

The Next Truth

Young People Science[©]

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Prof. Jeffrey A.

Lockwood

The Fear of
Imaginary Insects

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Stop waving...
RUN!!!!



Birds need gravity to swallow

A lobster's blood is colorless but when exposed to oxygen it turns blue

Lemons contain more sugar than strawberries

An ostrich's eye is bigger than its brain!

Over 980 "Did you know" facts!!
www.did-you-knows.com

say what!

The Grand Canyon can hold around 900 trillion footballs

A cat has 32 muscles in each ear



"Death Finds a Way or Mud"

Chapter 1, "Hello?"

By Prof. William John Murray, www.warwick.ac.uk

It was just past eight on Tuesday morning and Mary was having breakfast with Matty when the call came. "Hello" she said, "Mary Beedle here". She spoke again, gasped, glanced at Matty and continued more quietly. Gradually her voice faded and her knuckles turned white as she held the phone as if it were the only rock in an ocean of pain.

Though the news of his death came like a bolt from the blue, yet, somehow, it had a ring of truth to it, of certainty, almost as though she had been expecting it. Andrew...gone! As the news hits her, her legs seemed to crumple and her back slid down the kitchen wall until she was sitting on the floor. Her dark eyes gazed unseeing across the room and the phone dangled from its cord. 'Hello? Hello?'

Matty watched his mother with interest over his weetabix, and then helped himself to another spoonful of sugar. Ten year old kids have priorities. She was still sitting on the floor a few minutes later when Mike came in, and asked her to move so he could get some crisps for his pack lunch. He was fourteen and as empathic as only a teenage boy can be. "Mom, I need to get in" she looked up, shock making her dark eyes wide. "Mike., um. Mike, look at me when I am talking to you. Mike...Dad...I just had a call from the Spanish police. They found a body in the harbour this morning, they think its Dad".

Half an hour later Mary and her three children were beginning to take stock of the facts. A body had been found early that morning, floating in Santander harbour. A fisherman leaving just before dawn had seen it first, and called the police. The drowned man was in his late forties, medium build, dark hair shot with grey....all matched Andrew Beedle perfectly. He wore dark trousers and a faded 'I love Dubai' t-shirt that they all knew only too well. And in his back pocket the police had found a passport...with Mary's name and number. That was what had brought the call so quickly.

Mary started speaking to the room: "I have to go, as soon as possible. Dad is dead; but I will have to make the formal identification. Anyway, I need to see him, to see what has happened, to understand..." She trailed off, and then picked up again, still visibly in shock, "Matty we have to get to school, we are late already on the first day of term. ...oh heavens, we have to go right now. Isn't that typical of your dad? He always put his career in front of everything. What did he care that his son was starting school when he had his bloody conference to go to? And there's the PPC meeting this evening, I have to be there. Or Vicky Stone will just get her way, what with Father Brennan on pilgrimage and all."

Once more her voice trailed off, but when she spoke again it was with a firm determination, "Matty, get your shoes on. Elly....you will have to go to Santander. Its three weeks before you go back to Durham, and you know you can just cancel the Wales trip. Technically you are even an adult. Matty and I are off to school, but when I get back we will call the Spanish authorities and sort it out. There was even a ghost of a smile on Mary's face as she and Matty headed out the front door.

■ ■ ■

To be continued in the next edition with chapter 2, "Juan"



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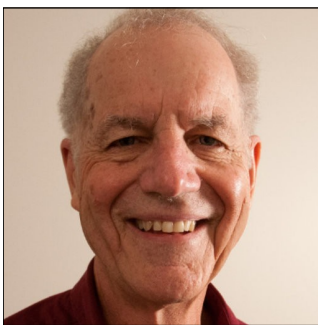
Contributors



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Kristie Miller is a research fellow in philosophy at the University of Sydney, Australia. She is the author of *Dating Philosophy for Everyone* and *Issues in Theoretical Diversity: Persistence, Composition and Time* as well as numerous journal articles. In January of 2006 A/Prof Miller took up an Australian Research Council Postdoctoral fellowship at the University of Queensland. In July of 2006 Kristie and the grant moved to the University of Sydney and in January of 2009 she was awarded a University of Sydney DVC Postdoctoral Research Fellowship. Since 2011, she has been a Senior ARC Research Fellow. A/Prof Miller is currently joint Director of the Centre for Time. www.sydney.edu.au

Hal Herzog Ph.D. (Asheville, NC)



Hal Herzog is Professor Emeritus of Psychology at Western Carolina University and has been investigating the complex psychology of our interactions with other species for three decades. His research interests include the impact of pets on human health and well-being, attitudes towards the use of animals, and the evolution of pet-keeping. Prof. Herzog has written many articles for news outlets including the *New York Times*, the *Washington Post*, *Wired*, *New Scientist*, and *Time Magazine*. He is the author of the book *Some, We Love, Some We Hate, Some We Eat: Why It's So Hard To Think Straight About Animals*. In 2013, he received the Distinguished Scholar Award from the International Society for Anthrozoology. www.halherzog.com

William John Murray (UK)



Physics prof. and Ph.D. W. J. Murray is an Edinburgh-born researcher. His involvement at CERN includes understanding the interactions and properties of the Higgs boson using the ATLAS detector at the LHC (CERN). He is searching for new physics, especially dark matter. Prof. Murray was the ATLAS Higgs convener from 2009 until 2011, physics coordinator from 2012 - 2014, and was right in the center of the Higgs discovery in July 2012. Prof. Murray was a researcher at the Rutherford Lab, in Oxfordshire and in 2013 became a professor at Warwick University. <http://delphiwww.cern.ch/>

Frank T. McAndrew (Galesburg, Illinois)

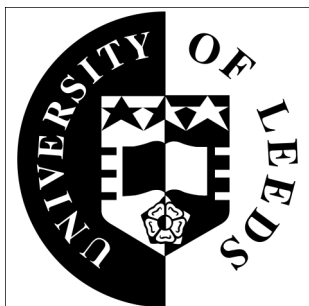


Frank McAndrew is the Cornelia H. Dudley Professor of Psychology at Knox College and is well-known as a purveyor of psychological science to lay audiences. He is regarded as one of the "key individuals" in the history of environmental psychology by researchers in that field. Prof. McAndrew is a winner of the Caterpillar Faculty Achievement Award and has been nominated for the prestigious CASE U.S. Professor of the Year Award. He is an elected Fellow of the Association for Psychological Science, the Society of Experimental Social Psychology and a Charter Fellow of the Midwestern Psychological Association. www.frankmcandrew.com



Jeffrey Alan Lockwood (United States)

Prof. Jeffrey Alan Lockwood is an award-winning author and University of Wyoming professor of Natural Sciences and Humanities. He writes both non-fiction science books, as well as meditations. He is the recipient of both the Pushcart Prize and the John Burroughs Medal. Prof. Lockwood earned a B.S. degree in biology from New Mexico Institute of Mining and Technology, where he was the 1982 recipient of the Brown Award. He received a Ph.D. in entomology from Louisiana State University, after completing a dissertation entitled, The behavioral ecology of the first instar southern green stink bug, *Nezara viridula* (L.) www.jeffreylockwoodauthor.com



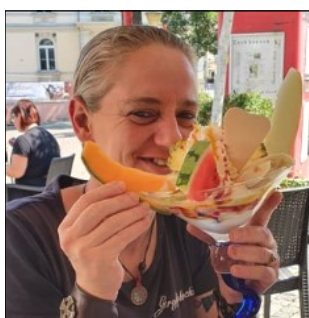
The University of Leeds (Yorkshire, UK)

The University of Leeds, established in 1904, is a public research university in Leeds, West Yorkshire, England. With 33,300 students, it is the fifth largest university in the UK. From 2006 to present, the university has consistently been ranked within the top 5 in the United Kingdom for the number of applications received. www.leeds.ac.uk



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Maria Anna van Driel (Germany)

Maria Anna is the owner and founder of The Next Truth magazine, an investigative science journalist, columnist, foreign correspondent, and ghost writer. She is the host of the TNT-podcasts. Her interest includes among others Mythology, Medieval and (pre) Egyptian Symbolism, Theoretical-, Experimental-, and Astroparticle Physics. Maria Anna finds always the time to write new articles while having a nice chat with her (future) contributors. www.nexttruth.com



Can Dogs Tell Time?

By Kristie L Miller PhD, www.sydney.edu.au

It seems pretty obvious that dogs can tell time. No one who has a dog really doubts that dogs can tell when it's time for dinner or a walk. Freddie (pictured) stamps his feet and cries if dinner does not appear at the time he is expecting.

But until very recently, there had been no studies on whether dogs are able to measure time. It could be that dogs are unable to tell how much time has passed, but that they use other cues to determine when it's time for a walk, or for bed, or for their human to come home. If dinner, or a walk, or a returning human, tend to happen after certain cues, then dogs' apparent capacity to tell that it is time for those events to happen might really only be a capacity to detect that the relevant cue has just occurred.

The question is, can dogs tell time, and, if they can, how do they do it?

There are already two hypotheses about how dogs tell time, assuming that they do. Alexandra Horowitz (2016) has suggested that dogs might smell how much time has elapsed by using decreases in the amount of scent in the air from some particular event, until the current time. For instance, dogs might work out when their human is likely to return by monitoring the decrease in the amount of scent from the human throughout the day. When the scent reaches a certain level of dissipation, the dog knows that a certain amount of time has elapsed and that the human is likely to be returning.

Another theory is that a dog is able to detect how much time has passed using much the same mechanism as is hypothesised to exist in other species, including humans. On that view, we each, dogs included, have inside us a little internal timing system made up of a pacemaker, an accumulator, and a switch. We track time by tracking the number of pulses emitted by the pacemaker, which are then collected by the accumulator. If we want to measure the time between two events, the system empties the accumulator



A/Prof Miller's research interests lie primarily in metaphysics, though she has been known to dabble in related areas. In particular she's interested in mereology, space-time, composition and persistence. She mostly tends to think about chunks of matter and randomly arranged configurations of particulars.

and then starts the accumulator collecting pulses at the beginning of the interval to be timed. The switch then stops the accumulator from collecting any more pulses at the end of the interval to be timed. The system then counts the number of pulses collected, and stores this information in working memory, where this can be compared to pulses collected during some other measured duration. We can then determine that one temporal duration is longer, or shorter, than another.

Two recent studies, (Domeniconi and Machado 2017 and McPherson and Roberts 2017) aimed to see whether dogs measure temporal durations.

Both studies used what are known as temporal bisection tasks. That sounds grisly, but it isn't. Temporal bisection tasks begin with a training session in which the aim is for participants to pair some stimulus (say a yellow box) with experiencing an interval of a certain length (say one second) and pair a different stimulus (say a blue box) with experiencing an interval of a different length (say 4 seconds). The aim is to train participants to choose the yellow box when they experience a 2-second interval and to choose a >>>

blue box when they experience a 4-second interval.

In the Domeniconi and Machado study, five dogs were initially trained to choose a yellow stimulus and not a blue one when they heard a 1-second tone, and were trained to choose a blue stimulus and not a yellow one when they heard a 4-second tone. It took, on average, 34 trials to train the dogs to do this task, and they had an above 80 percent success rate.

Once the dogs had learned to choose the right colour when they were presented with the tone of the relevant length, the experimenters then offered them tones that were neither 1 second nor 4 seconds in length, but instead, somewhere in between. The aim is to see which stimulus, yellow, or blue, the dogs choose in response to each of the tones they are given, and to graph the results.

After the training phase, the dogs were randomly given 12 tones, six long and six short. They were then positively reinforced if they chose the yellow stimulus for the short tones and the blue stimulus for the long tones.

Finally, the dogs were given 18 tones in random order, and their choice of stimulus was not reinforced. If dogs can measure temporal intervals, then we would expect to find that they choose the yellow stimulus the closer the tone is to 1 second, and begin to choose the blue stimulus as the tone gets closer to 4 seconds. In fact, the study found that dogs switch from choosing the yellow, to choosing the blue stimulus, at about the geometric mean between 1 and 4 seconds. (The geometric mean is calculated by taking the square root of the product of the numbers in question. Hence the geometric mean of 2 and 10 is the square root of 20 (~4.47) while the arithmetic mean of 2 and 10 is the sum of the numbers divided by 2 (6).)

The dogs' responses suggest that they are about as sensitive to intervals of time as pigeons and possums, more sensitive than fish and turtles, but less sensitive than cats, rats, monkeys, and humans, at least when compared using a temporal bisection task. It is unclear whether this is the result of some loss of capacity to track time due to domestication, or an artifact of small differences in study design.

At any rate, even if dogs are not quite as sensitive to temporal intervals as cats, rats, and monkeys, they still do pretty well on this task.

The second study, by McPherson and Roberts, also used a temporal bisection task. But their



Freddie measuring time. Photo credit: Kristie Miller

task was a little more complicated. They had six participant dogs, and they divided the dogs into two groups, one of four and one of two.

The group of four dogs was trained on the bisection task in much the same way as in the experiment just described, except that the temporal intervals they

were trained on used both a tone and a light to mark the extent of the interval. Also, in this experiment, the dogs were trained on an interval of 2 seconds, and one of 8 seconds. These dogs either heard a tone and saw a light go on for 2 seconds, and were taught to approach feeder 1, or they heard a tone and saw a light go on for 8 seconds, and were taught to approach feeder 2.

The second group of dogs was trained on the same intervals, but they were trained using only a light to mark the extent of the interval. They were taught to approach feeder 1 if they saw the light go on for 2 seconds and to approach feeder 2 if they saw the light go on for 8 seconds.

Once the dogs were 75 percent accurate, they were given trials of signals of 2, 3, 4, 5, 6, and 8 seconds. >>>

The dogs trained on both the tone and light sometimes saw both signals, and sometimes they heard only the tone or saw only the light.

The dogs in the other group saw only the light. Interestingly, the dogs trained on both the tone and light were accurate when they were presented with both signals, and when they were presented with only the tone but no light. In both these conditions, the dogs responded by switching which feeder they went to at around the geometric mean between 2 and 8 seconds. By contrast, they were relatively inaccurate when they saw just the light. However, the dogs in the condition that were trained to respond just to the light were sensitive to the intervals elapsed, though not as sensitive as the dogs trained with the tone and light.

