

Passing the smell test

When Paola Totaro lost her sense of smell, she set out to investigate the least studied of our senses in this timely book, finds **Vijaysree Venkatraman**



Book
On the Scent
Paola Totaro and Robert Wainwright
Elliott & Thompson

EARLY in the covid-19 pandemic, London-based reporter Paola Totaro lost her sense of smell. Feeling trapped in a sensory void, she began investigating the mysteries of smell, and the result is the engaging and timely *On the Scent*, written with her husband, journalist Robert Wainwright.

The coronavirus has affected millions of people's ability to smell, and the symptom has persisted in some, months after the infection has passed. The pandemic has put a spotlight on olfactory impairment. Anosmia is the clinical term for an inability to perceive smell. Parosmia turns pleasant smells into stench for some (the "fortunate" ones perceive foul smells as pleasant). In phantosmia, people hallucinate smells.

Totaro's personal experience and the authors' sensitive profiles of people with anosmia or

parosmia make it clear that a sense of smell can be integral to emotional well-being. Depression, the authors discover, affects a good third of those who have lost their ability to smell, while neuroscientist Oliver Sacks has written of "a woman transfixed by grief when she couldn't recognise the smell of her own baby".

Smell is the least studied of our five senses. The authors introduce us to the work of pioneering olfactory researchers such as Linda Buck, who identified the family of genes that allows humans

to detect and distinguish smells. Buck's fundamental research, for which she won a Nobel prize in 2004, has laid the groundwork for understanding certain diseases characterised by anosmia.

Gathering evidence shows that conditions like Alzheimer's and Parkinson's are associated with an early loss of smell. A dysfunctional sense of smell is also linked with schizophrenia and dystonia. So, in the future, a smell test may be part of routine health check-ups, particularly for older people.

Researchers have found some of

There is no cure for anosmia, but "smell training" can help

the biological mechanisms that lead to covid-related smell loss. The virus doesn't infect odour-detecting nerve cells, but attacks cells that play a supporting role in the olfactory system – so regeneration is a possibility.

But no doctor can tell you how long this loss of smell will last, or even if you will regain it. Though there is no cure for anosmia, a technique known as smell training – regular sniffing of aromas such as rose and lemon – has helped some people with acquired olfactory loss. Patience is key, the authors stress.

On a recent trip to Puglia, Italy, Totaro saw a religious procession where a parishioner was carrying an incense burner. The scent of frankincense and myrrh brought back memories of attending mass with her grandmother – and she wept in gratitude for her newly functioning nose. ■

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Plastic surgery's first pioneer



Book
The Facemaker
Lindsey Fitzharris
Allen Lane

THE first world war killed or wounded around 40 million people. "For the first time... Europe's military technology had wildly surpassed its medical capabilities," writes Oxford historian Lindsey Fitzharris in her

informative book, *The Facemaker*.

Fitzharris introduces us to New Zealand-born ear, nose and throat (ENT) doctor Harold Gillies. By 1917, he had become the world's pre-eminent specialist in plastic surgery, developing techniques still used today like the "bishop's mitre flap" for the nose, or the "tubed pedicle" for severe burns.

Plastic surgery in the 19th century was crude, with masks generally used to cover scarring. Gillies travelled to various Allied

countries to shadow doctors and dentists whose methods had reached him. After war broke out, soldiers with catastrophic facial injuries streamed to him at his institution, The Queen's Hospital in Sidcup, UK.

One patient, Sidney Beldam, was struck by a piece of shrapnel, slicing through the right side of his face and tearing off a large portion of his nose. Gillies reopened his hastily sewn-up wound and sutured a flap of healthy tissue to

"fill out the cheek". Beldam would then undergo 39 more operations to repair his nose from scratch.

