppings make excellent fertilizer, and some plants rely almost exclusively on bats for pollination.