

School

Common Science

Joe Jeffers, Ph.D.

(EDITOR'S NOTE: "Common Science" is a science column written by Joe Jeffers, Ph.D. Jeffers received his Ph.D. in molecular biology and biochemistry from Purdue University. He teaches chemistry and biology at Ouachita Baptist University in Arkadelphia, Arkansas. "Common Science" is sponsored by The National Science Foundation and appears periodically in The Dallas Post.)

Termites can cause tremendous damage to wooden structures. Each year approximately \$500,000,000 is spent in the United States on the control of wood-eating termites. It seems odd, then, to say that termites cannot digest wood. Termites can eat wood, but they cannot digest it.

In order to digest, a food any creature needs enzymes that can break the food material into smaller parts. The major structural material in wood is cellulose. Consider cellulose as a very long chain made up of as many as 1500 individual links.

The links themselves are glucose molecules. Glucose is a high energy food that is needed in the diets of animals. As long as the glucose is tied up in the structure of the cellulose chain, it is not available as an energy food. In order to break cellulose down so individual glucose molecules are released, the proper enzyme must be available.

Termites do not have the enzymes that breaks cellulose down into glucose. They do have, however, microscopic creatures called protozoa that live in their intestines. The protozoa do have the enzyme necessary to digest cellulose. They digest enough for their own uses and have enough left over to supply the termite as well.

A termite cannot survive without the protozoa. It would die of a rather acute case of indigestion. A newly hatched termite instinctively licks the anus of another termite to obtain a supply of the protozoa.

Each time a termite molts it loses its gut linings and with them its protozoa. Again it must lick another termite to replenish its supply of protozoa. What does the protozoa get from all of this? It simply lies back and waits for the termite to deliver its dinner. In this relationship, a form of symbiosis, both the termite and the protozoa benefit.

Other examples of symbiosis are common in nature. Cows routinely eat grass which has a high cellulose

content. They cannot digest cellulose either, but types of bacteria and protozoa that live in their stomachs can digest it and produce enough excess glucose to supply the cows as well.

We humans also do not digest cellulose. We have neither the proper enzyme nor the microorganisms that can digest it for us. Cellulose passes through us undigested, providing roughage in our diets.

We get our major supply of glucose from starch, which is also a long chain composed of glucose units. The glucoses in starch are linked together in a different way than the glucoses in cellulose.

Fortunately we do have the enzyme that breaks starch into glucose units. Humans do have a symbiotic relationship with intestinal bacteria, however. These bacteria, called E. coli, digest some foods we cannot and as a result supply us with vitamin K and vitamin B12.

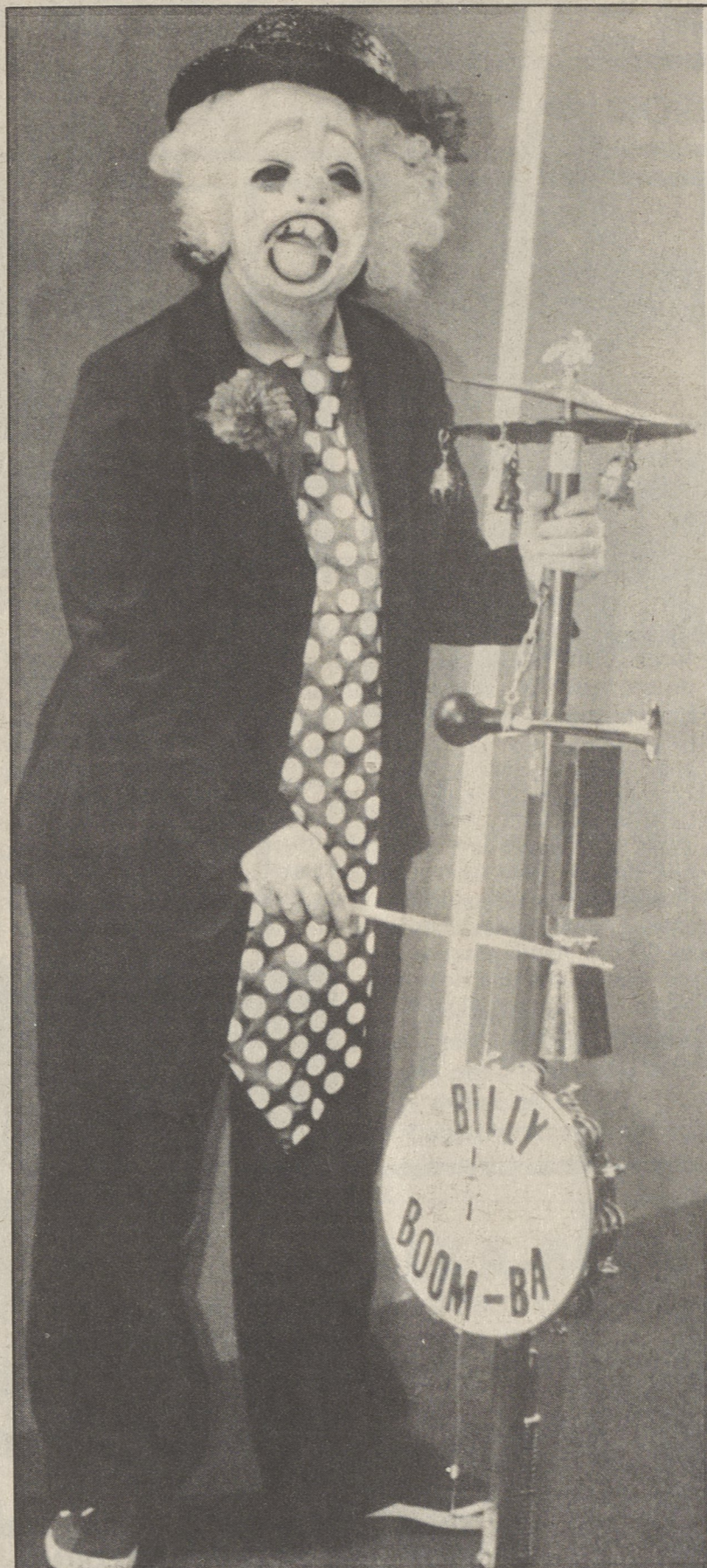
Symbiosis is not limited to animals. Plants in the legume family - beans, peas, clover, peanuts, etc. - have knots on their roots. Inside, these knots live bacteria that can convert nitrogen from the air into ammonia, thereby supplying the plant with its own in-house fertilizer system. The plant in return supplies other nutrients to these "nitrogen fixing" bacteria.