This suggests that the dogs trained using both the tone and the light were using the tone, and not the light, to determine the duration of time that had passed, while the dogs that were trained using only the light were using the light to determine the elapsed duration, but were less effective at determining the duration than were the dogs who were trained using the tone. The experimenters concluded that when the light and tone were presented, the tone overshadowed the light,

which was then not salient as a cue they could later use in the task. It remains unclear, though, why the tone so overshadowed the light, given that both were of moderate intensity. All up, the studies jointly show that dogs can measure durations of time, and that they do it fairly well.

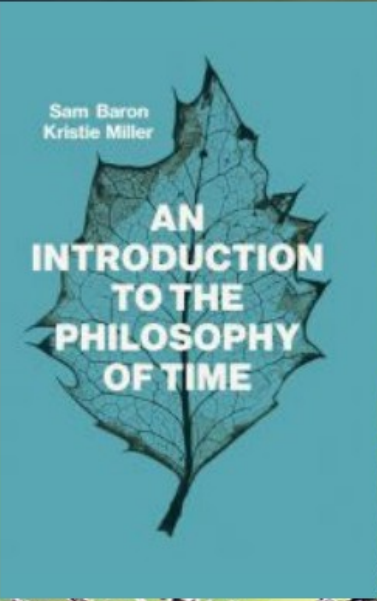
But the studies don't tell us how dogs do this: by smell or through an internal timing mechanism.

Given that the intervals they tested were very short (in the range of seconds) the results suggest that the dogs were probably using something like an internal mechanism rather than tracking differences in smell. But of that doesn't mean that dogs don't use smell to track longer intervals of time. Since these are the first studies of this kind on dogs, though, we really want to see more evidence about dogs' capacity to measure time, and the mechanisms by which they do this.

In the meantime, when your dog complains that they've been waiting for 10 minutes for their dinner, you should take them seriously.



This article was first published on the website of Psychology Today, www.psychologytoday.com

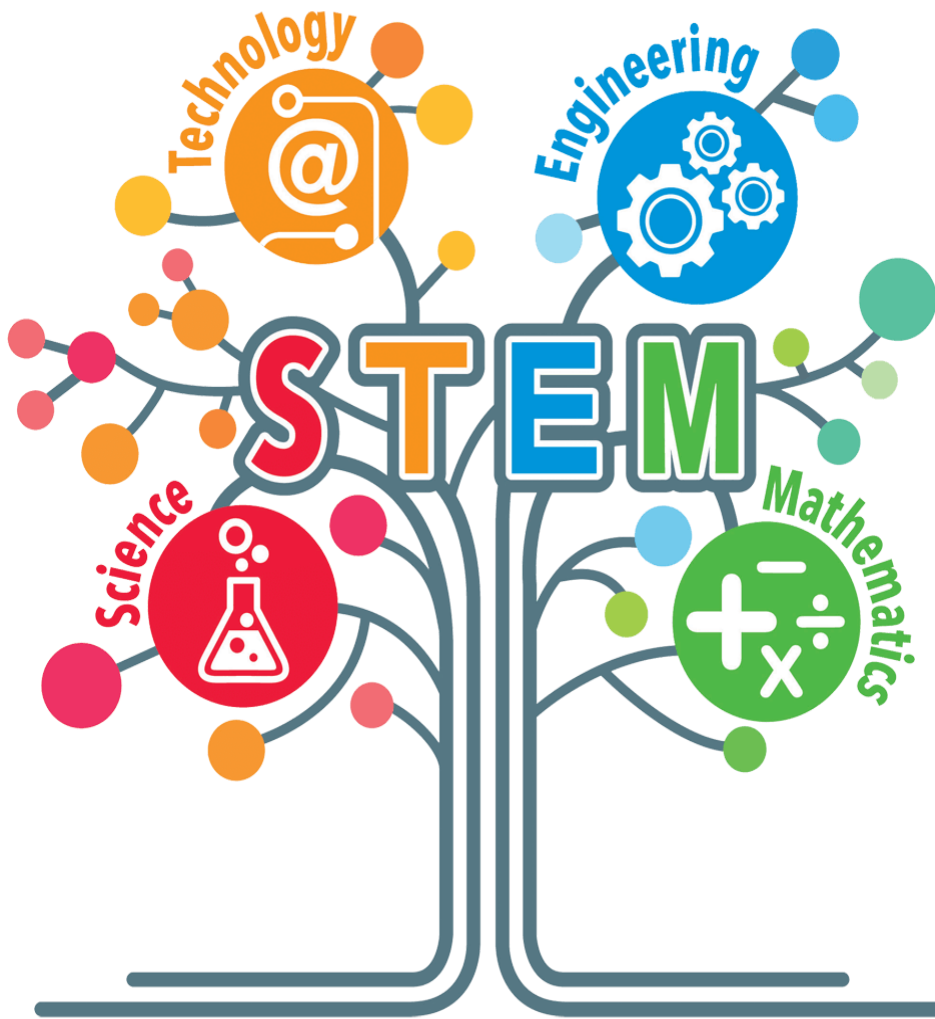


An Introduction to the Philosophy of Time

Time is central to our lived experience of the world. Yet, as this book reveals, it is startlingly difficult to reconcile the way we seem to experience time with many of the theories presented to us in physics and metaphysics.

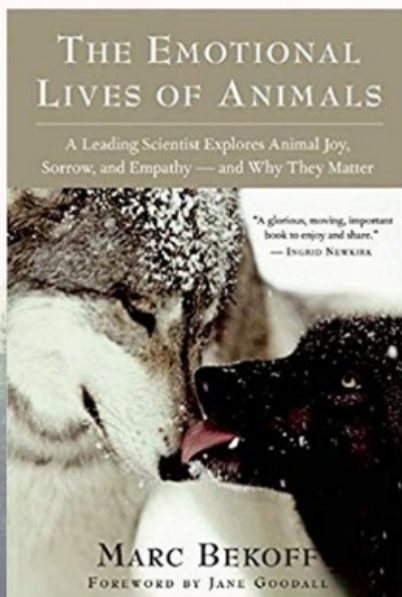
The authors explore a range of views about the nature of time, showing how different these are from the way we typically think about time and our place in it. They consider such questions as: whether time travel is possible, and, if it is, whether we can change the past; whether there is a single moment that is objectively present; whether time flows or is static; and whether, ultimately, time exists at all.

www.wiley.com



In an ever-changing, increasingly complex world, it's more important than ever that our nation's youth are prepared to bring knowledge and skills to solve problems, make sense of information, and know how to gather and evaluate evidence to make decisions. These are the kinds of skills that students develop in science, technology, engineering and math—disciplines collectively known as STEM.

Source www.ed.gov/stem



Based on award-winning scientist Marc Bekoff's years studying social communication in a wide range of species, this important book shows that animals have rich emotional lives.

Prof. Bekoff skillfully blends extraordinary stories of animal joy, empathy, grief, embarrassment, anger, and love with the latest scientific research confirming the existence of emotions that common sense and experience have long implied.

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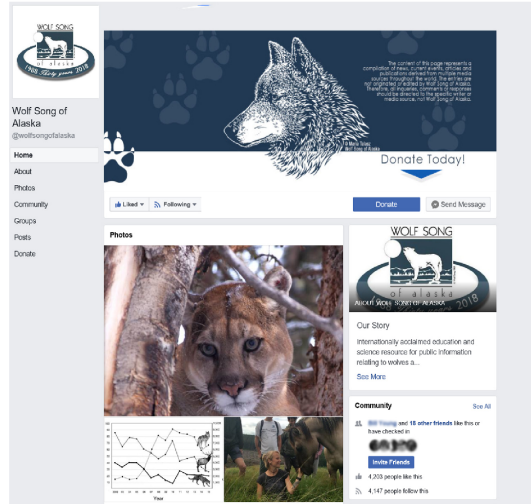
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DAILY BEAST

Always skeptical but never cynical!

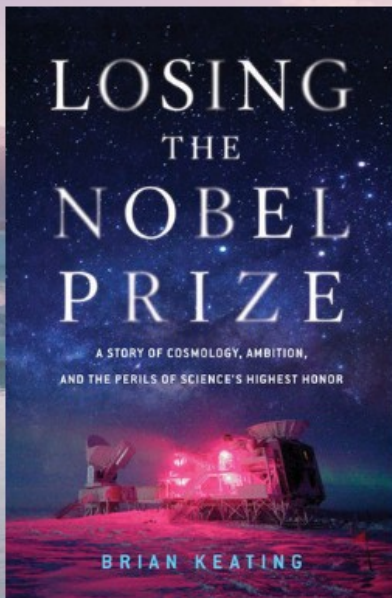
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BRIAN KEATING

What would it be like to be an eyewitness to the Big Bang?

In "Losing the Nobel Prize", cosmologist and inventor of the BICEP (Background Imaging of Cosmic Extragalactic Polarization) experiment Brian Keating tells the inside story of BICEP2's mesmerizing discovery and the scientific drama that ensued.

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Q&A

Questions you have been walking around with for years? The Next Truth provides an answer! Email your questions to; info@nexttruth.com

Are dinosaurs related to snakes?

There are four major groups of reptiles living today: turtles/tortoises, lizards/snakes, crocodylians, and dinosaurs. These dinosaurs were only distantly related to modern snakes, lizards, and turtles, groups that had split off at different times. www.reptiland.com

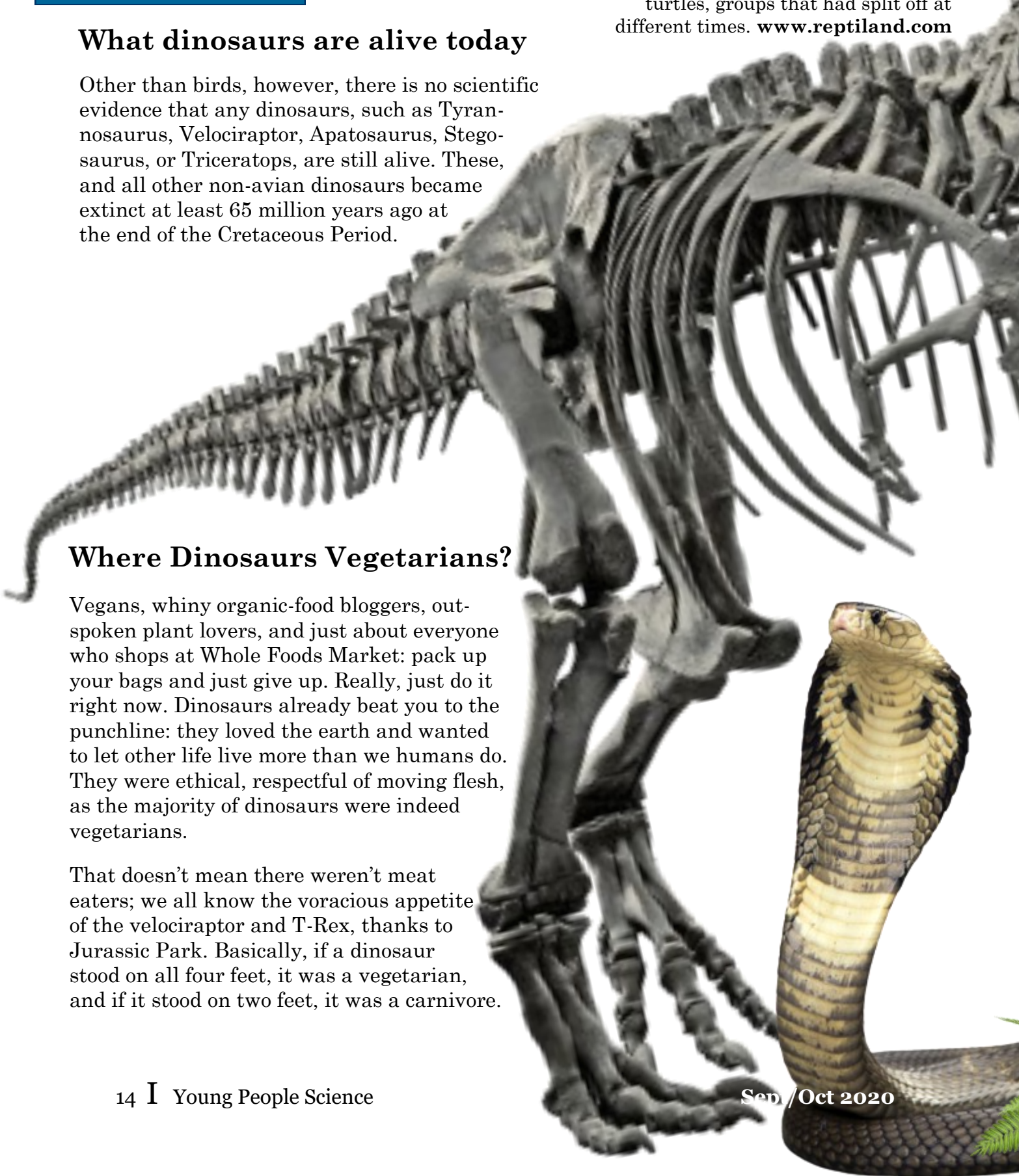
What dinosaurs are alive today

Other than birds, however, there is no scientific evidence that any dinosaurs, such as Tyrannosaurus, Velociraptor, Apatosaurus, Stegosaurus, or Triceratops, are still alive. These, and all other non-avian dinosaurs became extinct at least 65 million years ago at the end of the Cretaceous Period.

Where Dinosaurs Vegetarians?

Vegans, whiny organic-food bloggers, outspoken plant lovers, and just about everyone who shops at Whole Foods Market: pack up your bags and just give up. Really, just do it right now. Dinosaurs already beat you to the punchline: they loved the earth and wanted to let other life live more than we humans do. They were ethical, respectful of moving flesh, as the majority of dinosaurs were indeed vegetarians.

