

One hot afternoon, a thirsty crow found a tall pitcher with water in it. But the bird could not reach the water at the bottom of the container. The crow thought and thought about this problem . . . then it had an idea. One by one, the crow gathered pebbles and dropped them into the pitcher. The water began to rise and rise, until finally it reached the rim. At last, the crow took a long drink of refreshing water, a job well done.

–Aesop’s “The Crow and the Pitcher”

Reasoning Like a Raven

ONE FAMILY OF BIRDS HAS AN UNUSUAL INTELLECT.

by Charles C. Hofer

When Aesop first told his famous fable some 2,500 years ago, the crow and its close cousin, the raven, were already well known around the world for their crafty smarts. In one ancient Greek myth, the god Apollo used a raven as a messenger. Native Americans of the Pacific Northwest depicted the crow as a wise trickster. And the Norse god Odin kept two ravens as sneaky spies.

Crows and ravens belong to a family of birds known as corvids, a group of birds that also includes jays, magpies, jackdaws, and rooks. Corvids have gained respect because of their unique intelligence, a type of creative smarts like no other in the animal kingdom. For starters, corvids are known to solve complex problems, use tools to obtain food, play in a social environment, cache food (or hide it for later), and recognize the faces of human friends and enemies.

» THE MOTHER OF INVENTION

Ravens, crows, and other corvids *need* to be intelligent in order to survive. Corvids mostly eat foods other animals leave behind. As scavengers, they help clean ecosystems by consuming what others don't want.

In order to be a successful scavenger, one also needs a special

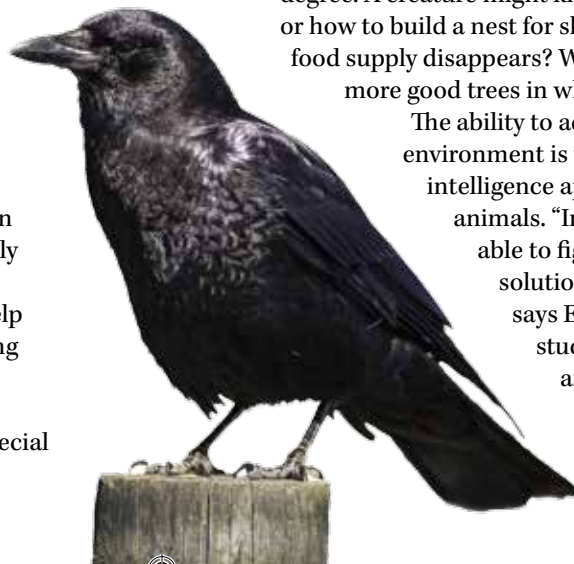
kind of brains. A scavenger must first identify a food source and then problem-solve to figure out how to obtain that food—without getting into trouble. A raven can't just fly into a pack of wolves that's devouring an elk. The raven has to think, be patient, and wait for an opportunity to sneak in and steal food from the hungry wolves.

The corvids' unique intelligence has allowed these birds to flourish in our modern world as well. Crows, ravens, and jays have found great success living among humans in cities and towns across the globe. Stealing from picnics, opening trash bins for food, or picking at roadkill are just a few examples of their successful adaptation to modern life.

» ANIMAL INTELLIGENCE

In general, intelligence can be thought of as the *application* of knowledge. In other words, it means taking what you've learned and putting it to use. In this sense, all animals are intelligent to some degree. A creature might know how to find food or how to build a nest for shelter. But what if that food supply disappears? What if there are no more good trees in which to nest?

The ability to adapt to a changing environment is what sets corvid intelligence apart from other animals. "Intelligent animals are able to figure out and learn solutions to novel problems," says Emily Faun Cory, who studies raven behavior and intelligence at the University of Arizona. "Corvids





show remarkable learning ability, creativity, and behavioral flexibility, with an ability to take advantage of other species.”

The animal kingdom is full of intelligent animals. Dolphins, monkeys, parrots, and your pet dog are just a few examples. But corvids have a creative intelligence like no other animal. Well, actually, there is one animal with a similar kind of creative intelligence: *Homo sapiens*.