Symbiosis also occurs with creatures living separately from one another. Many fish are involved in "cleaning symbiosis."

A small fish sets up a station on a coral reef where other types of fish can come to have fungi and other parasites removed. The small fish eats away the parasites, even going into the mouth of the larger fish. Both types of fish benefit from the relationship. The small fish has its food brought to it; the large fish gets cleaned.

Insect-pollinated plants depend on visits by insects to carry pollen from one plant to another. Plants have developed colorful flowers or attractive odors to lure the insects to the plants. The insects typically get some food from the plants - either pollen or nectar - as they travel.

Nature is full of interesting relationships like these. Some of them, of course, benefit only one of the creatures involved and harm the other. But that is the subject of a future issue.



Sister Sharon, is that you?

Dallas Post/Ed Campbell

Would you believe - this is Sister Sharon Gallagher of College Misericordia? Sister Sharon has been entertaining crowds at the Back Mountain campus as Billy Boom-ba for several years now.

This boom-ba player is actually a nun

Dressed in clown attire including hat sporting a long-stemmed flower, Billy Boom-ba is a popular entertainer at College Misericordia, whether it be the Faculty Follies, Christmas Party, Mercy Center or Meadows Nursing Center.

Playing the unusual instrument, usually to polka music, the musician is always welcome at college affairs. Most recently, Billy Boom-ba played during halftime at the College Misericordia girls and boys basketball games with Keuka College.

Who is Billy Boom-ba? Probably few people could successfully identify her - she (yes, she) is Sister Sharon Gallagher, librarian at College Misericordia.

A "frustrated" musician, as Sr. Sharon describes herself, she is one of those talented persons who has a harmonica, guitar, accordion, and other such instruments laying around. Her most recent addition about eight years ago, the boom-ba.

Sr. Sharon first saw a boom-ba at the Wyoming Valley Mall, where a group of artists was advertising the Bavarian Festival. Fascinated by the instrument, she asked where she could get one but they couldn't tell her. Since the group was promoting the Bavarian Festival, Sr. Sharon thought the boom-ba came from Germany.

Later while in Florida, Sr. Sharon and some friends went to a Bavarian Restaurant where the entertainment was a family of trampoline artists. Sister went up to the father, who couldn't

speak English but through numerous motions she used to describe the boom-ba and inquiring how she could find one, the man finally understood her.

His answer came as a complete surprise when he said "Allentown."

On her return home, Sr. Sharon went all over Allentown looking for a boom-ba and finally found one in the Crest Music Store. In that same store, they told her the place to go for boom-ba music was the Leather Corner Post Hotel in Allentown.