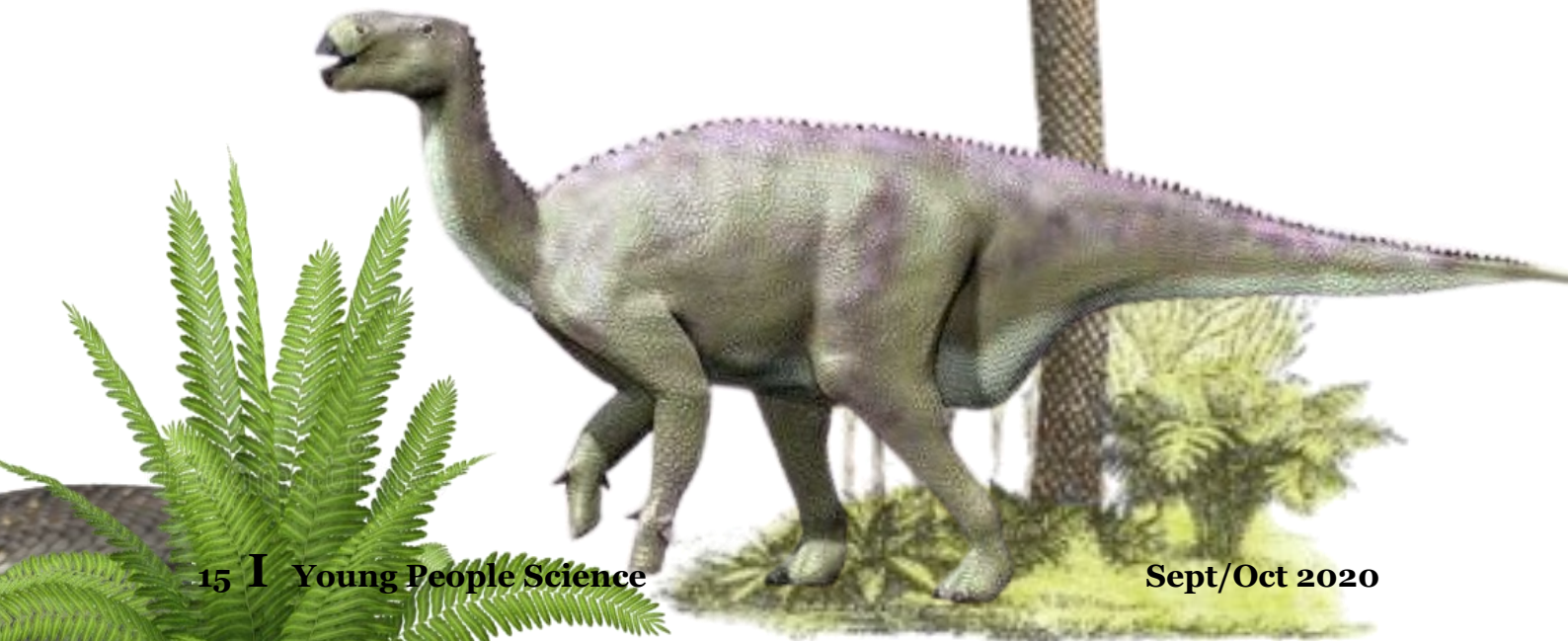
That doesn't mean there weren't meat eaters; we all know the voracious appetite of the velociraptor and T-Rex, thanks to Jurassic Park. Basically, if a dinosaur stood on all four feet, it was a vegetarian, and if it stood on two feet, it was a carnivore.





Although There Are Millions of Dinosaur Fossils That Have been Around For As Much As 230 Million Years, the First Dinosaur Fossil Was Not Discovered Until 1822.

In an attempt to figure out the origins of the iguanodon, an English obstetrician turned paleontologist named Gideon Mantell discovered, before anyone else in all of recorded human history, discovered the first dinosaur fossil. Since then, an entire field dedicated to the uncovering of dinosaurs, ancient fossils, and Cretaceous era artifacts has come about, widely known throughout the world as paleontology. I guess



Q&A

Fossils from a 374-million-year-old tree, found in northwest China showed that ancient trees were more complicated than the insides of modern trees, scientists said Monday.

The study published in the journal *Proceedings of the National Academy of Sciences* maintains that the trunk of the ancient trees, about 70 cm in diameter, had an interconnected web of woody strands, that is much more intricate than that of the trees we see around us today.

The strands, known as xylem, are responsible for transporting water from a tree's roots to its branches and leaves. In general, the xylem forms a single cylinder, to which new growth is added in the form of rings year after year.

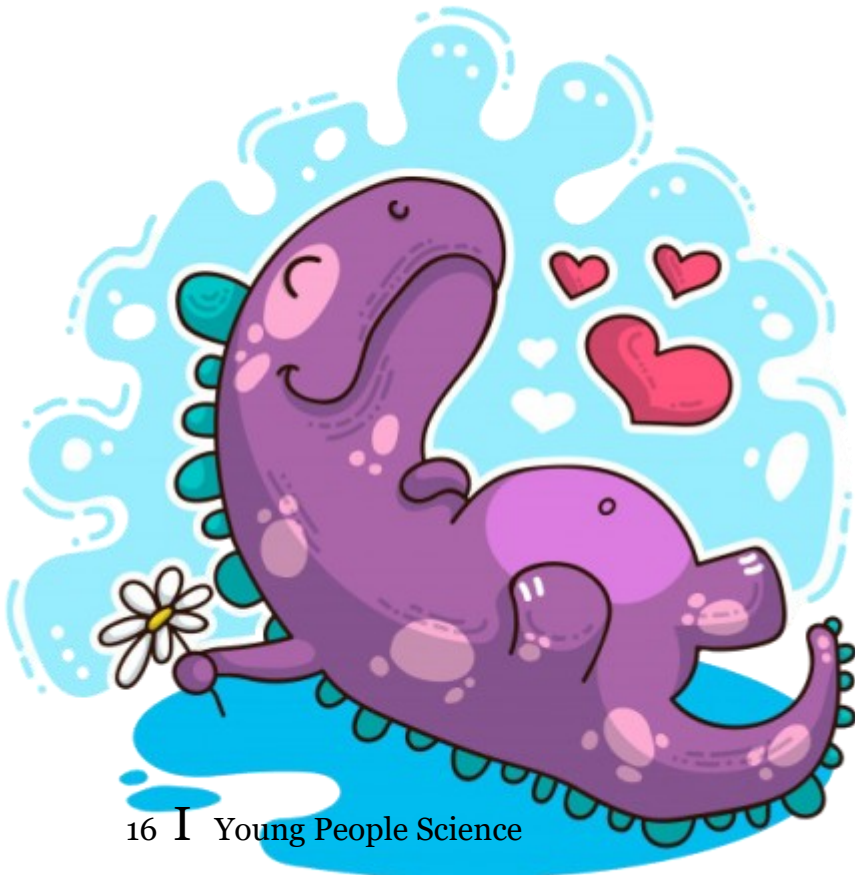
Read the full article via the website of CGTN, news.cgtn.com



Dinosaur eggs weighed 9 pounds and measured roughly the size of a volleyball.

Scientists For the Past 200 Years Have No Idea How Dinosaurs Mated

Is it as simple as a mommy and daddy dinosaur coming together because they were in love? Probably not. But that theorem is just as good as any other that scientists have presented, as there is nothing even close to a general consensus on how dinosaurs mated. We have no idea how the process of reproduction between dinosaurs occurred, and the debate on how two dinosaurs made a baby dinosaur doesn't seem like it will ever end. However, we can probably turn to birds for a start, as some birds are a direct extension of dinosaurs, and we do know how they mate.



Quick facts about Pteranodon:

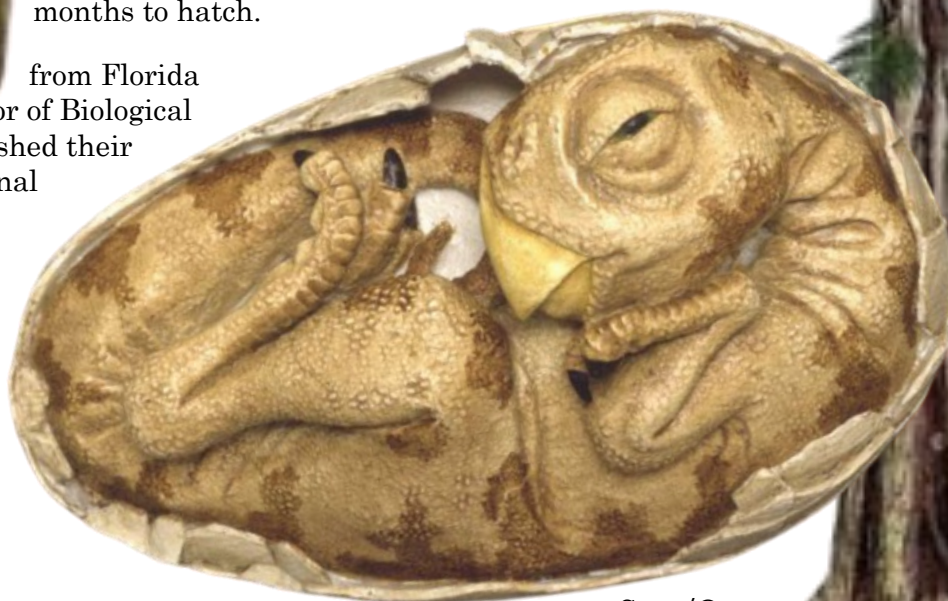
- Existed from 89.8 million years ago to 70.6 million years ago
- Lived in a marine environment
 - Was a piscivore
 - Could fly
- Had a body mass of approximately 36680 g
- 39 different specimens have been found by paleontologists

Dinosaur eggs took 3 to 6 months to hatch, study finds

The average chicken egg only takes 21 days to hatch, while an ostrich egg takes about twice as long. But according to new research, dinosaur eggs took anywhere from 3 to 6 months to hatch.

A team of researchers from Florida State University, led by Professor of Biological Science Gregory Erickson, published their findings in an article in the journal *Proceedings of the National Academy of Sciences*. The team used embryonic dental records to track the often mysterious details of dinosaur births.

Read the full article via the website of Earth.com, www.earth.com



How to Become an Animal Behaviorist

There are different paths that a person can follow in order to become an animal behaviorist. The route that an individual chooses to take greatly influences the jobs that the person can end up applying for.

If someone has a certain type of animal behaviorist job that he or she is wishing to obtain, it is best to determine what the exact requirements are to obtain the job; this will help in determining the exact type of training that will be needed.

Going to College to Earn a Degree

No matter the job position that a person wants to fulfill as an animal behaviorist, it is likely that he or she will have to obtain at least a bachelor's degree from an accredited college or university. The exact degree can vary; however, most people who enter into this line of work pursue degrees that focus on animal behavior, zoology, and/or biology.

It is important to note that the job duties of animal behaviorists vary and are dependent on the training that a person receives. Some animal behaviorists help pet owners who have misbehaving animals.

Others work for zoos, while others go out into the wild and study animals in their natural habitats so that a deeper understanding of why humans behave the way they do can be obtained. Depending on the job that a person wants to have, specializations in different lines of training will have to be obtained such as in psychology or animal science.

Earning a Master's or Doctorate Degree

With a bachelor's degree, it is likely that individuals will be able to obtain some type of entry-level job as an animal behaviorist. These jobs can often be found at zoological parks. Some people may even be able to secure a job through a private organization that will supply on-the-job training. In most instances, if a person wants to pursue a lifelong career as an animal behaviorist, it is best to extend one's education beyond getting just a bachelor's degree. Master and doctorate degrees are available in fields relating to animal behavior.

Earning a PhD or Becoming a DVM

A great way to earn a doctorate degree as an animal behaviorist is to complete some type of veterinary school program. In doing so, an individual can end up holding the title DVM which stands for doctor of veterinary medicine; this type of degree allows the graduate to practice medicine alongside studying the behavior of animals.

On a master's level, PhDs are also available for students to earn; this type of advanced education allows students to take part in animal behavior research, expand their skills, and work alongside leading professionals. All of this will help a person to become more employable as an animal behaviorist.

Becoming Professionally Certified

Lastly, after earning some type of degree, persons wanting to become animal behaviorists will find it very beneficial to become professionally certified. Professional certification is not a requirement to carry out the duties of an animal behaviorist; however, such certification can open many employment doors.

There are a number of different organizations and associations that offer certifications to people who want to become members, so it is best for animal behaviorists to search around for associations that they believe they will best fit into. In order to be accepted as a member into the associations, generally, applicants must demonstrate a high level of educational competency. Many associations will want to view applicants' resumes as well as ask them to pass administered tests.



This article first appeared on the website of Veterinary Medicine Careers, www.veterinarymedicinecareers.org





boredpanda

Bored Panda is a Lithuanian website that publishes articles about "lightweight and inoffensive topics". It was founded in 2009 by Tomas Banisauskas, who was then a business administration student at Vilnius University. As of November 2017, the site had 41 employees.

www.boredpanda.com

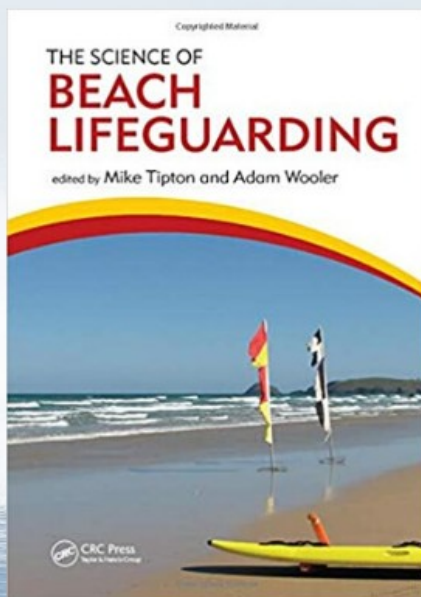
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"Explore our collection beyond the museum floor and find out the fascinating histories behind even the smallest objects."



Prof. Mike Tipton

"The Science of Beach Lifeguarding" presents groundbreaking work quantifying the scientific rationale behind a universally accepted fitness standard. It supplies an in-depth examination of the risks and hazards associated with the beach environment, including rip currents and cold water immersion.

