

Marvellously multilingual

From staving off the symptoms of dementia to thinking better, speaking many languages is all upside, finds **Vijaysree Venkatraman**



Speaking more than one language does wonders for the brain

were speaking English and Chinese writer Zhang Haidi when speaking Mandarin. They knew both answers, but what came to mind depended on the language they were speaking when asked.

It isn't just hard facts. The finding that the accessibility of memories varies across languages has implications for interviewing bilingual witnesses in legal cases, writes Marian, who is an expert witness in a legal case involving questioning a bilingual person.

Similarly, when providing psychotherapy (see page 38), therapists need to be aware, says Marian, that in bilingual clients, the likelihood of remembering something increases if you are using the same language that was used when the original event occurred. The majority of the world's population is bilingual or multilingual, she reports.

Yet speakers of dominant languages – associated with countries with more economic power – seem less keen on learning a new language, Marian points out wryly, perhaps because the consequences of multilingualism are minimised, misunderstood or even politicised.

This book comes packed with evidence-backed insights about the power of language. Language, the “codes we use to think, speak, and live,” reflected in the subtitle of the US edition, makes for an endlessly fascinating topic.

After reading this book, you might want to download a language-learning app or sign up for a language class to expand your linguistic horizons. ■

Vijaysree Venkatraman is a writer based in Boston, Massachusetts



Book **The Power of Language**

Viorica Marian
Pelican Books/
Penguin Random House

AT THE paediatrician's clinic, a nurse told Viorica Marian, a native speaker of Romanian, to use only English with her US-born daughter. Speaking another language would “confuse” the child and hurt her long term, the woman said. This happened more than a decade ago. Even today, it is common advice for immigrants in the US. It is also completely wrong.

In her new book, *The Power of Language*, Marian, a Moldovan-US linguist, draws deeply on research, some of it her own, most recently at Northwestern University in Illinois. She explains how language operates and how we can harness languages to enrich our lives, as individuals and societies. She makes a convincing case that being bilingual – or better, multilingual – can work wonders for the brain.

When people who are bilingual

use one of their languages, she explains, the other one is active, in parallel, in their brains at the same time. As a result, the executive control system, which keeps us focused on what is relevant, is constantly honed. Just as exercise changes our bodies, this mental activity rewires the bilingual brain.

A buff executive control system gives bilinguals certain cognitive and social advantages even at a young age – they are good at multitasking, for instance. And if they go on to develop Alzheimer's disease or another form of dementia, writes Marian, the onset of symptoms occurs five years later on average compared with their monolingual peers with the same anatomical change to the brain.

“If the brain is an engine, bilingualism may help to improve its mileage, allowing it to go farther on the same amount of fuel,” writes Marian. Usefully, the benefits aren't exclusive to people who were raised bilingual – they are also seen in those who learn a second language later in life. It is, the author emphasises, really

never too late – or, indeed, too early – to start learning another language.

Because language and culture are intertwined, bilinguals may have different mindsets for each language. “Just as H₂O can be a solid, a liquid, or a gas depending on temperature, a person can be a different version of themselves depending on which language they are using,” she writes.

The idea that various versions of

“The majority of the world's population is bilingual or multilingual”

the self can coexist in a speaker of many languages seems too romantic even to a bilingual like me, so let us consider some plainer ramifications.

For instance, writes Marian, when people who are bilingual in Mandarin and English were asked to name a woman who succeeded despite physical disabilities, they were more likely to mention US author Helen Keller when they

A waiting game

Why do new traits in evolution and human culture often stay dormant? **Michael Marshall** finds some intriguing answers



Book
Sleeping Beauties
Andreas Wagner
Oneworld Publications

THE world's grasses waited a long time for their day in the sun. They evolved in the late Cretaceous, not long before the dinosaurs were wiped out. But for tens of millions of years they were rare. Only relatively recently have parts of Earth become dominated by sweeping grasslands.

Sleeping Beauties: The mystery of dormant innovations in nature and culture argues that in both evolution and human technology, innovations must often wait a long time before they find a use and become commonplace.

It is a fascinating argument, told in an engaging and clear style, that reminds us just how creative evolution can be. The author is Andreas Wagner, an evolutionary biologist at the University of Zurich in Switzerland, whose most notable previous book was *Arrival of the Fittest* in 2014. There he set out to

This landscape of an African savannah with its sweeping grasses is evolutionarily recent



explain why evolution is so good at producing new and useful traits, even though genetic mutations occur at random. His answer was twofold: there are many ways to solve the same problem and biological structures are often relatively resilient to minor changes.

Sleeping Beauties builds on this. Wagner explains that evolution is so creative it often endows organisms with traits they don't need, which can linger for generations and become useful if circumstances change – the “sleeping beauties” of the title. This is true in human culture too, he says, as people can invent technologies (often many times and independently) decades or centuries before they are successful.

Grass is one of Wagner's favourite examples of a sleeping beauty. Crucially, the turning point was an environmental shift, not an evolutionary change in the plant.

We often think an innovation only spreads once it has been perfected. Sometimes that is true: smartphones were pretty niche until the first iPhones with easy-to-use touchscreens. But often, Wagner writes, the innovation is fine, but the environment is wrong.

It is possible to quibble with some

of his arguments. Wagner suggests, for example, that the visual processing centres of human brains were primed for reading long before alphabets. He cites experiments showing that most letters in most alphabets use lines and angles common in the natural world, and which our brains are therefore adapted to perceive.

I don't doubt the experiments, but they tell us that people tend to devise alphabets with characters we can easily distinguish. This doesn't mean our brains were primed for reading's core challenge of making links between abstract shapes, sequences of sounds and meanings.

However, this doesn't affect Wagner's core arguments. He says the key to nature's inventiveness is the sheer number of organisms and mutations that arise every year, which means a useful innovation is likely to arise somewhere. And while we tend to see biological molecules, such as proteins, as having a core function, most can do many things, giving evolution even more scope. The same is true of technology, notes Wagner, with many ways to build a refrigerator.

The fecundity and versatility of biochemistry is also important for the origins of life, a question he only touches on. Many researchers are preoccupied with the idea that life's mechanisms are precise and interdependent. This makes it hard to envision a simple, primordial organism: stripping away many systems ought to be fatal, but the multifunctionality of most biochemicals suggests that this is less of a problem than it seems.

It may be that Wagner's sleeping beauties aren't just essential for understanding recent evolution, but for understanding how evolution began in the first place. ■

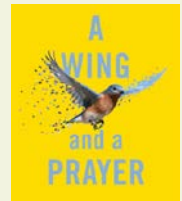
Michael Marshall is a writer based in Devon, UK

Don't miss



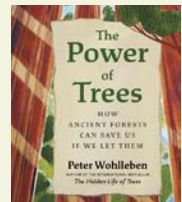
Watch

Mrs Davis stars Betty Gilpin (above) as a nun facing off against an all-seeing, ever-helpful artificial intelligence, the titular “Mrs Davis”. The comedy streams on Peacock TV (US) from 20 April; Now TV and Sky (UK) later this year.



Read

A Wing and a Prayer reveals the novel, sometimes perilous rescue work to save North America's vanishing birds. Journalists Anders and Beverly Gyllenhaal talk to scientists and birders. On sale from 18 April (UK/US).



Read

The Power of Trees is a love letter of sorts from Peter Wohlleben, author of *The Hidden Life of Trees*. He argues that human futures depend on us preserving our ancient forests and their knowledge. On sale from 20 April (UK/US).

CREDIT: HERE

CREDIT: HERE