The place is well known and persons from New York, Philadelphia and New Jersey come to the Leather Corner Post Hotel for the boom-ba playing.

There are numerous stories about how the boom-ba was called the "Devil's Standard." It was believed that its boom-ba chased out evil spirits. At one time, the boom-ba was also used with the army.

"It's a lot of fun," said Sr. Sharon. "I have entertained for the Senior Citizens and at the Meadows. I use polka records because of the beat. I don't play regularly but only for special occasions. I started with the Faculty Follies about five years ago."

Sr. Sharon said she was surprised when Public Relations Director Judy Daley asked her to play at the Friday night event, but that it was fun. It was also fun for the fans, who filled the gym. Sr. Sharon's boom-ba playing was a highlight of the evening.



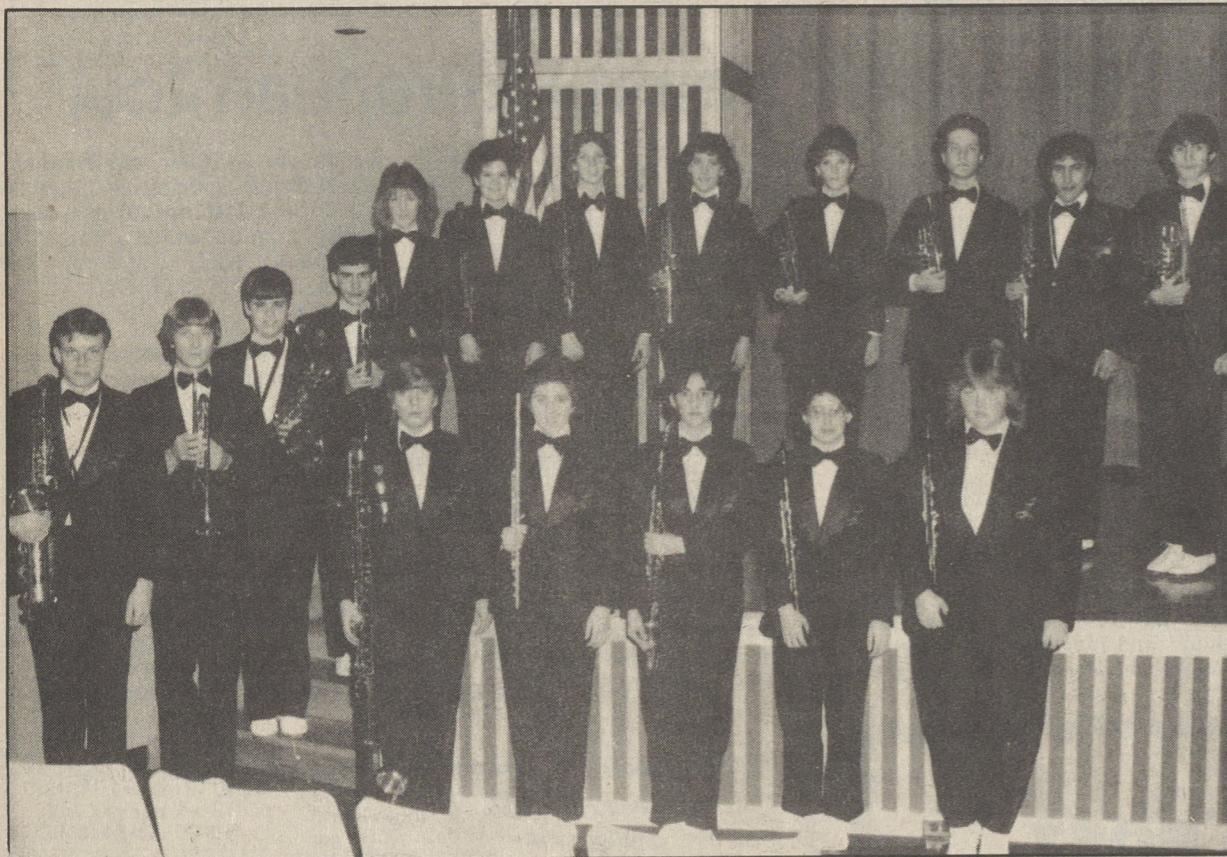
Candy winners

Shown here are the winners of the candy fund-raiser recently sponsored by the Dallas Intermediate School PTO. Seated is Kimberly Stoss, first place winner. From left, standing, Jim Reynolds, second place; and Ruth Ann Selenski, third place.



