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BOOK CHAIN PROJECT

YOU SMELL!

AND SO DOES EVERYTHING ELSE!



CLIVE GIFFORD

ILLUSTRATED BY PETE GAMLEN

LAURENCE KING PUBLISHING

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SMELL
(NOT TO BE SNIFFED AT)

Smell is the Cinderella of senses. It does so much hard work, but it is often forgotten while your other showy senses – such as sight and hearing – take all the attention. Poor Cinder-smella.

Now it's time to put smell back in the spotlight and discover more about this amazing ability. Did you know that all sorts of animals rely on smell to survive? It's true – and you're one of those animals! Your sense of smell warns you of dangers as varied as fire, rotten food and the approach of a stinky school bully.

Smell can affect your mood and emotions, and trigger memories stored deep inside your brain. Oh, and if that wasn't enough, without smell your sense of taste is nothing.

In this book, you'll get up close and personal with the world's biggest stinkers, from peeing pandas to toxic-breathed kings. You'll learn how smells have helped to build empires and bring down entire cities, and how super-stinky inventions are still changing our world.

ALONG THE WAY, KEEP AN EYE OUT FOR THESE SMELLY SYMBOLS:

SMELL LAB

Sniff out a **Smell Lab** for a chance to create your own smelly experiments and activities.

ODOROUS OCCUPATION

Nosy about people's smelly jobs? Check out these **Odorous Occupation** panels.

YOU STINK!

But it's ok, we all do! Your body has all sorts of stinky systems, from your head right down to your toxic toes. Read on and reek on!

PERSONAL PERFUME

Every person has a natural scent of their own – their body odour. It comes from the gas released by the tiny mites and **bacteria** that live on your skin and eat your dead skin cells. So glamorous!

CHEESY, FISHY OR FRUITY?

Bad breath can sometimes be a sign of a problem elsewhere in the body. Cheesy breath is linked to nose and sinus problems, fishy breath to struggling kidneys, and fruity breath can be caused by blood sugar issues.

POUNDS AND SCENTS

Ever noticed a metallic smell on your skin after you hold coins? Your sweaty hand is to blame! The sweat reacts with the iron and copper in coins to create the metal pong.

In one month you can fart enough gas to inflate up to 20 party balloons!

Your feet can produce up to two cups of sweat a day!

BACTERIA BREATH

Bacteria living in your mouth steal tiny amounts of your chewed-up food – um, rude. Then they belch out foul-smelling gases that can give you stinky breath – double rude!

STINKING STONES

Tonsiloliths, or tonsil stones, are yellow or white clumps of bacteria, **mucus** and dead cells that gather in the little crevices around your tonsils. They're harmless but they smell disgusting!

ACID REEK-FLUX

Stomach acid is very useful for dissolving food. But if the acid and food gloop make a return journey up into the back of your mouth, it will give you sour and bitter breath.

THE POWER OF SMELL

Smell fascinates scientists, not only because of how powerfully it can influence our tastes, memories and emotions, but also because every person experiences smell differently.

SMELL MEMORIES

Long after a smell has faded away, your brain may hang on to the memory of it. But how?

Well, the olfactory bulb – the part of your brain that first receives smell signals from the nose – is linked directly to the hippocampus, a part of your brain that helps form memories.