Fitzharris portrays Gillies as forward-thinking, recognising that this burgeoning medical field required a multidisciplinary approach and hiring ENT doctors, dentists, sculptors, and artists in his pursuit. She paints a powerful portrait of a gifted man. ■

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Icy future for music

From traditional work by Indigenous musicians to songs from a sci-art pioneer, it is all preserved in ice, finds **Chelsea Whyte**



Music
Global Music Vault
Spitsbergen,
Svalbard Archipelago, Norway

TOWERING over the ice on Spitsbergen, the largest island in the Norwegian archipelago of Svalbard, is a "doomsday vault". Over 1 million seed varieties from all over the world are kept in this mountain facility, which is intended to preserve agricultural biodiversity and secure the world's food supply. Now, a new kind of deposit is on its way to the mountain: the Global Music Vault (GMV), which will store varied music from around the world.

"We see on a global scale that music is sometimes fragile, music gets lost," says Alfons Karabuda, president of UNESCO's International Music Council and a GMV board member. A recent example he cites is Afghanistan's musical culture, now under threat because the Taliban has banned music, and instruments are being smashed and burned across the country.

The first deposits to the GMV include: contributions from the International Library of African Music in South Africa, one of the biggest African music repositories; a selection of New Zealand music, provided by the Alexander Turnbull

"Music has to be included in this vault because it is one of the things that keeps us alive inside"

Library in Wellington; material from the Orchestra of Indigenous Instruments and New Technologies in Argentina, which uses Central and South American instruments; a cappella music by the Fayha Choir in Lebanon; and pieces from Ketebul Music in Kenya, a non-profit arts



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organisation that preserves the musical traditions of East Africa.

"We could have gone for the Billboard top 100 or the most popular playlists on streaming services," says Karabuda. "Instead, we have people representing music [from] all over the world helping us. And we are also looking at indie musicians, like Beatie Wolfe."

Wolfe says the project fits with her desire to cross boundaries and create something musically tangible in an age of digital noise, making science accessible through art. In 2017, she debuted her album *Raw Space* from the quietest room on Earth, Nokia Bell Labs's anechoic chamber in Murray Hill, New Jersey. It was live-streamed to the stars in 360-degree augmented reality via the Holmdel Horn Antenna, a device that detected the cosmic microwave background and provided evidence for the big bang theory.

In 2020, Wolfe built a digital installation, featuring her song *From Green to Red*, which uses NASA data to illustrate changes in atmospheric carbon dioxide over the past 800,000 years. "It is an environmental protest piece," says Wolfe, stating that humans have damaged the planet more in the past 25 years than in all our prior

Disaster recovery: a global music repository joins the global seed bank to preserve Earth's heritage

history. "Even in our knowing [about climate change], we have increased emissions so significantly," she says.

Wolfe has chosen this song to go in the vault, along with *Oh My Heart*, which debuted at the 2021 Nobel Prize Summit. To protect them, the GMV has teamed up with a Microsoft research group, which is developing sustainable, long-term data storage. Lasers will etch the song data onto silica glass plates around the size of drinks coasters. This inert material can withstand harsh environments, resist electromagnetic pulses and could last at least 1000 years.

"The idea of unearthing it in thousands of years is almost too exciting a prospect, just because I feel we may be short-lived as a species," says Wolfe. But she isn't a total pessimist: depositing music in the vault suggests at least some hope for a future audience. As she says, nature and art are central to our humanity, they aren't just for surviving, but for thriving – "I feel like music has to be included in this vault because it is one of the things that keeps us all alive inside." ■

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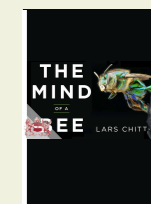
Watch

Moonhaven is a futuristic thriller in which lunar utopians are looking for ways to save a dying Earth – or are they? Watch on AMC+ (Apple TV+, Amazon Prime, Sky and BT in the UK) from 7 July. UK date to be announced.



Read

Fantastic Numbers and Where to Find Them is an irreverent tour of extraordinary numbers in physics, big, small and bafflingly infinite. Be amazed as physicist and YouTuber Tony Padilla reveals the inner workings of reality. Available from 30 June.



Watch

The Mind of a Bee will be explored by Lars Chittka, author of a book on the subject, in a talk for the Linnean Society of London. Bees count, use tools, solve problems and learn by observing others. Watch online at 6pm BST on 29 June.

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