School reps

Representatives from five local schools and colleges were among the 25 people who attended a meeting of the Northeastern Pennsylvania Development Council held recently at King's College. The meeting featured a videotape presentation and discussion of the fundraising methods used during this year's successful King's College Alumni Phonathon. Pictured seated, from left, are Jean Pope, College Misericordia and Liz Ackourey, Wilkes College. Standing are John Schafer, Wyoming Seminary; Phyllis Belk, Penn State, Wilkes-Barre campus; and the Rev. Laurence M. Olszewski, C.S.C., director of development at King's College.



Attend festival

Twenty members from Lake-Lehman's "Pride of Pennsylvania" Band attended the "Penn. Music Educators Association District IX Band Festival" held at Tunkhannock Area High School Feb. 13, 14 and 15. The Festival ended with a public concert on Feb. 15. Qualifying to attend were, from left, first row, Paula Dwyer-Bass Clarinet; Tammy Hislop-Flute; Becky Yaple-Alto Clarinet; Michelle Miroslaw-Clarinet; and Diane Love-Clarinet. Second row, Daniel Smith-Tenor Saxophone; John Klemunes-Trumpet; Frank Riggins-Tenor Saxophone; Brent Bernstein-Trumpet; Christine Gablick-Alto Clarinet; Robbin Steadle-Clarinet; Kim Weidner-Clarinet; Eileen Raitter-Alto Saxophone; Connie Belkowski-French Horn; Jeff Kairo-French Horn; Michael Bigus-Alto Saxophone; and Barry Bernstein-French Horn. Others are: Kathy McAvoys-Flute; Duane Austin-Tuba; and Melissa Hontz-Clarinet.

LCCC offers Computer Camps for Kids

Computer Camps for Kids will be offered for the Spring semester by the Office of Continuing Education at Luzerne County Community College at its newly established computer laboratory at the Oblates of St. Joseph's in Yatesville.

A Computer Camp for children between the ages of 7 to 11 will be held on Saturdays, from 9 a.m. to noon, beginning February 15 through March 15; and a Computer Camp for 12 to 16 year olds will be offered on Saturdays, from 9 a.m. to noon beginning April 5 through May 3.

Dr. John Pisano, associate dean of continuing education at the community college, noted, "In today's society the demand for computer literacy has infiltrated into practi-

cally every occupation imaginable. In realizing this, LCCC is taking steps to induce this form of training in not only adults, but also children."

The Computer Camps will be instructed by Richard Tokar, part-time instructor at LCCC who teaches in the Business and Hotel and Restaurant Management areas. Through supervised instruction and the utilization of a variety of software applications, the students will explore proper usage and receive total hands-on experience. Students will also receive elementary instruction on computer programming.

The computer laboratory, located in the second floor of the Oblates Building, is equipped with 14 TRS-80

Model IV single disk drive microcomputers, one TRS-80 Model IV double disk drive microcomputer, a Network III system, and a DMP 500 high density dot matrix printer.

Credit courses for adults utilizing the computer laboratory are currently underway for the Spring semester at the Oblates. Courses offered include Basic Programming and Word Processing I.

Registration for the Computer Camps for Kids are currently being accepted. For further information, or to register, contact the Office of Continuing Education at Luzerne County Community College, 829-7477 or 829-7483. Students successfully completing the program will be awarded a certificate of completion accompanied by one Continuing Education Unit (CEU).

OT Program receives accreditation

The Occupational Therapy (OT) program at College Misericordia has received accreditation from The American Occupational Therapy Association, announced Dr. Joseph R. Fink, president of the college.

The program status of "accredited" follows a full five-year accreditation granted by the Committee on Allied Health Education and Accreditation of the American Medical Association.

"The accreditation culminates a four-year program development effort," said Academic Dean Dr. James J. Pallante. "The Committee noted both the academic component and the extent and quality of clinical experiences available to Misericordia students."

Students enrolled in the OT program must complete six months of full-time fieldwork at a clinic, hospital or rehabilitation center. Misericordia's program is affiliated with over 90 such facilities throughout the United States.

According to Dr. Pallante, most OT programs are based in large university centers affiliated with medical schools. Misericordia offers a unique approach which follows a humanistic framework that trains therapists for roles in both traditional medical settings and in schools, mental health centers and home-health agencies. The distinction of the program is its strong foundation in the liberal arts and sciences, he said.

Misericordia's occupational therapy program, which is one of only five in the state leading to a bachelor's degree, has an enrollment of 160 students.

Selection begins

The Guidance Department of Lake-Lehman Junior-Senior High School has begun course selections with students in Grades 8 through 11.

The Program of Studies Booklet has been distributed to all students. Discussions on requirements, student interests and plans are taking place during the Social Studies Class.

Parents are encouraged to review students' course selections and to call the Guidance Office if they have questions regarding their child's course selections for the 1986-87 School Year.