It is a must-have for beach lifeguards, beach lifeguard managers, search and rescue personnel, paramedics, sports scientists, health and safety practitioners, and occupational health practitioners.

www.amazon.com

Real BIG Cats

A lion's roar can be heard from as far as 5 miles away. A lion can run for short distances at 50 mph and leap as far as 36 feet. Even though the lion is sometimes referred to as the "king of the jungle," it actually only lives in grasslands and plains.

Can you own a lion in the US?

Large carnivores like lions, tigers, and bears are illegal to own, as are apes, baboons, and macaques. There is also a limit of six animals per owner for bobcats, squirrels, rabbits, raccoons, quail, opossum, coyote, deer, red fox, and gray fox.

Are Lions intelligent?

Dr. Natalia Borrego works with lion whisperer Kevin Richardson to carry out lion IQ tests. She believes that they are the smartest of all the cats.

What is a daddy lion called?

A baby lion is called a "CUB". A mother is a lioness, and a father is called a lion.



White lions are not albinos. Their white color is caused by a recessive trait derived from a less-severe mutation in the same gene that causes albinism, distinct from the gene responsible for white tigers. They vary from blonde to near-white. This coloration does not appear to pose a disadvantage to their survival.

How many white lions are left in the world?

Since there are currently (2018) only 11 White Lions in the wild, in their endemic range, White Lions are critically endangered.

How tall is a white lion?

Adult male animals have an average body weight of 225 kilograms. Females have a head-hull length of 1.40 to 1.75 meters, a shoulder height of one meter, a tail that is 85 centimeters in length and a body weight of about 150 kilograms.

What is a white lion called?

The white lions, also called blond lions, are the same species as African lions (*Panthera leo*). Their blondish-white coloring is the result of a recessive mutant gene.



Spring Flower Word Search

Can you find all the names of the Springtime flowers?

K R H A I L H A D X W G J F D
C J N Z T S A Y N O E P V A L
A A L N W U U B R K U W Q I S
M F L I N A R C I S S U S L N
E O H L L I R R O Y C I V O O
L R S Y I Y V E L R J P S N W
L S H T L C H A W D C A W G D
I Y S E E I S E N O M E N A R
A T M C A L L A L I L Y F M O
P H O K T Z O A W A O F P S P
I I S X D Z W I C D O S Y Y S
L A S O B H I U V D S N G A K
U J O L H Y A C I N T H S U M
T C L H L R Q L O U J W W W D
D J B P L M U I L L I R T P H

ANEMONE
BLOSSOMS
CALLALILY
CAMELLIA
CROCUS
DAFFODIL
DAHLIA
FORSYTHIA
HYACINTH
LILAC
LILY
MAGNOLIA
MAYFLOWER
NARCISSUS
PEONY
PHLOX
SCILLA
SNOWDROPS
TRILLIUM
TULIP
VIOLETS

All About Puzzles
puzzles.about.com

Does Talking to Your Pet Mean You're Smarter?

By Prof. Hal Herzog Ph.D., www.halherzog.com

I have always talked to the animals in my life. Not only to dogs and cats, but also Willie the mouse, Murphy the duck, and Sam the boa constrictor, who, like all snakes, was deaf. So I was delighted recently to see a headline declare, “Research Has Found that People Who Talk To Pets Are Smarter Than Those Who Don’t!”

A quick Google search revealed that this Internet meme has been making the rounds since 2017 when the e-zine UPOXX.com announced: “Science Says Only the Smartest People Talk To Their Dogs.” It even shows up in newspapers.

I like the idea that talking to pets is an index of intelligence, so I decided to take a look at the actual scientific evidence behind it. Here’s what I found.

Nearly Everyone Talks to Their Pets

In a conference talk, I once heard Alan Beck, director of the Purdue University Center for the Human-Animal Bond, report that “97% of pet owners talk to their pets and the other three percent are liars.” Alan is a pioneer in the field of anthrozoology, and I think he’s right. (See Figure 1).

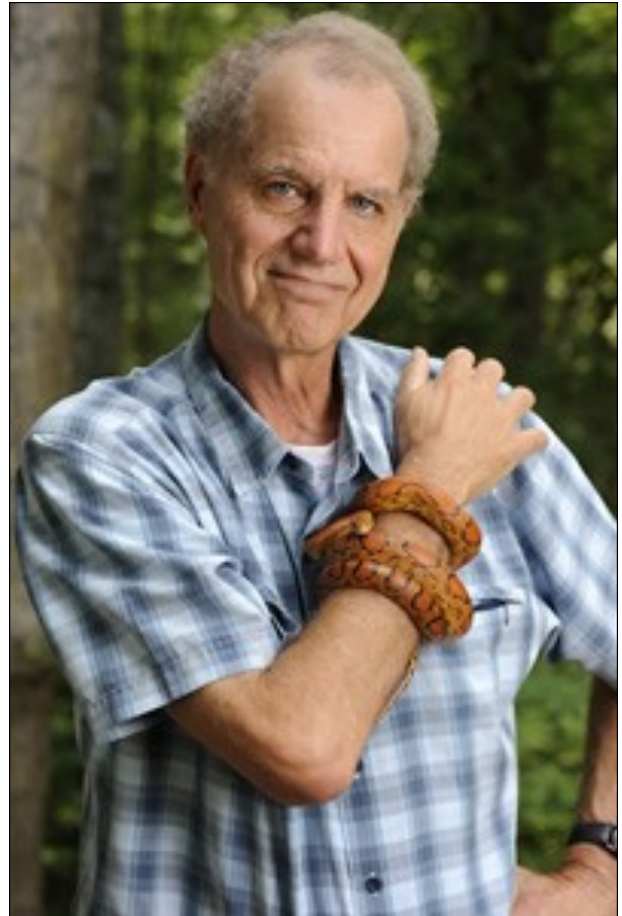
Even people who are deaf talk to their pets through sign language. A woman who trains hearing assistance dogs told me in an e-mail,

I recall many occasions when British Sign Language users would turn to their dogs mid-story and communicate things like “Do you remember the lake? You loved it there.”

The problem, of course, is that if everyone talks to their pets, this practice is no more a sign of intelligence than getting dressed in the morning.

The Nonexistent Study

Many of the articles linking IQ with talking to pets cite a study by Gary Sherman and Jonathan Haidt. For example, the author of an article on Lively.com wrote: “A study by Gary D. Sherman and Jonathan Haidt conducted at Harvard University showed that people who preferred the



Hal Herzog is Professor of Psychology at Western Carolina University and lives in the Smoky Mountains with his wife Mary Jean and their cat Tilly. www.works.bepress.com

company of and had conversations with their pets on a regular basis proved to be more intelligent than those who didn’t.”

I was surprised by this statement. Haidt is one of my favorite psychologists, and I know his work fairly well. I sent him an e-mail saying that I was suspicious of the claim that he and Sherman had found a relationship between intelligence and talking to pets.

He immediately wrote back: “*Hal, Yes, there is 0.0 truth to that. No idea how it started.*” Sherman and Haidt *did* conduct a fascinating study related to humans and animals. In it, they found that watching pictures of cute kittens >>>



HAL HERZOG

Does living with a pet really make people happier and healthier? What do we make of the fact that in 1933 the Nazi party enacted the world's most progressive animal protection legislation? Why can a puppy be regarded as a family member in Kansas, a pariah in Kenya, and lunch in South Korea?

Who enjoyed a better quality of life—the chicken on a dinner plate or the rooster who dies in a Saturday-night cockfight? What can we really learn from experiments on mice?

Drawing on more than two decades of research in the emerging field of anthrozoology, the new science of human–animal relations, **Hal Herzog** offers surprising answers to these and other questions related to the moral conundrums we face day in and day out regarding the creatures with whom we share our world.

www.halherzog.com



and puppies made people more careful when playing the children's game Operation, a game of manual dexterity in which players have to use tweezers to pluck small plastic organs from a "patient" without touching the sides of the body compartment. However, this research had nothing to do with either human intelligence or talking to animals.

Anthropomorphism and Talking to Pets

Similarly, research by psychologists Nicholas Epley and Adam Waytz is frequently cited on the Internet to support the idea that smarter people talk to their pets. As with the false claims about Sherman and Haidt's research, this is dead wrong.

Epley and Waytz study *anthropomorphism* – our tendency to attribute human-like traits to non-human creatures and objects, including animals. And they have conducted research on how we think about pets. For example, in a study published in the journal *Social Cognition*, they reported that people who feel isolated are more likely to attribute social-connection traits like "thoughtful," "considerate," and "sympathetic" to pets.

However, they did not link differences in intelligence with the tendency to anthropomorphize or talk to pets.

Indeed, they believe that projecting our mental states to animals is a universal human trait rather than a mark of above-average intelligence.

It is true that people differ in the degree to which they engage in anthropomorphic thinking. In a 2016 study, Australian researchers reported that people who are more prone to anthropomorphic thinking tend to be:

- More open to new experiences.
- More anxious.
- Have faith in intuition (but are not more religious).
- Have a personal connection to animals.

Most of these relationships, however, were weak and there was no evidence linking

anthropomorphism and intelligence.

Is it a scientific fact that talking to pets is a sign of intelligence?

The Bottom Line

Talking to your pets does not mean you are particularly smart. It does, however, mean you are human. I would love to believe that my little conversations with Tilly are a sign of my superior intelligence. Unfortunately, however, this claim is a good example of fake news.



This article first appeared on the website of Psychology Today, www.psychologytoday.com

Hal Herzog, a maverick scientist and leader in the field of anthrozoology offers a controversial, thought-provoking, and unprecedented exploration of the psychology behind the inconsistent and often paradoxical ways we think, feel, and behave towards animals. www.amazon.com



An Octopus Has Three Hearts, Nine Brains, and Blue Blood.

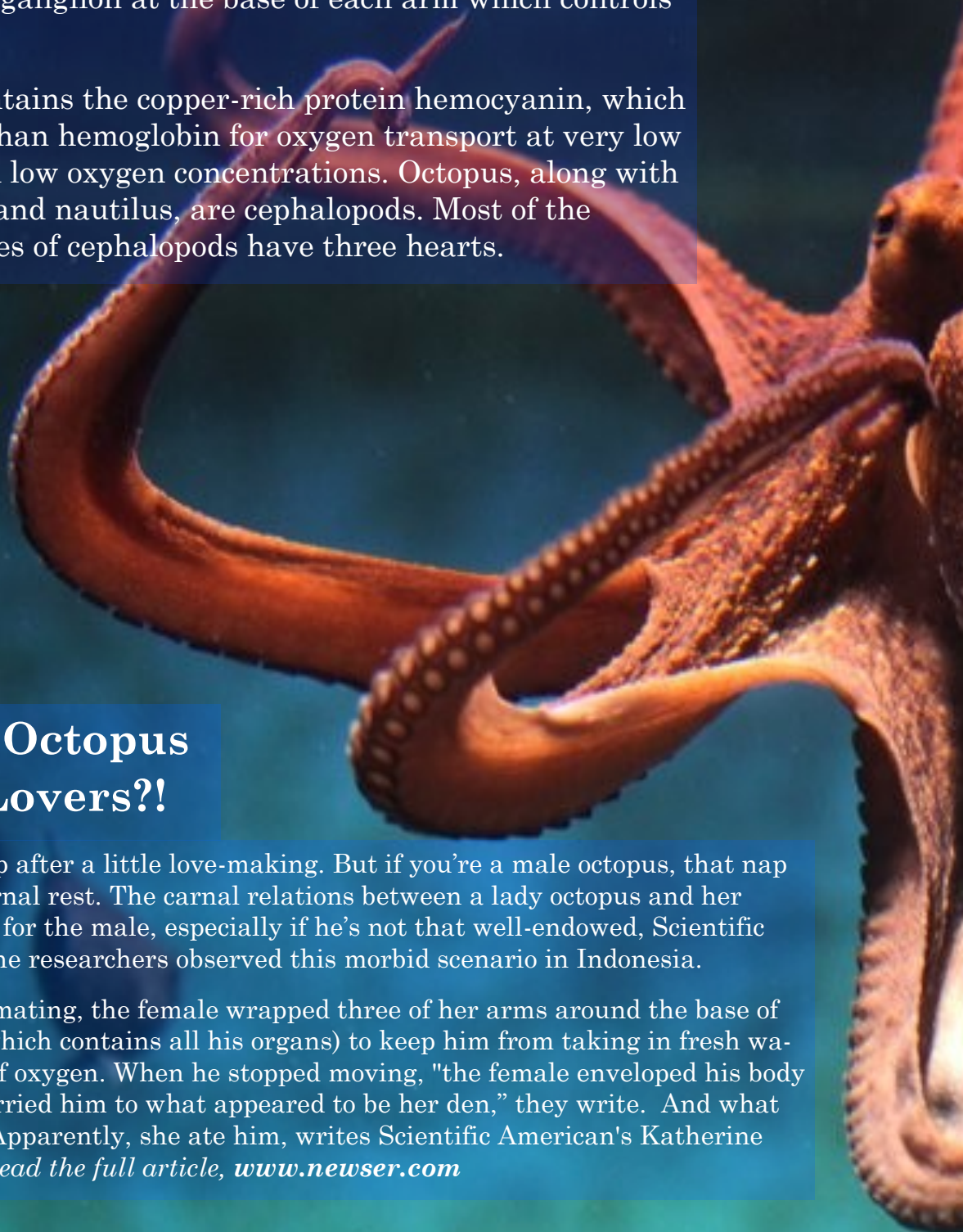
Octopuses are boneless creatures. They are invertebrates with extremely flexible bodies that can squeeze through incredibly small spaces. An octopus has three hearts, nine brains, and blue blood. Two hearts pump blood to the gills, while a third circulates it to the rest of the body. The nervous system includes a central brain and a large ganglion at the base of each arm which controls movement.

