



the Biologists of BUNCOMBE CREEK

Five shadowy figures are silhouetted against the sky in the predawn light over Lake Texoma. Slowly, they drag a seine toward shore. In the shallow water, the net shivers and shakes with their catch.

The flickering lights of bass boats dot the great sheen of lake behind them. Diehard fishermen—motivated, no doubt, by images of succulent stripers sizzling in a frying pan.

Bill Beckenhauer and his classmates are more interested in studying their catch than eating it. On just this one haul, they count eight species of fish, including a four-foot-long gar writhing among hundreds of tiny *Menidia* (or silversides).

Several miles away, another class is in session, this one crouched in an isolated wood north of the lake. Binoculars in hand, Terri Brandeberry and seven other students try to catch sight of the red-eyed vireo they have been hearing.

Most of the year, Terri and Bill are high-school teachers. But for two months this summer, they've become students again, joining teachers, college students, high-school students and others at the University of Oklahoma's Biological Station.

The Biological Station lies on the north shore of the lake, just east of Willis Bridge and Highway 99. The main building on the 9-acre campus was originally intended as a resort hotel. But the builder went bankrupt, and the building and land were subsequently donated as a biological station. In addition to the erstwhile hotel, which houses a dormitory, dining hall and rec room, there are three apartment buildings, two research buildings, an office, a library, a stockroom and a boathouse. There is also a large classroom building.

But the *real* classroom is the out-of-doors—the lake, and the streams, meadows, woods and sand dunes surrounding it. These are the settings for courses in reservoir fisheries, stream ecology, ornithology, field botany, limnology, herpetology, field ecology. . . . If it swims, slithers, creeps, crawls, flies, glides or grows in Oklahoma, chances are you can study it at the Biological Station.

By 6 in the evening, Terri is through with class. But there's still more work ahead before she can call it a day. Kissing her two young daughters good-bye, she hops on her bike and pedals through campus. Down the road, she passes a pick-up truck piled high with plant

By Linda D. F. Shalaway
Photographs by Victor Rivas

What was planned as a Texoma resort has matured into a lakeside summer school in subjects from field botany to limnology.



A seinedful of Lake Texoma gives students a cross-section of the creatures that live in its waters. Catches include tiny Menidia (silversides) and even a four-foot gar. Left to right: Melinda Russell, teaching assistant Scott Cone, Dr. Clark Hubbs, Bill Beckenhauer, Arlene Stapleton and Jim Reeves.

presses. She looks closer and spots several Field Botany students way off in a patch of Indian paintbrush. With hand lenses, they are examining the brilliant red foliage. The splotches of calamine lotion on their legs reveal the main hazard of their work.

Terri's destination is a small pond several miles away. That's where she is doing her own research on male dragonflies and the territories they establish.

"I got the idea in Field Ecology class, when we watched mating behavior in dragonflies," Terri explains. She is studying how the dragonflies respond to changes in the pond. For example, she has noticed that by throwing a log in the water, she can attract more dragonflies to the pond.

Pedaling back to her apartment again, Terri stops at the lizard pens to chat with another classmate, who is studying lizard behavior. The large, square "pens" of galvanized sheet metal are a popular attraction on campus. The resident reptiles and amphibians are marked with bright

patches of paint so that students can distinguish the individual animals they are studying.

"This is all so new and fascinating to me," says Terri, whose educational background is history. She is taking the summer classes toward science certification and a degree in science.

Bill, on the other hand, is a biology teacher. This summer at the Biological Station—his second—is part of work towards a Master's degree.

"The knowledge and experience I'm gaining here will also improve my teaching," he says. "I'd come back every summer, if I could," he adds wistfully.

Bill and Terri, like most of the students, are taking two courses each. The courses are completed for college credit through the University of Oklahoma. Each class meets for two full days every week. "Spare time" is spent studying, doing library research or working on individual research projects for each class.

Terri's project for Ornithology class is recording the frequency of different bird

songs in different habitats throughout the day. For his Reservoir Fisheries class, Bill is looking at the distribution of black-tailed shiners in a shallow cove. His Field Ecology project is on plant competition for resources such as water and space.

This opportunity for research experience is what draws many of the students.

"The student comes up with an idea, designs an experiment, then gets lots of help and encouragement along the way," Bill explains. The projects are serious scientific studies. Bill is hoping to publish the results of a fish project he did last summer. Students also learn about research through weekly seminars given by faculty members and visiting researchers.

It's an intense eight weeks.

"Students live and breath biology down here," says Dr. Loren G. Hill, station director. "You can go to college for four years and still not know what you want to do. But down here, you find out one way or another if biology is for you. . . . We've trained literally thousands of stu-

dents who have gone on to successful careers in biology."

Since 1953, many different types of students—ranging from 50 to 100 per session—have spent the summer at the Biological Station. And most would agree that the special advantages of this type of experience are well worth the hard work. For example, they get the chance to be outside, learning about living things in their natural habitats.

"Things happen in the field that can't be duplicated in a classroom or lab," Bill Beckenhauer says. "Like the time our Field Ecology class watched a black rat snake eating baby redwing blackbirds right out of the nest."

Admittedly, it's not always a pretty picture. But it's life.

Bill also recalls the time his Reservoir Fisheries class seined a mud hole to see what could live in such an extreme environment.

"I was in mud up to my waist, almost, but surprisingly, we found several species of small fish."

For Terri, learning to identify more than 90 species of birds and many bird songs is one of her most exciting accomplishments this summer. And it's a task that she admits would be much more difficult without 6 a.m. field trips and constant exposure to birds in the wild.

Another distinct advantage of a biological station is the close contact between students and faculty. Everyone lives on campus. Students interact with instructors not only during class, but in the dining hall, on the volleyball court or swimming beach, during the weekend square dances or in games and activities during the big July 4th celebration.

