Parrots No Birdbrains, Says MIT Professor

by George Sommers, Somerville, Massachusetts

"Polly want a cracker?" may yield to "Polly want computer time?" if Massachusetts Institute of Technology Professor Irene Pepperberg has her way.

Dr. Pepperberg is already well-known in avian circles as the trainer of Alex the African grey parrot *Psittacus erithacus*. The celebrated Alex doesn't just "parrot" human English – he can recognize and name nearly 100 different objects, including color, texture and quantity. Unprompted, he will identify the color of a human visitor's clothes, ask for various treats or even to go to another room. He even improvises – referring to an apple as a "banerry," an apparent combination of banana and cherry.

"Up to this point, Alex has performed as well as the chimps or dolphins," says Dr. Pepperberg of the psittacine celebrity's communicative ability.

Next up, the professor even sees potential for Alex to read, and has been experimenting with refrigerator magnet letters.

Dr. Pepperberg's findings have been applied to the teaching of developmentally disabled children, with an astonishing degree of success.

Photo by Stewart Woodward, www.workplaceimages.com

Dr. Irene Pepperberg points out Cameroon, home to wild African Parrots, as a rapt Arthur looks on in her Massachusetts Institute of Technology Office.

Alex remains at the University of Arizona, where Dr. Pepperberg did her groundbreaking work on avian communication.

Currently, Irene Pepperberg is an associate professor at the MIT Media Lab. She returns to Arizona one week out of each month, as she continues in New England with her African grey research.

Would you believe – a Web Browser for birds? As parrot owners know, the birds are very social and crave attention. Left alone during the day, they often develop such bad habits as feather picking and excessive screaming. "We're developing computer-based gadgets to enhance the parrot/human interaction. We're hoping they will respond to video clips on a liquid crystal display and this will be a positive thing for them," explains Dr. Pepperberg. Some potential reward images may be the birds' owners or other parrots in the wild. Negative behavior may yield such images as a menacing osprey – or perhaps the fun new toy, the computer, will simply shut itself off.

Dr. Pepperberg has become greatly concerned with the status of parrots in the wild. "My students in Cameroon were threatened by poachers and this was in a reserve. The problem is that there's not enough money to police the reserve," she points out. Fully one quarter of parrot species are in trouble, with poaching and habitat loss as leading culprits.

"One of the reasons we do our work is to make the public more aware of the intelligence of these creatures. It's sad but true, the more intelligent the creature, the more likely it is that the general public will be interested in the general conservation of that species," she continues.

To this end, one of her MIT projects is developing a lightweight radio tracking device for wild parrots. "Radio collars don't work, they chew them off," the doctor explains.

Conventional wisdom holds that apes and dolphins have the most potential for advanced communication. "Nobody was looking at birds and it was clear from the anecdotal literature that something was going on there," reasoned Professor Pepperberg. Still, past tests on talking birds proved inconclusive at best. One researcher's birds mastered imitating the sound of a tape recorder going on and off but not much else! Dr. Pepperberg thought that maybe past results had "less to do with the intelligence of birds than the intelligence of the researchers doing

the tests."

Initially, she ran up against a wall of skepticism. "They asked me what I was smoking," she says of some of her colleagues. "Birds have brains the size of walnuts and their brains are organized so completely different from ours. The argument was they simply could not do this type of work."

Inspired by "Nova" programs on the subject (and perhaps her girlhood Parakeet, or *Melopsittacus undulatus*) she decided to set about to prove otherwise. While a young affiliate with the University of Arizona's program on neuroscience, Dr. Pepperberg thought, "Suddenly, mathematical modeling of the reaction pathways of molecules seemed a lot less exciting than trying to understand communication in animals." (That went right over this correspondent's head, too.)

"The Grey Parrot was the logical species. They live in social groups, in tropical forests where the foliage is dense and they might need complex vocal signals to stay in touch," the New York native continues.

Training for her birds (Alex is the most famous in a group) is patterned after German scientist Dietmar Todt's so-called Model/Rivalry Technique, in which two humans name and pass objects between themselves as the bird observes. Alex has learned the ropes so well that he sometimes substitutes for one of the humans – and the subject bird usually learns even more quickly!

For when the humans are away, the scientist rigged up a pulley system to reward the birds for positive behaviors. She laughingly compares it to Groucho Marx's "secret woid" duck on *You Bet Your Life.*

Alex's voice resembles that of Irene Pepperberg. Other birds, or colleagues as she refers to them, sound more like her male associates. Kyaara is clearly the Mel Blanc of the crowd, adept at imitating many voices!

Griffin the Grey took five years to master the word "paper," with initial efforts sounding more like "A-UH". "Think about saying 'paper' without lips!" explains Dr. Pepperberg.

At MIT, the professor is working with an African Grey Parrot named Arthur, or "Wart" from a noise he likes to make.

To potential parrot owners, Dr. Pepperberg advises, "On one level, they can be incredibly wonderful pets. At another level it's really upsetting that these very social birds are often left alone for long periods of time. That's why I'm trying to come up with these things at MIT."

"You want them well socialized," she adds, not smuggled and not force weaned. "That's a real problem – sort of like a puppy mill problem."

Dr. Irene Pepperberg received her bachelors degree from MIT and her graduate degrees from Harvard. She is an associate professor at the Department of Ecology & Evolutionary Biology and the Department of Psychology at the University of Arizona, and is an affiliate in their program on neuroscience.

As the 2000 winner of the prestigious 2000 Selby Fellowship from the Australian Academy of Sciences, she recently completed a lecture tour Down Under.

This correspondent exclusively interviewed Dr. Pepperberg as a guest of the New Hampshire Avicultural Society, for whom she did a presentation.

She's unsure if she will remain in New England or return to Arizona after this year, but she's hoping to have Alex with her wherever she ends up.

Dr. Irene Pepperberg has made enormous strides in proving that if man can fly, birds can talk (and comprehend).

For more information on Alex and Dr. Irene Pepperberg, including video clip, visit:

http://www.cages.org/research/pepperberg/index.html

Thanks to New Hampshire Avicultural Society for inviting George Sommers to cover and exclusively interview Dr. Irene Pepperberg at a Nashua, NH presentation. For more information on the New Hampshire Avicultural Society, e-mail

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