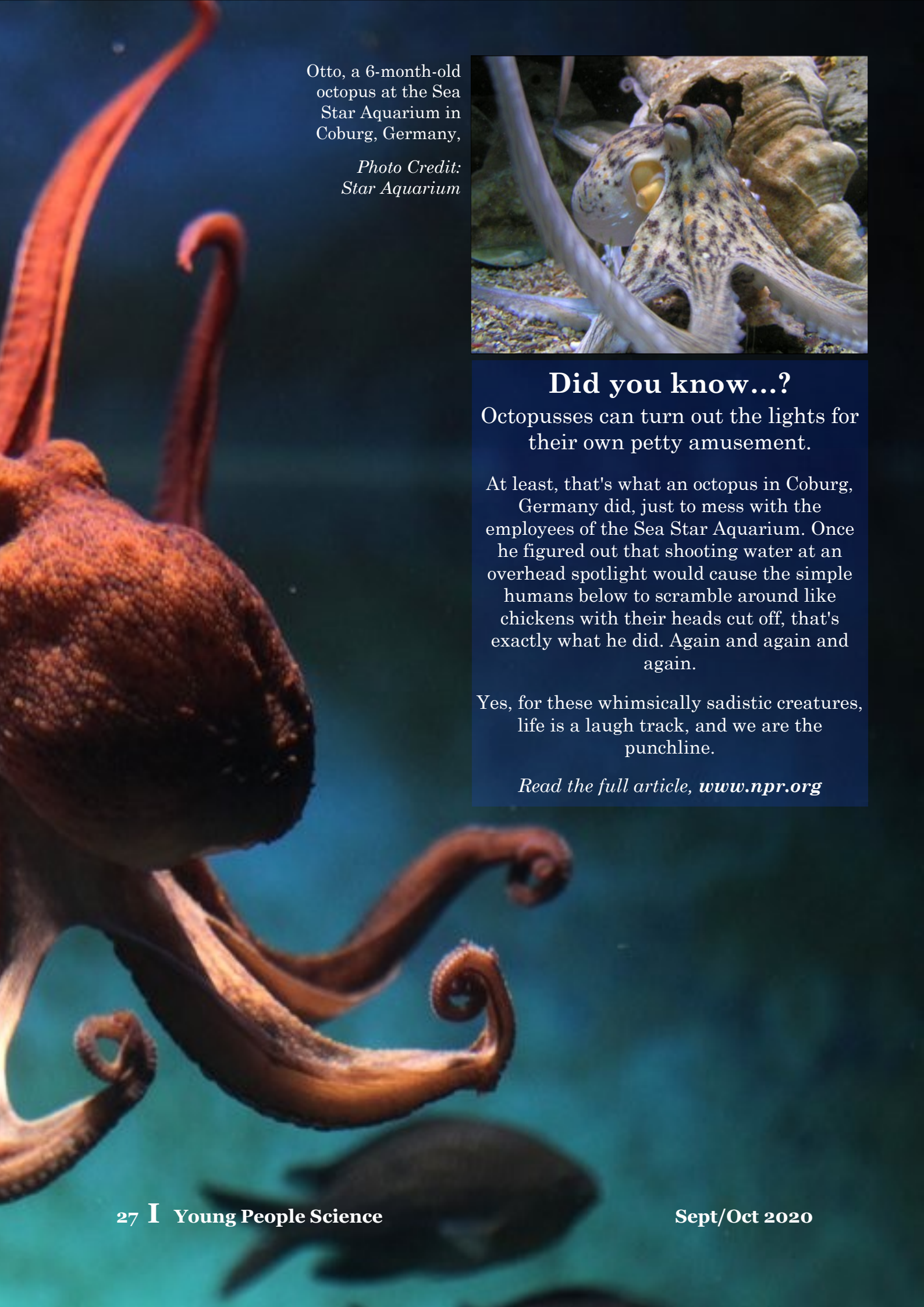
Octopus blood contains the copper-rich protein hemocyanin, which is more efficient than hemoglobin for oxygen transport at very low temperatures and low oxygen concentrations. Octopus, along with squid, cuttlefish, and nautilus, are cephalopods. Most of the hundreds of species of cephalopods have three hearts.

Do Female Octopus Eat Their Lovers?!

Some guys fall asleep after a little love-making. But if you're a male octopus, that nap can be more like eternal rest. The carnal relations between a lady octopus and her lover can prove fatal for the male, especially if he's not that well-endowed, *Scientific American* reports. The researchers observed this morbid scenario in Indonesia.

After 15 minutes of mating, the female wrapped three of her arms around the base of the male's mantle (which contains all his organs) to keep him from taking in fresh water, his only source of oxygen. When he stopped moving, "the female enveloped his body with her web and carried him to what appeared to be her den," they write. And what happened in there? Apparently, she ate him, writes *Scientific American's* Katherine Harmon Courage. *Read the full article, www.newser.com*





Otto, a 6-month-old octopus at the Sea Star Aquarium in Coburg, Germany,

*Photo Credit:
Star Aquarium*



Did you know...?

Octopusses can turn out the lights for their own petty amusement.

At least, that's what an octopus in Coburg, Germany did, just to mess with the employees of the Sea Star Aquarium. Once he figured out that shooting water at an overhead spotlight would cause the simple humans below to scramble around like chickens with their heads cut off, that's exactly what he did. Again and again and again.

Yes, for these whimsically sadistic creatures, life is a laugh track, and we are the punchline.

Read the full article, www.npr.org

The Tiger Swallowtail Caterpillar

Caterpillars are soft bodied and slow moving. This makes them easy prey for predators, like birds, wasps, and mammals to mention just a few. Some caterpillars are even eaten by their fellow caterpillars (like Zebra swallowtail larva which are cannibalistic).

In order to protect themselves from predators, caterpillars use different strategies, including:

Poison

Some caterpillars are poisonous to predators. These caterpillars get their toxicity from the plants they eat. Generally, the brightly colored larva are poisonous; their color is a reminder to predators about their toxicity. Some poisonous caterpillars include the Monarch and the Pipevine Swallowtail.

Camouflage

Some caterpillars blend into their surroundings extraordinarily well. Many are a shade of green that matches their host plant. Others look inedible objects, like bird droppings (the young Tiger Swallowtail larva).

The Tiger Swallowtail caterpillar has large eyespots.

Eyespots Some caterpillars have eyespots that make them look like a bigger, more dangerous animal, like a snake. An eye spot is a circular, eye-like marking found on the body of some caterpillars. These eyespots make the insect look like the face of a much larger animal and may scare away some predators.

Hiding

Some caterpillars encase themselves in a folded leaf or other hiding place.

Bad smells Some caterpillars can emit very bad smells to ward off predators. They have an osmeterium, an orange, y-shaped gland on their neck which gives off a strong, unpleasant odor when the caterpillar is threatened. This keeps away dangerous wasps and flies that try to lay eggs in the caterpillar. Many swallowtails have an osmeterium, including the Zebra Swallowtail.



This is NOT a caterpillar...

...this is!



The caterpillar of the Imperial Fruit Sucking Moth (*Phyllodes imperialis*). This Australian rainforest denizen has evolved a strange and spooky deterrent that fools predators into thinking it's bigger, badder and bite-ier than before.

The restricting cocoon and the struggle required for the butterfly to get through the small opening of the cocoon are nature's way of forcing fluid from the body of the butterfly into its wings, so that it would be ready for flight once it achieved its freedom from the cocoon.



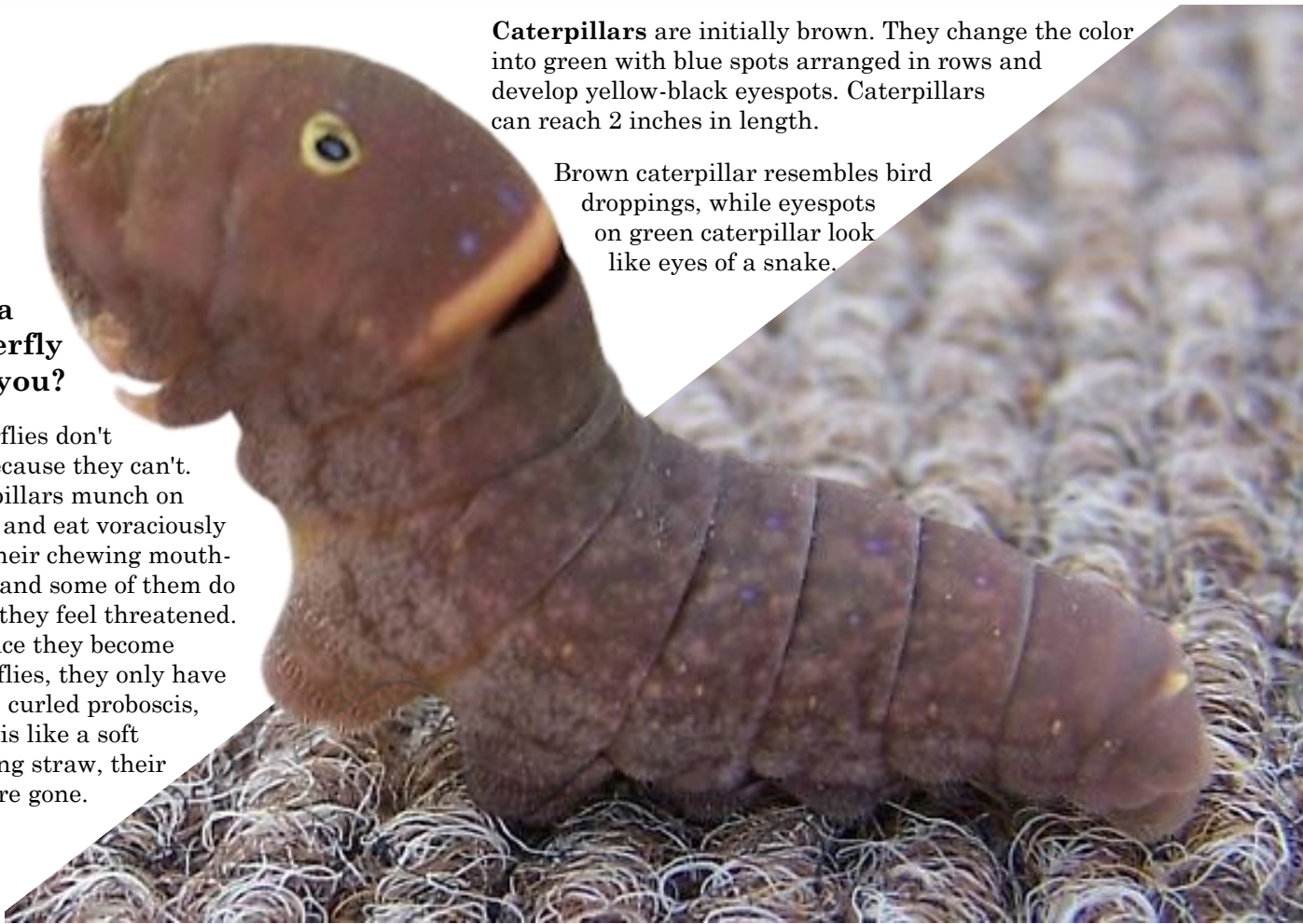
Read the full story of a man who found a cocoon of a butterfly, www.itstimetomeditate.org

Caterpillars are initially brown. They change the color into green with blue spots arranged in rows and develop yellow-black eyespots. Caterpillars can reach 2 inches in length.

Brown caterpillar resembles bird droppings, while eyespots on green caterpillar look like eyes of a snake.

Can a butterfly bite you?

Butterflies don't bite because they can't. Caterpillars munch on leaves and eat voraciously with their chewing mouth-parts, and some of them do bite if they feel threatened. But once they become butterflies, they only have a long, curled proboscis, which is like a soft drinking straw, their jaws are gone.



The Anatomy of the Caterpillar

1 Head

The first section of the caterpillar body is the head. It includes six eyes (called stemmata), the mouthparts, the small antennae, and the spinnerets, from which the caterpillar produces silk. Antennae are present on either side of the labrum but are small and relatively inconspicuous. The labrum is like an upper lip. It is used to hold food in place while the mandibles do their chewing.

4 Segment

A segment is a body section of the thorax or abdomen. A caterpillar has three thoracic segments and 10 abdominal segments.

2 Thorax

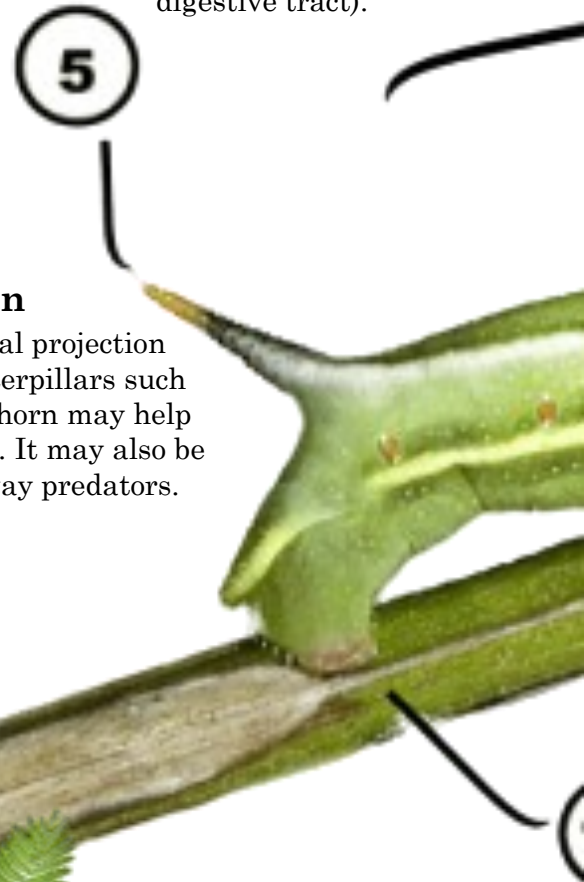
The thorax is the second section of the caterpillar body. It consists of three segments, known as T1, T2, and T3. The thorax contains three pairs of true legs with hooks and a dorsal plate called the prothoracic shield. The prothoracic shield is located on T1, the first segment. The color pattern of this shield is valuable for identifying different species of caterpillars.