» BIG BRAINS

To understand how corvids and humans think alike, we need to look a little closer at our brains. Animal intelligence largely depends on a rule that scientists call the “brain-to-body ratio.” This rule states that animals with larger brains compared to the rest of their body are generally more intelligent.

For example, the human brain is enormous compared to the rest of our body. Our brain weighs up to three pounds and accounts for nearly 2 percent of our total body weight. Therefore humans have a very high brain-to-body ratio. Now consider the blue whale, the largest animal on Earth. The blue whale brain can weigh over 16 pounds! But the blue whale’s body-to-brain ratio is very low. That huge brain accounts for less than 0.01 percent of the whale’s total body weight. That tiny ratio doesn’t make for an especially smart whale.

Like humans, corvids have high body-to-brain ratios. The New Caledonia crow lives on a small group of islands in the South Pacific Ocean and is widely regarded as the smartest of all corvids. Its brain accounts for about 2.4 percent of its body weight. That’s huge! The New Caledonia crow has a body-to-brain ratio similar to that of a small monkey, another animal with high intelligence.

Captions can go in this neat-o box or just hang loosely. This box can go on the top or bottom. This works great as an overlay on an image.



WHO WAS AESOP?

Greek storyteller Aesop (pronounced EE-suhp) is famous for hundreds of imaginative fables. But who exactly was Aesop? Well, there's no easy answer to that question. In fact, Aesop might be as fictional as the talking beasts featured in his beloved tales.

According to Greek historian Herodotus, who lived from around 484 B.C.E. to 425 B.C.E., Aesop was born a slave in Thrace, Greece. Eventually, Aesop gained his freedom and became famous for his wit and storytelling. In the end, however, his own smarts would be his undoing. During Aesop's travels, he angered the powerful people of Delphi. As a result, these people falsely accused Aesop of theft. He was tried in court, found guilty, and thrown off a cliff to his death around 560 B.C.E.

At least that's how the legend goes. Although several important Greek philosophers, including Plato and Aristotle, mention Aesop, no clear records of his life exist. The earliest-known versions of his fables didn't appear until the fourth century B.C.E., hundreds of years after his (supposed) death. Most historians today believe that Aesop was a mythical figure, a sort of wise storyteller to whom classic fables could be attributed. Whether or not Aesop, the person, ever lived remains a mystery. But truth or fiction, Aesop's fables are still enjoyed by people of all ages, more than 2,500 years later.



—Charles C. Hofer



The same rule of convergent evolution can be applied to the similarities between the human brain and the corvid brain. “Birds and mammals are very different from each other,” says Cory. “The brains are also built very differently. But animals from both groups seem to approach problems in the same manner and remember information in much the same ways.”

Although human and corvid intelligence evolved independently, they have important similarities today. Scientists believe that understanding the corvid brain may actually tell us about the intelligence of alien life forms.

The universe is so expansive that there might be other intelligent life out there somewhere. If it exists, alien life—and alien intelligence—had to evolve from some simpler form. Perhaps alien intelligence evolved the way human intelligence evolved. Or maybe it's more like corvid intelligence. Or did it evolve in

a different way altogether? We know that beings can arrive at similar types of intelligence by a variety of paths. So learning how a corvid thinks may one day help us learn how a space alien thinks!

Whether or not we will discover intelligent aliens still remains to be seen. But if our two worlds do meet some day, will we understand one another? Or will we be just two intelligent life forms crowing at each other?

» GREAT MINDS THINK ALIKE

Besides the body-to-brain ratio, human and corvid brains don't have much else in common. The structure of each brain is very different. However, both brains function in similar ways.

So how did humans and corvids *both* get so smart? The answer can be found in something called convergent evolution. This is when unrelated animals take different evolutionary routes to reach the same result. Look at insects, birds, and bats. These distinctly different animals are all capable of self-powered flight. However, each took a different evolutionary path to be able to fly.

Charles C. Hofer is a wildlife biologist living in Tucson, Arizona, home to many crafty ravens.