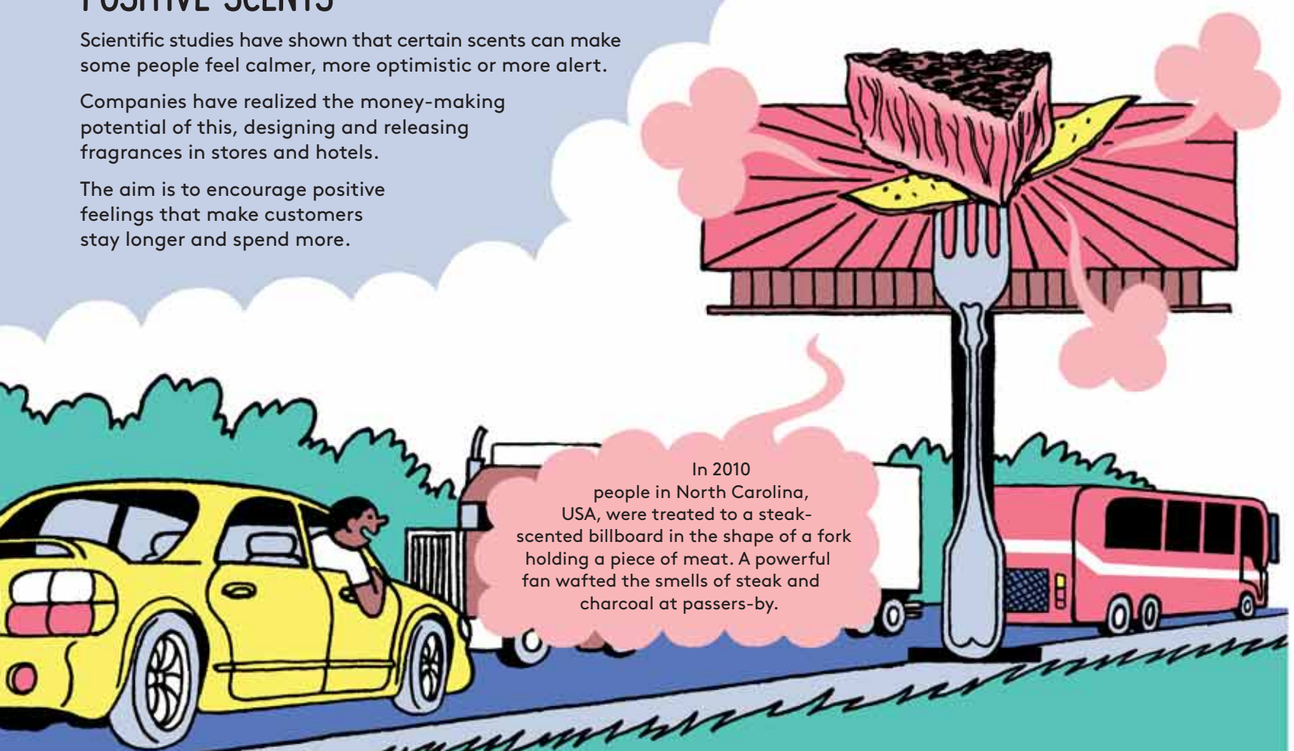


POSITIVE SCENTS

Scientific studies have shown that certain scents can make some people feel calmer, more optimistic or more alert.

Companies have realized the money-making potential of this, designing and releasing fragrances in stores and hotels.

The aim is to encourage positive feelings that make customers stay longer and spend more.



SMELL LAB

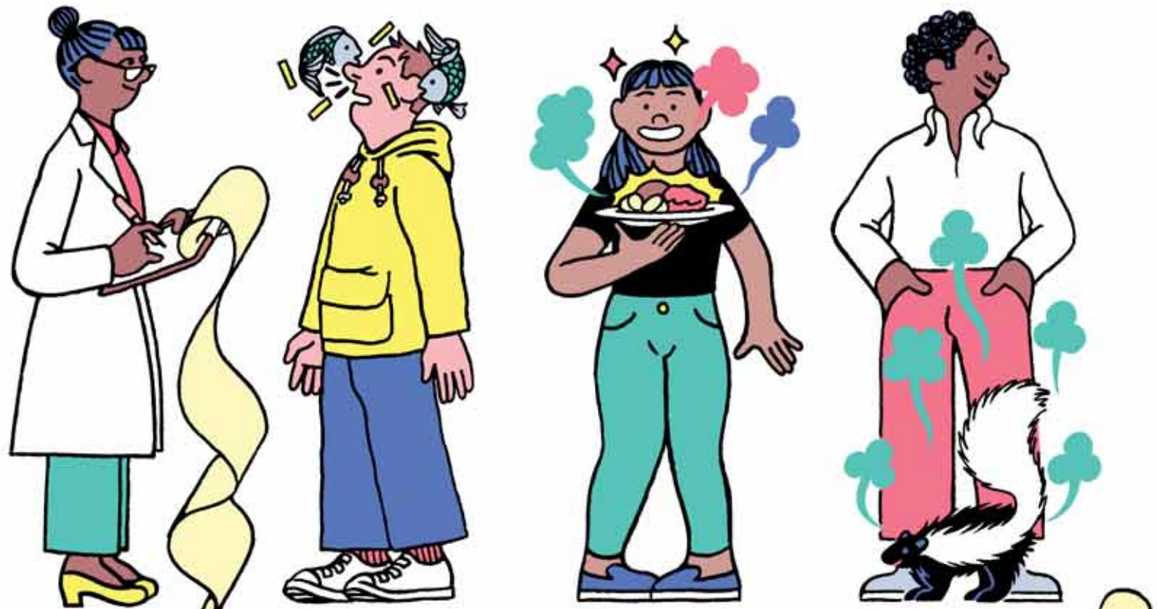
TASTING WITHOUT SMELLING

When you chew food, it releases odour molecules that travel from your mouth up into your nose. If you have a cold and your sense of smell isn't working well, you'll notice your food tastes dull and samey. Ask someone to grate some pear, carrot, onion and apple into four identical bowls. Put on a blindfold, hold your nose tightly and taste a little from each bowl. Can you figure out which is which without your sense of smell?



STRANGE SMELLING

Everyone has a slightly different mix of odour receptors up their nose, which means that each person smells things a little differently. And some people have very strange senses of smell...