5 Horn

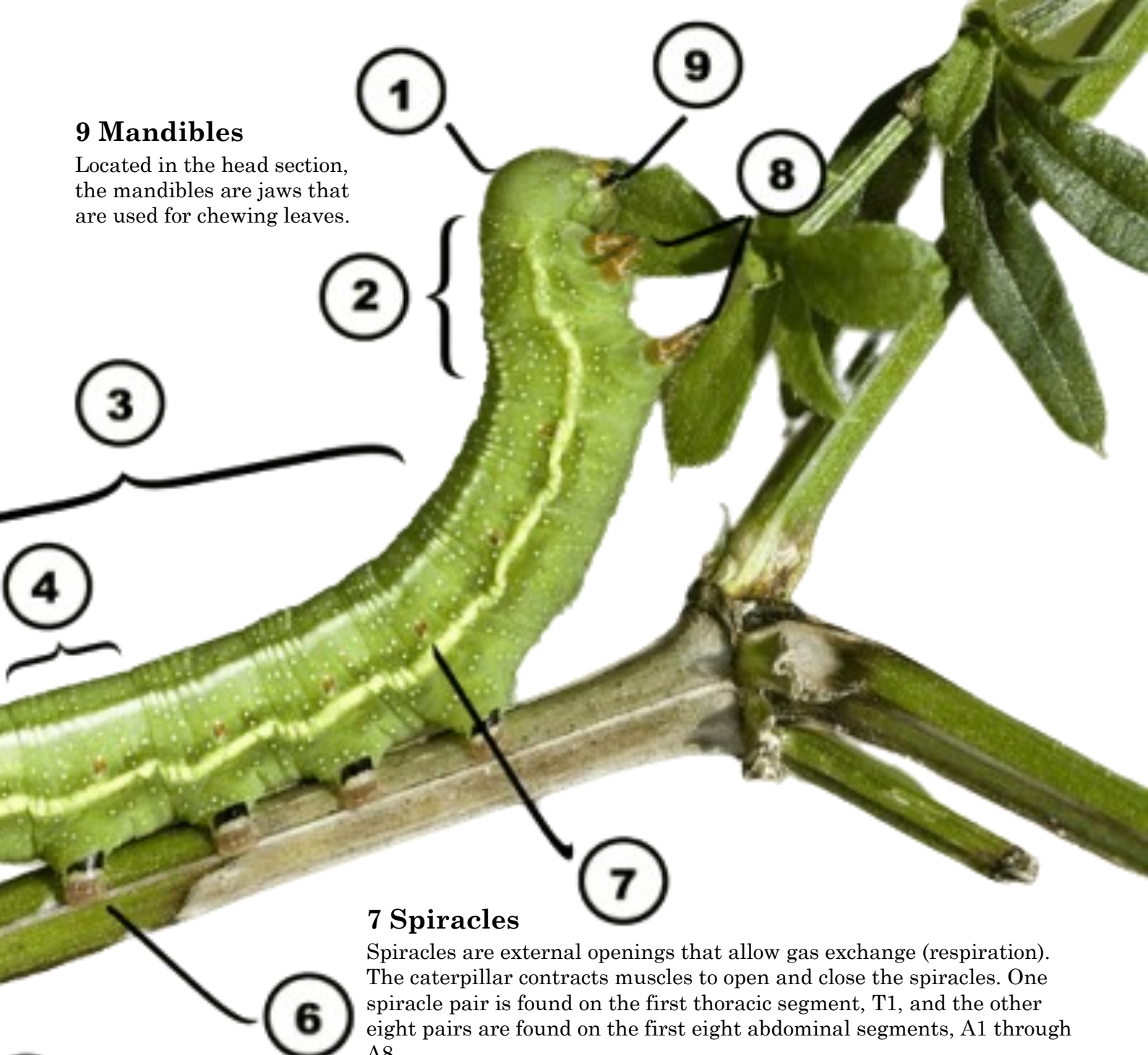
The horn is a dorsal projection present on some caterpillars such as hornworms. The horn may help camouflage the larva. It may also be used to frighten away predators.

3 Abdomen

The third section of the caterpillar body is the abdomen. It is 10 segments long, classified as A1 through A10, and includes the prolegs (false legs), most of the spiracles (breathing holes used for respiration), and the anus (the final stop along the digestive tract).



Read the full article via
the website of
ThoughtCo.
www.thoughtco.com



9 Mandibles

Located in the head section, the mandibles are jaws that are used for chewing leaves.

7 Spiracles

Spiracles are external openings that allow gas exchange (respiration). The caterpillar contracts muscles to open and close the spiracles. One spiracle pair is found on the first thoracic segment, T1, and the other eight pairs are found on the first eight abdominal segments, A1 through A8.

6 Prolegs

Prolegs are fleshy, false, unsegmented legs, usually found in pairs on the third through sixth abdominal segments. The soft prolegs bear hooks on the ends which the caterpillar uses to cling to foliage, bark, and silk. Experts sometimes use the arrangement and the length of these hooks to identify caterpillars at the family level. The number and size of the prolegs can also be identifying characteristics.

8 True Legs

There are three pairs of segmented legs, also known as thoracic legs or true legs, located in pairs on each of the three thoracic segments. Each true leg ends in a tiny claw. These are distinct from the fleshy, false prolegs found along the abdominal cavity.

10 Anal Prolegs

The anal prolegs are a pair of unsegmented, false legs that are located on the last abdominal segment. The prolegs on A10 are usually well developed.

By AdelaideVet, www.adelaidevet.com.au

Your pet's current health status

A pre-departure holiday health check is recommended for all your pets young or old. This will allow them to get a full clinical examination and ensure they are up to date with any necessary vaccinations (in case of emergency boarding, hospitalisation), worming or parasite control.

If your pet is on medication, special diets or fussy about such things as cat litter, make sure you have sufficient supplies for the duration of your holiday.

Local veterinarians

Find out the contact details of the local vet clinic nearest to your holiday destination. Also take our details in case they need to speak to us about your pet's medical history.

Parasite control and creepy crawlies

Use the correct flea/tick control and heartworm prevention for the region you are travelling in. If your pet has not been using heartworm protection then we will perform a blood test prior to recommending the best prevention method.

Find out if your holiday destination is a paralysis tick area or is home to venomous snakes. We can advise the best ways to prevent and avoid these potential problems.

Going to Tasmania?

If you are travelling to Tasmania with your dog, then veterinary certification is required for worm treatment. This is to protect Tasmania's hydatid free status.

Time to stretch

Long road trips can be just as tiresome for pets as they are on us. Regular breaks for food, water, toileting and leg stretching will make the journey less stressful.

Space, restraint and ventilation

Make sure there is adequate space in your car for your pet and that you have good safety restraints such as a car safety harness for dogs (see our separate article), or a cat box that can be secured. Make sure there is good ventilation especially in hot weather. Remember it is hotter on the floor of the car and in the back of the station wagon.



Don't forget...

Food, bowls, leads, toys, bedding, kitty litter, dog and cat faeces disposal bags and water for the road.

Travel sickness

If your pet suffers from travel sickness then ask us for advice on medications and other tips to suit your pet and keep your pet happy and well during the trip.

Air travel

Check airline check-in times, the crate or box is secure and conforms to airline standards. Sedatives may be required for some pets to make travel more comfortable.

Identification a must

As well as clearly marked pet tags it is a very good idea to Microchip your pet before you go. They will be in unfamiliar territory and if they do sneak off for an adventure you need to make sure you can be located. If your pet already has a Microchip make sure your details are up to date with the central microchip registry.

Finding pet friendly accommodation

To find accommodation such as Motels, B&Bs and Caravan Parks that will allow pets we recommend: "Holidaying With Dogs". This is a "Life Be In It" publication available at book stores and RACV shops. The internet has a number of good sites also that offer pet friendly accommodation and there are more websites listed under "useful links" on our website.



Table Tennis Word Search

H D C P L E D N A H E R O F P B O E
 W J T I H R E T N U O C R E J Q E T
 B G S T I E S J N I P S N O V R T N
 R D E U C E X N B T D I Y K G P L E
 R A L L Y G R F E A L V E M J W U M
 D I P F L I N L A D L Y I Q Z F A A
 G D E R S E K O N E Z L L C B O F N
 L H Q E T H L E P R V J S O T P Z R
 P P C P C U A B D G A I Y S N T D U
 O W L T A T W P A N N C R D I X Y O
 O G A G G D V S B T I I K D O P B T
 L M D N L A D V C H O P P E P U Q B
 E D X W C O S L E D R E S F T X F F
 R N I E I I V F E E L N D K A F D P
 M T O P S P I N T Y Z N D S C Y E E
 U U K C L Q E U E R A I E E V A L C
 Q A O O B V R A O H D R R E D V B N
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 S P Z G M N D C X E C V U O Y Q D O
 Y B G R I P A A Q S W Y I Q K H I B
 Z M O U E B S N T Y E L L O V U L D

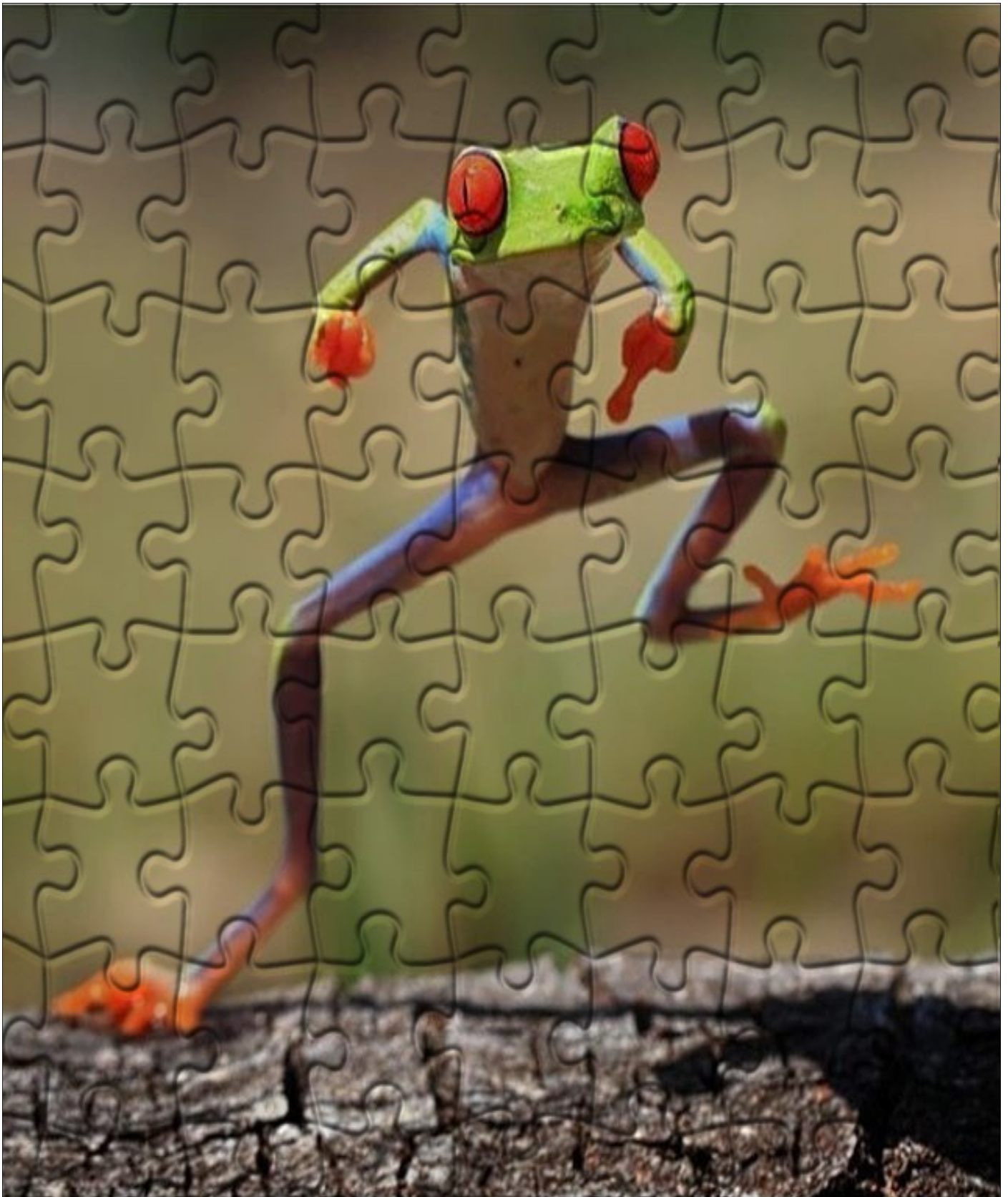
ACE
 BACKHAND
 BACKSPIN
 BALL
 BOUNCE
 CHOP
 COUNTERHIT
 DEUCE
 DRIVE
 ENDLINE
 FAULT
 FOREHAND
 GRIP
 LOOP
 MATCH
 PADDLE
 PINGPONG
 POINT
 RACKET
 RALLY
 RELOOP
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 SCORE
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 SPIN
 TABLE
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Turn your favorite photos into beautiful jigsaw puzzles very easily by using this free online generator that can optionally have a 3D look.

www.picturetopeople.org



Getting Over Rover: Why the Loss of a Dog Can Be Devastating

By Professor F. T. McAndrew Ph.D. , www.frankmcandrew.com

My wife and I recently (2017) went through one of the more excruciatingly sorrowful experiences of our long married life—the euthanasia of our beloved dog, Murphy. Losing a dog is hard enough; setting the time and date in advance and then counting down the hours that we had left with her was almost more than we could bear. I still get choked up when I remember making eye contact with Murphy moments before she took her last breath: She flashed me a look that was an endearing blend of confusion mixed with the reassurance that all was well because we were both by her side.

When people who have never had a dog see their dog-owning friends mourn the loss of a pet, they probably think it is a bit of an overreaction. After all, it is “just a dog.” Fortunately, most are too polite to say this out loud. But those of us who have loved a dog know the truth: Your own pet is *never* “just a dog.”

