Inside the Dog Mind

New science reveals the multiple intelligences of our best friend

By Gareth Cook

JUST ABOUT EVERY DOG OWNER IS convinced that their dog is a genius. For a long time scientists did not take such pronouncements very seriously, but research now suggests that canines are indeed quite bright and, in some ways, unique. Brian Hare, associate professor in the department of evolutionary anthropology and the Center for Cognitive Neuroscience at Duke University, is one of the leading figures in the quest to understand what dogs know. Founder of the Duke Canine Cognition Center, Hare has written a book, *The Genius of Dogs,* with his wife, journalist Vanessa Woods.

Your dog might be a lot smarter than you realize.

COOK: What is the biggest misconception people have about the dog mind?
HARE: That there are "smart" dogs and "dumb" dogs. There's still this throwback to a unidimensional version of intelligence, as though there is only one type of intelligence that you either have more or less of.

In reality, there are various types of intelligence. Different dogs are good at different things. Unfortunately, the clever strategies some dogs are using are not apparent without playing a cognitive game. This means people can often underestimate the intelligence of their best friend. The pug drooling on your shoe may not look like the brightest bulb, but she comes from a long line of successful dogs and is a member of perhaps the most successful mammal species on the planet besides us. Rest assured: she is a genius.

COOK: What are the "different things" that dogs are good at? What are the areas of dog intelligence you have studied?
HARE: We know that, as a species, dogs are remarkable in certain areas, such as taking someone else's visual perspective or learning from someone else's actions. In particular, I've been interested in how dogs recruit help. Still, most of my research with dogs has been about the cooperative way they use human communicative gestures. Or put more simply, how they can interpret our gestures to understand us or get what they want.

COOK: But other animals are intelligent, right? What makes dogs unique?
HARE: Absolutely. Other animals have their own unique genius that was shaped by nature. In the case of dogs, it happens to be their ability to read our communicative gestures. We take it for granted that dogs can effortlessly use our pointing gestures to find a hidden toy or morsel of

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food, but no other species can spontaneously read our communicative gestures as flexibly as dogs can. It allows them to be incredible social partners with us, whether it's hunting or agility or just navigating everyday life. Their ability to interpret our gestures also helps them solve problems they can't solve on their own.

COOK: I see you have created a subscription-based Web site, Dognition.com. Can you tell me about it?
HARE: Dognition is about helping people find the genius in their dog. The only way to find their genius is to compare them with other dogs. As I said, different dogs use different strategies to solve problems. Does your dog rely on you to solve problems, or are they more independent? Do they pay attention to where you are looking before they decide to sneak food off the coffee table, or are they unaware when you are watching—making it hard for them to be sneaky?

Dognition is all about playing fun games that will give you a window into your dog's mind and that will in turn enrich the relationship you have with your dog. On top of that, the data that you enter will contribute to a huge citizen science project that will help us help all dogs, from shelter dogs to service dogs. Everyone who signs into Dognition will not only get an extensive cognitive profile of their own dog, but the data will also be entered into a database that scientists can use to answer all these burning questions that we have never had the resources to answer, such as about breed differences.

The largest single dog study published tested around 15,000 dogs. With Dognition and people's input, we have the potential to test hundreds of thousands or even millions of dogs. It's an incredibly exciting project, and I can't wait to see what we find out.

COOK: Like the "yawn test"?
HARE: Even as young children, we laugh when we see someone laughing, and we cry when we see someone in distress. Our ability to "catch" the emotions of others is called emotional contagion. A common form of emotional contagion is yawning. If you see, hear or even think about someone yawning, you will probably feel an irresistible urge to yawn yourself. Contagious yawning is related to empathy scores in adults.

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It looks like some dogs also contagiously yawn. The yawn test is just the owner yawning and seeing if their dog yawns back. It's a really simple test, but it can tell you a lot about your dog.

COOK: How empathetic are dogs, truly, when it comes to their human partners, and how much is just our imagination or our need to believe that they understand us?
HARE: As a scientist, it is hard to design tests that assess whether an animal is empathetic because most research on empathy in humans relies on people reporting how they feel, and dogs can't talk (or at least not yet in a way we can understand them). But there is definitely something special about the bond we have with dogs. Their ability to read our communicative gestures makes them seem in tune with us. And their attentiveness to our every move can't help but make us feel special. There is one study that shows that dogs would prefer to spend time with humans rather than their own species, which is unusual for an animal. Every dog owner is familiar with that rise in spirits as a thumping tail greets you at the door—and from the enthusiasm dogs have for us, it's hard to believe the feeling isn't mutual.

There are several measures, such as contagious yawning, that show that dogs probably at least have a basic form of empathy. And studies show that dogs and humans experience a rise in oxytocin, the "hug hormone," when we embrace and pet them (although it seems dogs get a higher boost in oxytocin when they are petted by women, as opposed to men).

COOK: What is the "wolf event," as you call it, and what is its significance?
HARE: The "wolf event" was a curious episode in evolutionary history when wolves basically took over Europe. Between 1.7 million and 1.9 million years ago, during one of the ice ages, the relatively small Etruscan wolf spread throughout Europe. It was also around this time that humans were emigrating out of Africa.

But the wolf's reign didn't last long. As modern humans became the dominant carnivore, we persecuted other large carnivores to extinction—which is why dogs are such an interesting puzzle. Some have proposed that modern humans adopted wolf puppies and raised them, although this doesn't really make sense. Humans have never had a particularly amicable relationship with wolves. We tend to have a low tolerance for fanged predators, and the annihilation of wolves in the past 1,000 years almost led to their extinction. Some say humans discovered that tame wolves were excellent hunting partners, but wolves eat a lot of meat. A pack of 10 would need a deer a day. And humans were successful hunters without wolves.

The puzzle is how the big bad wolf was tolerated around humans long enough to evolve into the mutt that now sleeps on the sofa. It took my childhood dog (Oreo), a Russian genius, Siberian foxes, New Guinea singing dogs, Hungarian scientists, bonobos in Congo and a decade of research for me to figure out the answer.

And the answer is ... you'll have to read the book to find out. But to give you a hint, it's not always survival of the fittest. Sometimes it's the friendliest that have an evolutionary edge. SA

Gareth Cook is a Pulitzer Prize–winning journalist who edits *Scientific American*'s Mind Matters online news column.

MORE TO EXPLORE

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The Genius of Dogs: How Dogs Are Smarter Than You Think. Brian Hare and Vanessa Woods. Dutton Adult, 2013.
Is Your Dog a Genius? www.Dognition.com