"I've made some pretty good contacts down here," Bill says. "If I ever need help or information, I feel I could just call one of my instructors."

Faculty members, like the students, come from all over the state and country, and they must meet three criteria:

"They must be excellent teachers, have viable research programs and, most importantly, interact well with *all* types of students," Hill stresses. He also emphasizes the low teacher-to-student ratio.



Field ecology classes explore the land around the water. Dr. Howard McCarley instructs (left to right) Becky Rabinovitch, Bruce Stewart, Kevin Dixon, Bill Beckenhauer and Melanie Lohman.

The eight-week summer session is just one component of the Biological Station. The station also functions as a year-round research center and conference center. Federal funding supports three resident researchers. Their studies concentrate on reservoir ecology, taking advantage of the station's lake location, Hill explains. He adds that newly acquired research funds will be used to double the research facilities and add another permanent researcher.

Other research is done by biologists from across the U.S. who work at the Biological Station for short periods of time. Last summer, for example, the station hosted a North Carolina biologist studying the development of song in brown-headed cowbirds, a New York entomologist who studies ecology and reproduction of wasps that live on sand dunes and a California ichthyologist who studies stream fishes. Educational conferences are held there as well; all of the

station's facilities are available to groups meeting there.

For most people, Texoma is just a lot of water in a convenient package—a good place to land some striper, exercise a sailboat, lie in the sun like vacationing lizards. The people at the field station seem almost a separate species—learning about the lake and its shoreline, not skimming over its surface. You might almost call them “fishers of fact.”

“It’s a real challenge,” Terri Bran-deberry says. “If you want a laid-back summer, this is not the place to come. But if you are willing to work, you can really accomplish something.”

Linda Shalaway lives in Stilwell. Victor Rivas, an OU graduate, is a free-lance photographer based in Norman.



The University of Oklahoma Biological Station is on the Buncombe Creek arm of Lake Texoma, about 17 miles south of Madill. Its 1985 summer session starts the first week in June, and registration is June 1.

All courses run eight weeks and are open to anyone—pre-college, undergraduates, graduates and teachers. Tuition is the same as for the Norman campus: \$22.60 per semester hour for lower-division undergraduate classes, \$25.90 for upper-division undergraduate classes and \$30.60 for graduate-level classes.

At the station, students live, work, eat and sleep biology. Room and board runs \$195 for eight weeks in the dorm; apartments are \$230 for the same period (meals included). Scholarships of \$400 are available.

To learn more about registration and scholarships, write the University of Oklahoma Biological Station, 730 Van Vleet Oval, Norman, OK 73019, or call (405) 325-5391.

The Bass Fisherman's Friend: Loren Hill

Loren G. Hill. You may not recognize the name. But chances are, you have used his inventions, seen him on television, read about him in fishing magazines or heard him speak at seminars and fishing institutes nationwide.

To the students and faculty of the University of Oklahoma Biological Station, Dr. Hill is their director and a prominent fish biologist. But to millions of anglers across the country, this soft-spoken, darkly tanned man is an avid and skilled fisherman who has invented new lures and methods to help them land bass.

Take, for example, the Snatrix. Ten years ago fishing for bass was drastically altered by Dr. Hill's invention of a plastic lure that looks for all the world like a small water snake.

“I first got the idea for the Snatrix when I caught a four-pound bass with a nine-inch water snake in its mouth,” Hill says. Later, one idle afternoon down by the lake as he watched his son swimming, Dr. Hill scooped up some clay and made a mold of the lure he envisioned. He promptly forgot about the mold, then rediscovered it two days later, baked hard by the sun. He used this mold to cast five plastic “snakes.” When he tested the lures and lost all five to fish, he knew he was on to a good thing.

The lure is now manufactured commercially by Bill Norman Lures, with annual sales of \$8 to \$9 million.

Another Hill invention is the pH method of fishing. In earlier research, Dr. Hill discovered that water pH (acidity or alkalinity) directed the movement of fish. Based on this finding and many years of studying bass, he developed a simple, portable pH meter that can be used by fishermen. The unit, mounted on a boat, is attached by a long cord to a probe that can be dropped into the water to measure pH. An angler who knows what pH bass prefer can predict when



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and where the fish will be.

The pH meter has been tested by the pros, who “can’t believe how accurate it is,” says Dr. Hill. He has been issued two U.S. patents, and more than 60,000 anglers are currently using his invention.

And there’s more to come, Hill promises. An ichthyologist by training, inventor by nature, he continues to put technical knowledge to practical use by developing new aids for fishermen.

Hill’s creative energies have also been applied to the administration of the Biological Station. Under his direction for the past 16 years, the station has become a major education and research center. He has expanded the summer session from the five courses originally taught to nine. And over the years he’s been successful at

angling for funding from the National Science Foundation.

The Biological Station’s research program under his direction operates with federal funding of close to \$1 million. Hill has hired three biologists—fishery ecologist, zooplankton ecologist and phytoplankton ecologist—to study reservoir environment. He hopes to add a fourth researcher soon.

In September 1984, Dr. Hill began his own \$300,000 study of the competitive interactions of black bass and striped bass in Lake Texoma and at Toledo Bend (on the Texas-Louisiana border). The study is funded by the Bass Research Foundation. This year, Dr. Hill is sharing his knowledge and experience with others as a staff member of the American Bass Fishing Institute, which holds seminars in cities all over the country.

Until the fall of 1984, Dr. Hill was also chairman of the University of Oklahoma’s Zoology Department. He resigned from that position to become director of the Biological Station and spend more time on the shores of Lake Texoma.

—Linda Shalaway