Rudyard Kipling captured this sentiment in a stanza of his poem, “The Power of the Dog”:

When the fourteen years which Nature permits
Are closing in asthma, or tumour, or fits,
And the vet’s unspoken prescription runs
To lethal chambers or loaded guns,
Then you will find—it’s your own affair—
But...*you’ve given your heart to a dog to tear.*

Many times friends have guiltily confided to me that they grieved more desperately over the loss of a dog than over the loss of friends or relatives. Research has confirmed that for most people, the loss of a dog is in almost every way comparable to the loss of a human loved one. Unfortunately, there’s little in our cultural playbook—no grief rituals, no obituary in the local newspaper, no religious service—to help us get through the loss of a pet, which can make us feel more than a bit embarrassed to show too much public grief over our dead dogs.

Why Dogs Are Special

What is it about dogs, exactly, that make them so precious to us?



Prof. McAndrew’s research has appeared in dozens of professional journals and is regularly featured in popular media outlets such as The New Yorker, NPR, the BBC, The New York Times, The Atlantic, and NBC’s Today Show. Photo: Prof. McAndrew (right) Audrey Hepburn (left)

For starters, dogs have had to adapt to living with humans well more than the past 10,000 years, and they have done it very well—they are the only animal to have evolved specifically to be our companions and friends. Anthropologist Brian Hare has developed the “Domestication Hypothesis” to explain how dogs morphed from their grey wolf ancestors into the socially-skilled animals with whom we now interact in very much the same way that we relate to other people.

In fact, our relationships with dogs can be even more satisfying than our human relationships, if for no other reason than dogs provide us with such unconditional, uncritical positive feedback.

As the old saying goes, “May I become the kind of person that my dog thinks I already am.” >>>

Interacting with dogs makes us feel good, and just looking at them can make us smile. Dog owners score higher on measures of well-being and, on average, they are happier than people who own cats and those who own no pets at all.

And dogs seem to feel the same way about us. They have been selectively bred through generations to pay attention to us, and MRI scans show that dog brains respond to praise from their owners just as strongly as they do to food—for some dogs, praise is an even more effective incentive than food. Dogs recognize people from their faces and can learn to infer human emotional states from facial expression alone. Studies also indicate that dogs can understand human intentions, that they try to be helpful to us, and that they will even avoid people who do not cooperate with us or treat us well.

Dogs communicate with us as no other animal does. They are skilled at comprehending spoken words and using their own vocalizations to communicate with us in return.

Our strong attachment to dogs was subtly revealed in a recent study of “misnaming.” This is what happens when you call someone by the wrong name, such as when parents mistakenly call one of their kids by a sibling’s name. It turns out that the name of the family dog frequently gets confused in the same mix as other human family members, indicating that the dog’s name is being pulled out of the same cognitive pool in which the names of other family members are swimming around. Curiously, this rarely happens with cat names.

It is no wonder that we miss our dogs so much when they are gone.

Why Grief Over the Death of a Dog Is So Intense

Psychologist Julie Axelrod pointed out that the loss of a dog is so painful because we are not losing just one thing; we experience multiple losses at the same time. We may be losing our primary companion, a source of unconditional love, a “life witness” who provides security and comfort to us, and maybe even a protégé whom we mentor like a child. The loss of a dog seriously disrupts your daily routine, even more profoundly than the loss of most friends and relatives, and changes in lifestyle and routine are one of the primary building blocks of stress.

A recent survey of bereaved pet owners documented the common experience of misperceiving ambiguous sights and sounds as the deceased pet. This occurs most frequently shortly after the death of the pet, especially among individuals who had very high levels of attachment to their pets.

I miss my dog more than I can say, and yet, I am sure that I will put myself through this ordeal

again in the years to come. I'd like to finish this essay with another stanza from the Kipling poem:

When the body that lived at your single will,
With its whimper of welcome, is stilled (how still!)

When the spirit that answered your every mood
Is gone—wherever it goes—for good,
You will discover how much you care,
And will give your heart to a dog to tear.

■ ■ ■

Prof. McAndrew's article first appeared on the website of the Psychology Today under the creative license, www.psychologytoday.com

What is it about dogs, exactly, that make them so precious to us?



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Imaginary Insects and Real Problems

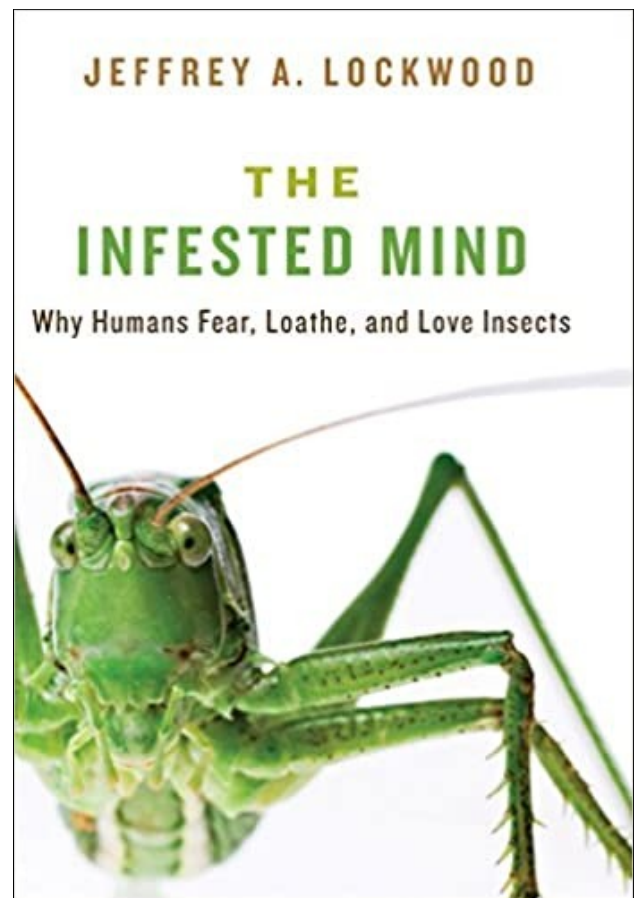
By Prof. Jeffrey Lockwood Ph.D. www.jeffreylockwoodauthor.com

Our minds are snarls of perceptions and beliefs—and one of the most tangled sets of experiences consists of hallucinations, illusions and delusions. Let's consider the first two of these phenomena in terms of how insects can infest the human psyche.

Hallucination arises internally; the experience is uniquely our own. The classic entomological hallucination is experienced with delirium tremens during alcohol withdrawal. These people often “see” insects on the walls or their bodies and experience tactile hallucinations—a feeling that insects are crawling across the skin, which is called *formication* (derived from Formicidae, the scientific name for ants). Chronic drugs use can also generate hallucinations, which have become known as ‘cocaine bugs’ and ‘crank bugs’ (in association with long-term amphetamine use).

Like a hallucination, an illusion is a misperception. However, illusions involve actual sensory stimuli (e.g., mirages). In illusory parasitosis, the individual experiences a genuine stimulus, but the sensation is incorrectly attributed to an insect or other parasite. A classic case unfolded in 1967 (the heyday of this disorder) when office workers reported prickling and tingling sensations. An exterminator applied an arsenal of pesticides, but the employees continued to feel small creatures crawling across their skin. As it turned out, some weeks earlier during installation of new equipment, nearly invisible particles of insulation had broken loose, were drawn into the ventilation system and then showered slowly over the office cubicles. When the ventilation system was thoroughly cleaned, the ‘infestation’ disappeared.

Given the long history of lice and other vermin infesting our primate ancestors, humans are evolutionarily primed for feeling itchy—and we're also highly predisposed to find cause-and-effect associations. With illusory parasitosis, an individual often has some previous experience of an insect infestation (e.g., fleas in the carpet), so that the current sensation of itchiness (e.g., microscopic irritants) is ‘transposed’ to the

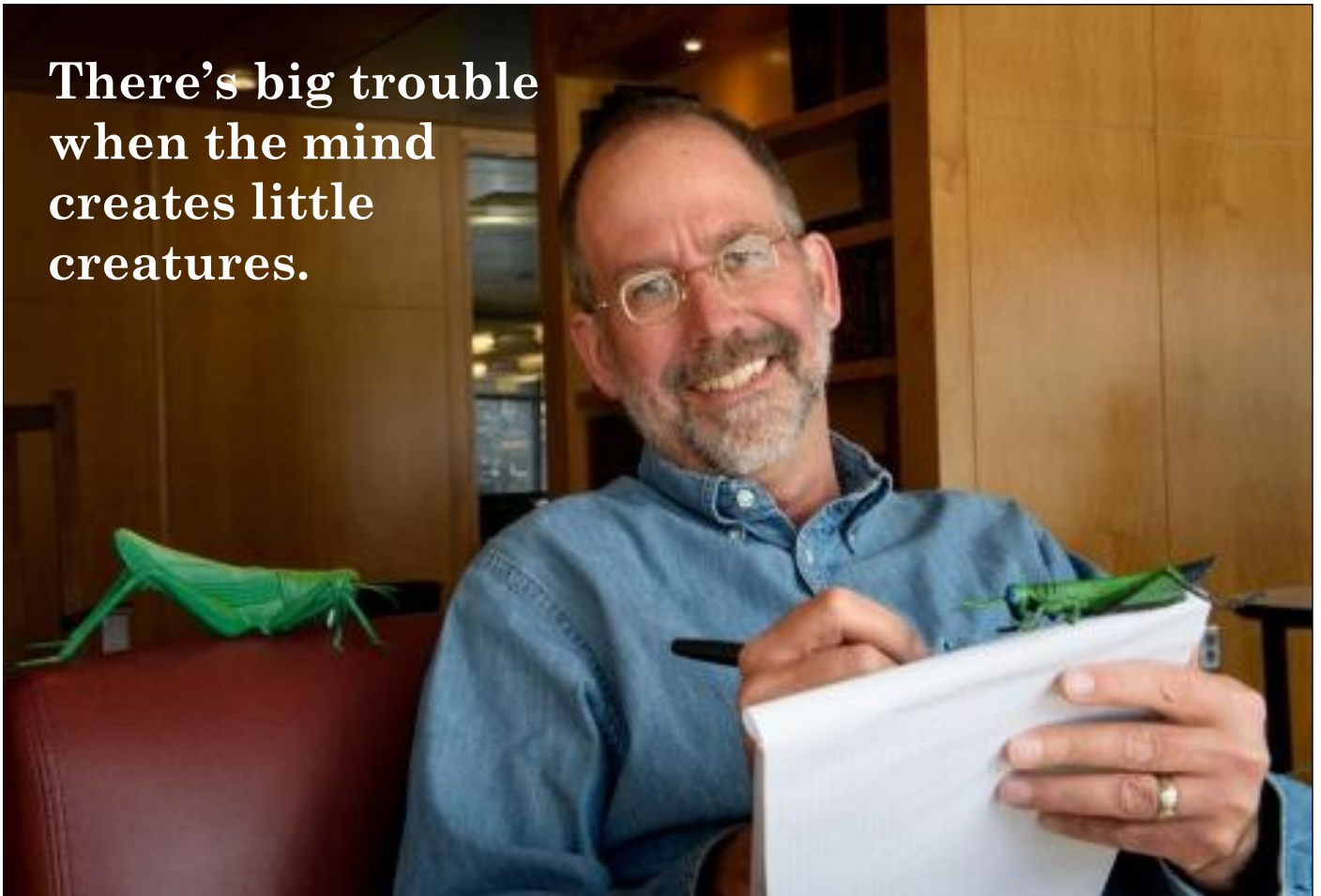


The human reaction to insects is neither purely biological nor simply cultural. And no one reacts to insects with indifference. Insects frighten, disgust and fascinate us. Jeff Lockwood explores this phenomenon through evolutionary science, human history, and contemporary psychology, as well as a debilitating bout with entomophobia in his work as an entomologist. www.amazon.com

earlier account. And itchiness is highly contagious—once a person starts scratching others begin to feel itchy themselves.

So when dozens of workers are scratching and complaining about non-existent insects, what can be done? First and most obviously, removing the source of irritation was important. But even after eliminating the stimulus, modifications in the social environment were sometimes needed. Psychologists ascertained that working conditions contributed to the emergence and spread of illusory parasitosis. In particular, the malady tended to appear when crowded, sedentary >>>

There's big trouble
when the mind
creates little
creatures.



Prof. Jeffrey Alan Lockwood is an award-winning author and University of Wyoming professor of Natural Sciences and Humanities. He writes both nonfiction science books, as well as meditations. He is the recipient of both the Pushcart Prize and the John Burroughs Medal. www.uwyo.edu


workers performed repetitive clerical work under intense pressure in drab, cluttered surroundings. In short, aesthetically and intellectually dull conditions fostered outbreaks.

Nipping hallucinations and illusions in the bud can be terribly important, as imaginary insects can become embedded in the infested mind—with devastating consequences.

I'll take up the phenomenon of delusory parasitosis in my next blog entry, which I hope you're just itching to read!



This article first appeared on the website of the Psychology Today under the creative license, www.psychologytoday.com

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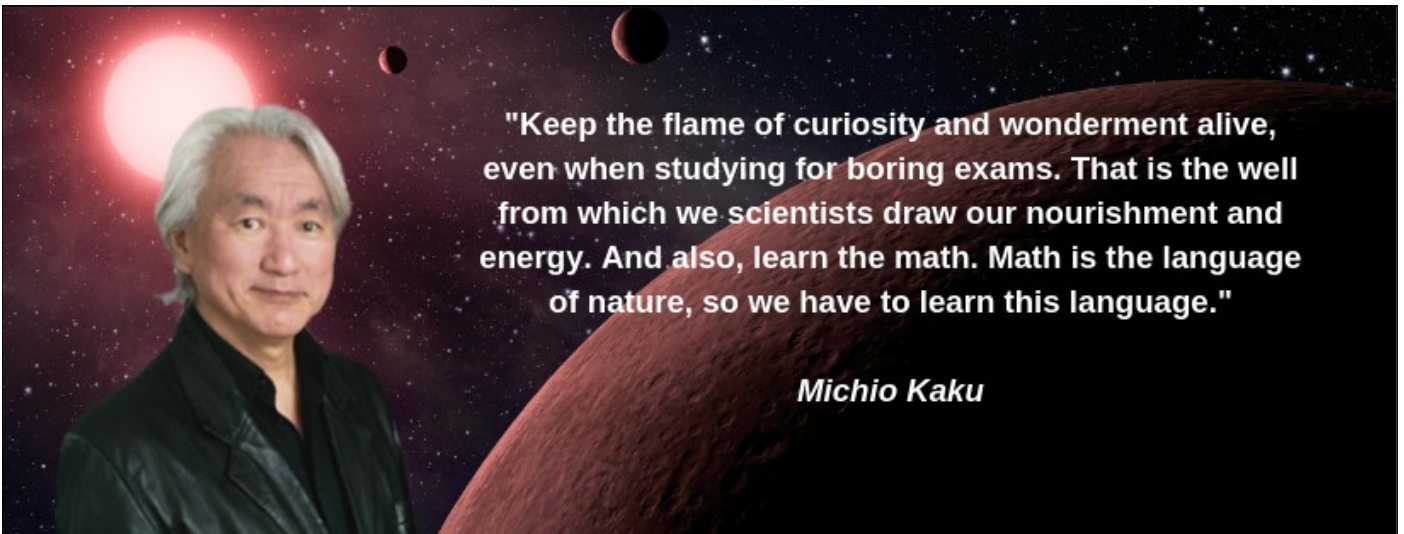


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#520

Beetles taste like apples,
wasps like pine nuts,
and **worms** like fried bacon.



