

Read the passage about Irene, a scientist who studied an African grey parrot named Alex. Then answer the questions that follow.

Alex the Parrot: A True Story

by Stephanie Spinner



PICK A PARROT, ANY PARROT

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- 1 Irene didn't know it then, but Alex was no ordinary parrot. He was going to make history.
- 2 Irene met Alex at a time when most people thought that animals were just barely intelligent. They could be trained to understand spoken commands, but none of them could respond with speech. The only exceptions, parrots and mynah birds, could speak words and even short sentences, but probably didn't understand what they were saying. They were only imitating, or "parroting," sounds they heard—or so most people thought.
- 3 Irene didn't agree. She had loved birds from the age of four, when she was given a parakeet for her birthday. Growing up, she had raised many pet parakeets; she had even taught some of them to talk. In her opinion, her birds were highly intelligent.
- 4 Yet studying parrots didn't occur to Irene until a few years before she bought Alex. She had been studying chemistry at Harvard and planned to teach it.
- 5 But in the winter of 1974, she happened to see a television series about a new science—the study of animal language. The shows fascinated her. One was about whales singing; another was about the sounds and gestures that chimpanzees make to each other. Most interesting of all to Irene was a show about birdsong.

- 6 The subject of animal communication drew Irene like a magnet. She began finding out everything she could about it. She read about dolphins who were learning to understand words and recognize symbols. She read about chimps and gorillas who were “speaking” with their trainers using sign language.
- 7 At the time, most scientists thought that the bigger the brain, the smarter the creature. So studies of animal communication centered on apes and dolphins, whose brain size is similar to ours.
- 8 African greys, with their walnut-size brains, were at the very bottom of the heap: “birdbrains.” Nobody was interested in working with them—yet.
- 9 There are thousands of bird species. We know now that African grey parrots are among the very smartest. They are also among the most vocal. They squawk, they sing, and they love to imitate noises they hear. They can sound like just about anything.
- 10 They can also speak as clearly as people—which made an African grey the perfect bird for Irene to study.
- 11 She knew from her many parakeet pets just how intelligent birds could be. As a scientist, she wanted to prove it.
- 12 With Alex, she was determined to try.

TESTING, TESTING

- 13 Alex and Irene got off to a bumpy start. Alex was frightened and unhappy in his new home in the biology lab. He wouldn’t eat or come out of his cage.
- 14 Slowly, patiently, Irene helped him to overcome his fear. Within a few days, he was walking in and out of his cage and perching comfortably on her arm.
- 15 On his fourth day at the lab, Irene gave Alex an index card. He promptly shredded it with his beak. She gave him another, and another. He shredded away enthusiastically.
- 16 Each time she gave him a card, she would say, “Paper.” She wanted him to understand that “paper” meant the stuff he was ripping apart.
- 17 But did he? It was too soon to tell.
- 18 Young parrots in the wild learned by imitating their parents. Parrots in captivity learned by imitation, too. But exactly what they learned, and how well they understood it, was still a question. By using a new teaching method with Alex (called the “model-rival” method), Irene hoped to find the answer.

- 19 She and a student assistant would sit in front of Alex and pretend to teach each other a word. For example, Irene would show the student a key, saying "key." The student would repeat the word "key," and Irene would hand the object over. The student would handle the key with great interest, and then show the key to Irene. When Irene responded by again calling it "key," she would get to hold it.
- 20 Then it was Alex's turn. If he said "key," he would be given the key as a reward. He liked this "game" and caught on very quickly.
- 21 Within a few weeks, Alex was saying "ee" for "key" and "pay-er" for "paper." Next he began labeling materials, such as "cork" and "wood," and colors—"green" and "blue."
- 22 Alex picked up words for his favorite foods all by himself: "nut," "banana," "corn," "grape," "cherry," and "pa," his special word for pasta. He even made up a word for apple—he called it "banerry," a combination of "banana" and "cherry."
- 23 Alex was a great student. And as he learned more words, he lost his shyness. In fact, he turned into a very bossy parrot. He let everybody know what he wanted, pretty much all the time.
- 24 "Want nut!" and "Want banana!" were two of his favorite commands. "Wanna go back" was another. It meant he was tired of working and ready for a break.
- 25 Alex made it very clear that he liked to be obeyed. If he asked for a grape and got a banana, somebody was going to end up with a banana facial.
- 26 It wasn't long before "no" became one of Alex's favorite words, too.
- 27 Alex got lots of attention, treats, and toys, every day. Yet he still got bored. And he had his own way of showing it.
- 28 He would ignore his trainers.
- 29 Or tease them by giving wrong answers.
- 30 Or throw things onto the floor.
- 31 Or chew up telephone books.
- 32 He spent most of his time with two teachers, going over the same questions again and again. He knew the answers, but he had to take the same test dozens of times.
- 33 "Alex, what color?"
- 34 "Green."

- 35 "What matter?"
- 36 "Wood."
- 37 "Alex, what shape?"
- 38 "Ball."
- 39 "What color?"
- 40 "Blue."
- 41 "What matter?"
- 42 "Wool."
- 43 Sometimes he had to take the same test fifty or sixty times.
- 44 Boring!
- 45 Irene knew Alex was bored, but her work with him required repetition. If her tests weren't absolutely thorough, they would be dismissed as "unscientific." Worse, her parrot would be called just another Clever Hans.
- 46 Clever Hans was a horse who lived in Germany more than 100 years ago. He seemed to be highly intelligent, and people flocked to see him perform.
- 47 Hans's owner, Wilhelm von Osten, would ask Hans math questions. If he asked Hans to add two and two, Hans would answer by tapping his hoof four times.
- 48 Six minus three? Three taps. Two plus three? Five taps. Hans always gave the right answer.
- 49 Von Osten believed that Hans could really add and subtract. But he was wrong. Von Osten was moving his head—very, very slightly—when Hans came to the right number. Without knowing it, he was sending cues to his horse.
- 50 Hans couldn't do math after all. But he did understand body language. Von Osten's signals were almost invisible, but Hans saw them.
- 51 Irene made sure that nobody sent cues to Alex. Many different people tested him. Complete strangers sometimes asked him questions. Even without Irene in the room, Alex got the answers right.