People with Phantosmia can smell odours that aren't actually there, such as fish-and-chip-shop batter and burned toast when neither a chippy nor a toaster is nearby.

Synaesthesia is a condition that makes a person's senses mingle together. They might experience sudden smells when they read words, or see strong colours when they pick up certain scents.

If you can't smell a particular odour, you might have Specific Asnomia. For instance, around 1 in 1,000 people can't smell butyl mercaptan – luckily, because it smells like a skunk!

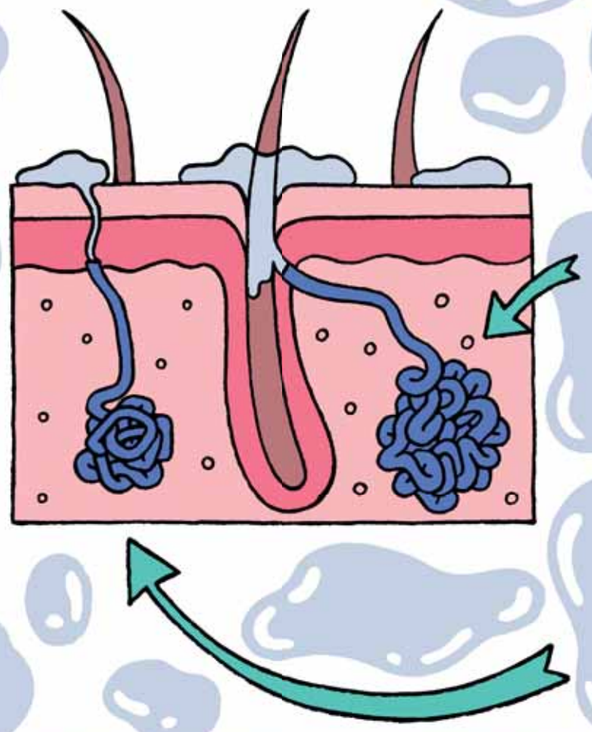
DON'T SWEAT IT

Sweat can be stinky but it's crucial for stopping your body overheating. If you do an energetic sport, you can easily lose one litre of sweat every hour.

COOL STUFF

When you're too hot, your sweat **glands** produce perspiration, which leaks out of the 2-4 million holes in your skin, known as pores.

As the liquid **evaporates** off your body, you cool down. Did you know you have two different types of sweat and sweat gland?



Apocrine glands are found only in certain, usually hairy, places on your body. They release a small amount of thick, oily sweat that contains proteins and fatty acids. This liquid really smells – and the substances created when it is feasted on by the millions of bacteria that live on your skin stink!

Eccrine glands produce clear, thin sweat that is 99% water – with tiny amounts of salts and other substances. This liquid doesn't smell at all when it sits on your skin, which is a good job because you have these sweat glands all over your body.

STINKY FEET

Bacteria love to wallow in the damp, warm nooks and crannies of your sweaty feet. They feast on your dead skin cells and skin oils, then pump out smelly acid waste as they digest their delicious meal. That's what makes your feet all stinky – blame them!



In 2013 scientists at Dublin's Trinity College showed off cheeses they'd made using bacteria from sweaty armpits and cheesy feet. They were definitely not for eating.

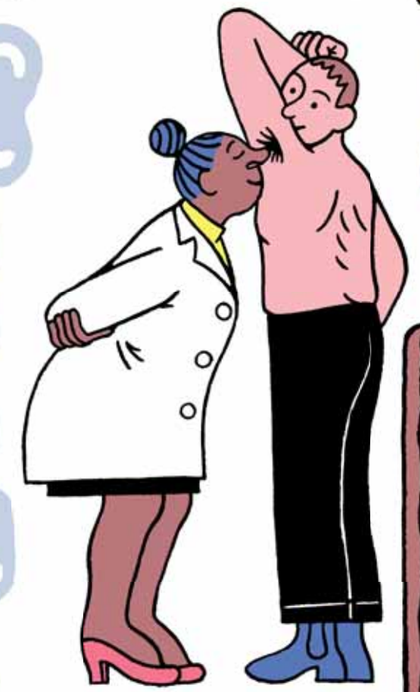


MOVIE SWEAT

A study in Austria showed that we can smell someone's emotions in their sweat. People wearing sweat-collecting pads watched both scary films and friendly family films. When other people smelled the pads, they could tell which ones had been worn during the scary movies.

RAINBOW SWEAT

Some people sweat in colour – in shades of yellow, blue or green! This is a rare medical condition called chromhidrosis, linked to a colourful substance called lipofuscin that is found inside your body.



ODOROUS OCCUPATION

ODOUR JUDGE

Deodorants tackle smelly sweat with chemicals that kill off bacteria. But how to know if they are really working? You need an odour judge.

Odour judges work for research and cosmetics companies. Their smell-testing work includes sniffing people's sweaty underarms to test the freshness of a deodorant hours after it was applied.