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#554

The dot on top of the letter 'i' is called a tittle.

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#204

Butterflies taste with their feet.



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#404

Unless food is mixed with saliva you can't taste it.

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#361

The length from your wrist to your elbow is the same as the length of your foot.

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#3

Sir Isaac Newton was 23 when he discovered the law of gravity.



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Sound travels 15 times faster through steel than air.

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KETCHUP was sold in the 1830s as medicine.



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Oxygen Linked With the Boom and Bust of Early Animal Evolution

By the University of Leeds, www.leeds.ac.uk

New research reveals clues to a crucial period of rapid evolution in complex animals that began roughly 540 million years ago.

The research examines the period of rapid evolution, known as the Cambrian explosion, and indicates extreme fluctuations in atmospheric oxygen levels corresponded with evolutionary surges and extinctions in animal biodiversity. The trigger for this fundamental phase in the early history of animal life is a subject of ongoing biological debate.

The study, published today in *Nature Geoscience* by scientists from the UK, China and Russia, gives strong support to the theory that oxygen content in the atmosphere was a major controlling factor in animal evolution. Led by the University of Leeds and UCL, the study is the first to show that during the Cambrian explosion there was significant correlation between surges in oxygen levels and bursts in animal evolution and biodiversity, as well as extinction events during periods of low oxygen.

The history of oxygen on Earth

Dr Tianchen, study lead author and postdoctoral researcher at the University of Leeds, began this research while at UCL. He said: "The complex creatures that came about during the Cambrian explosion were the precursors to many of the modern animals we see today.

"But because there is no direct record of atmospheric oxygen during this time period it has

been difficult to determine what factors might have kick started this crucial point in evolution.

"By analysing the carbon and sulphur isotopes found in ancient rocks, we are able to trace oxygen variations in Earth's atmosphere and shallow oceans during the Cambrian Explosion.

"When compared to fossilised animals from the



The Cambrian Period, or explosion, it is the time when most of the major groups of animals first appear in the fossil record.

same time we can clearly see that evolutionary radiations follow a pattern of 'boom and bust' in tandem with the oxygen levels. This strongly suggests oxygen played a vital role in the emergence of early animal life."

Study co-author Professor Graham Shields from UCL Earth Sciences, said: "This is the first study to show clearly that our earliest animal ancestors experienced a series of evolutionary radiations and bottlenecks caused by extreme changes in atmospheric oxygen levels.

"The result was a veritable explosion of new animal forms during more than 13 million years of the Cambrian Period. In that time, Earth went from being populated by simple, single-celled and immobile organisms to hosting the wonderful variety of intricate, energetic life forms we see today."

The team analysed the carbon and sulphur isotopes from marine carbonate samples collected from sections along the Aldan and Lena rivers in Siberia. During the time of the Cambrian >>>

explosion this area would have been a shallow sea and the home for the majority of animal life on Earth.

The lower Cambrian strata in Siberia are composed of continuous limestone with rich fossil records and reliable age constraints, providing suitable samples for the geochemical analyses.

The isotope signatures in the rocks relate to the global production of oxygen, allowing the team to determine oxygen levels present in the shallow ocean and atmosphere during the Cambrian Period.

Study co-author Dr Benjamin Mills, from the School of Earth and Environment at Leeds, said: "The Siberian Platform gives us a unique window into early marine ecosystems. This area contains over half of all currently known fossilised diversity from the Cambrian explosion. Combining our isotope measurements with a mathematical model lets us track the

pulses of carbon and sulphur entering the sediments in this critical evolutionary cradle. Our model uses this information to estimate the global balance of oxygen production and destruction, giving us new insight into how oxygen shaped the life we have on the planet today."

Study co-author Maoyan Zhu from Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, said: "Understanding what triggered the Cambrian explosion requires multidisciplinary study. It took a long time to get this result. We already got samples from Siberia in 2008.



Lena River in Sakha (Yakutia), Siberia.

Credit: Andrey Zhuravlev, Lomonosov Moscow

"The sections in Siberia are difficult to access. It took time for us to organize the expedition and collect the samples there. Without support from Russian colleagues, we could not have done the project."



In the book "How to Think Like a Neandertal", archaeologist Thomas Wynn and psychologist Frederick L. Coolidge team up to provide a brilliant account of the mental life of Neandertals and offer an eye-opening portrait while painting a remarkable picture of these long-vanished people and providing insight, as they go along, into our own minds and culture.

Indeed, some Neandertal remains are not fossilized! The book explores the brutal nature of their lives, especially in northwestern Europe, where men and women with spears hunted together for mammoths and woolly rhinoceroses.

www.amazon.de

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4-metre Flying Reptile Unearthed in Queensland is Our Best Pterosaur Fossil Yet

By Dr. Adele Pentland, PhD, www.swinburne.edu.au

The most significant pterosaur fossil ever discovered in Australia has been unearthed in the Winton area of central western Queensland.

The newly discovered species, which my colleagues and I have named *Ferrodraco lentoni*, had a wingspan of about 4 metres. It lived around 96 million years ago, and was surprisingly similar to other pterosaurs from England, suggesting that these huge flying reptiles could traverse the globe with relative ease.

Pterosaurs are quite rare in the fossil record, as their bones are hollow and the outer bone in most instances is only 1mm thick. Only 15 pterosaur specimens have ever been scientifically described from Australia, many of them incomplete.

Until recently, only two species of Australian pterosaur had been described: *Mythunga camara* and *Aussiedraco molnari*, both based on fossil skull fragments.

Although more complete fossils of similar pterosaurs are known from Brazil and China, until this discovery, our understanding of the pterosaurs that lived in Australia during the Cretaceous period was limited.

The new pterosaur specimen, unveiled today in the journal *Scientific Reports*, includes a partial skull, five partial neck vertebrae, and bones from both the left and right wings.

This particular individual represents a fully grown adult, based on the fusion seen in several bones. Judging by its wing bones and the dimensions of similar pterosaurs, *Ferrodraco* would have had a wingspan of about 4 metres, with a skull probably reaching 60cm in length. It is likely that it ate mainly fish.

The genus name *Ferrodraco* refers to the fact that this winged reptile was found preserved in ironstone. And the species name *lentoni* honours former Winton Shire mayor Graham “Butch” Lenton, in recognition of his service to the



Photo: Swinburn University researcher Dr, Adele Pentland, PhD, is leading the research into the new species of pterosaur. (*Ferrodraco lentoni*)

community. The Winton area has within recent decades produced several well-preserved dinosaur fossils. *Ferrodraco* lived 96 million years ago, around lake and river systems surrounded by conifer forests. Based on other fossil evidence, this pterosaur shared its environment with several dinosaurs including the sauropods *Diamantinasaurus* and *Savannasaurus*, theropods such as *Australovenator*, ornithopods and ankylosaurs. Competing with *Ferrodraco* for fish in the freshwater river systems were crocodylomorphs (such as *Isisfordia*) and plesiosaurs.

Game-changer

The *Ferrodraco* specimen was discovered by Winton grazier Bob Elliott in April 2017 when he was spraying weedkiller along the banks of a creek on Belmont Station. It's not the first major fossil find on Belmont Station – the unique sauropod dinosaur *Savannasaurus elliottorum* was discovered just 10km from the pterosaur site.

Unlike other fossil sites in the Winton area, the pterosaur remains were found in the banks of a creek and had likely been exposed to the elements for several years. >>>

One bone from the wing had even been kicked away from the main site by livestock travelling through the creek. Had the bones not been infiltrated by iron-rich fluids, which ultimately became ironstone, these precious fossils would have been lost to erosion many years ago.

Unlike many other fossils, the bones were covered by a thin layer of rock. This meant that *Ferrodraco* had an unusually quick journey (by palaeontological standards) from discovery to scientific publication.

Preparation of the specimen was finished within a week by preparator Ali Calvey. Even before the bones had been fully prepared, our team was able to make detailed observations and determine which family of pterosaurs this specimen belonged to.

Surprisingly, *Ferrodraco* shows closer ties with similarly aged pterosaurs from England than it does to those from South America.

This suggests that these pterosaurs, collectively known as ornithocheirids, could easily fly across oceans and disperse between continents.

This idea has been put forward by other palaeontologists, but the dearth of material from Australia had made it difficult to verify until now.

"Pterosaurs are quite rare in the fossil record because their bones are hollow and the outer bone is normally only about a millimetre thick."

Ferrodraco has changed the game in that regard, demonstrating that it was living at least as recently as its Northern Hemisphere ornithocheirid cousins. In fact, it might represent one of the geologically youngest ornithocheirids ever found. Although more work needs to be done to demonstrate this, *Ferrodraco* is nevertheless one of the

most important pterosaur specimens ever found in Australia.



Dr. Pentland's article was first published in *The Conversation*, under the Creative Commons license. www.theconversation.com



The image shows a large, modern building with a facade of red and blue panels. In the foreground, there is a large, white, curved structure supported by red poles. The Swinburne University of Technology logo is visible in the top left corner of the image.

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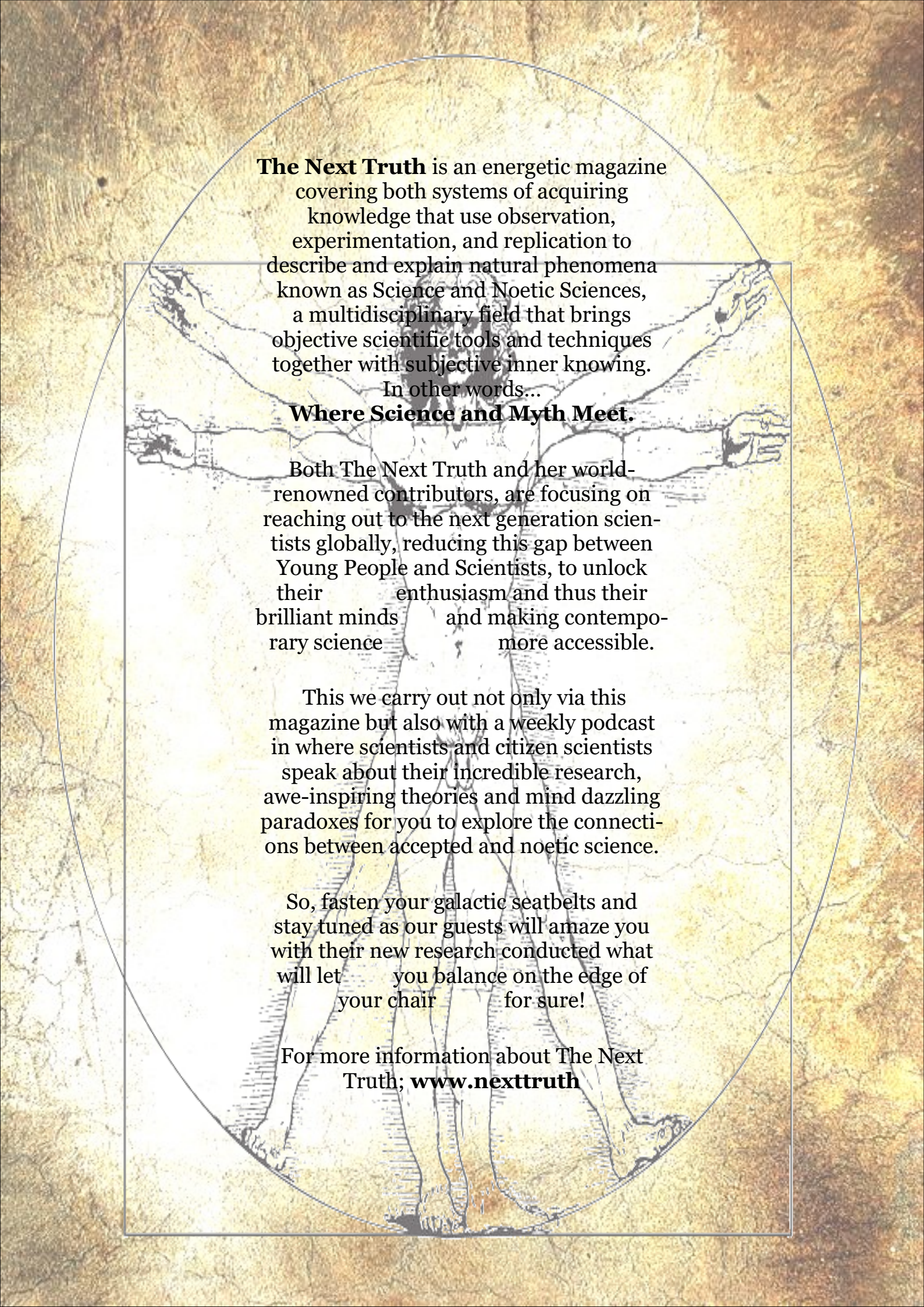


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The detailed information contained in "Canine Confidential" has a good deal of significance for dog trainers and teachers.

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