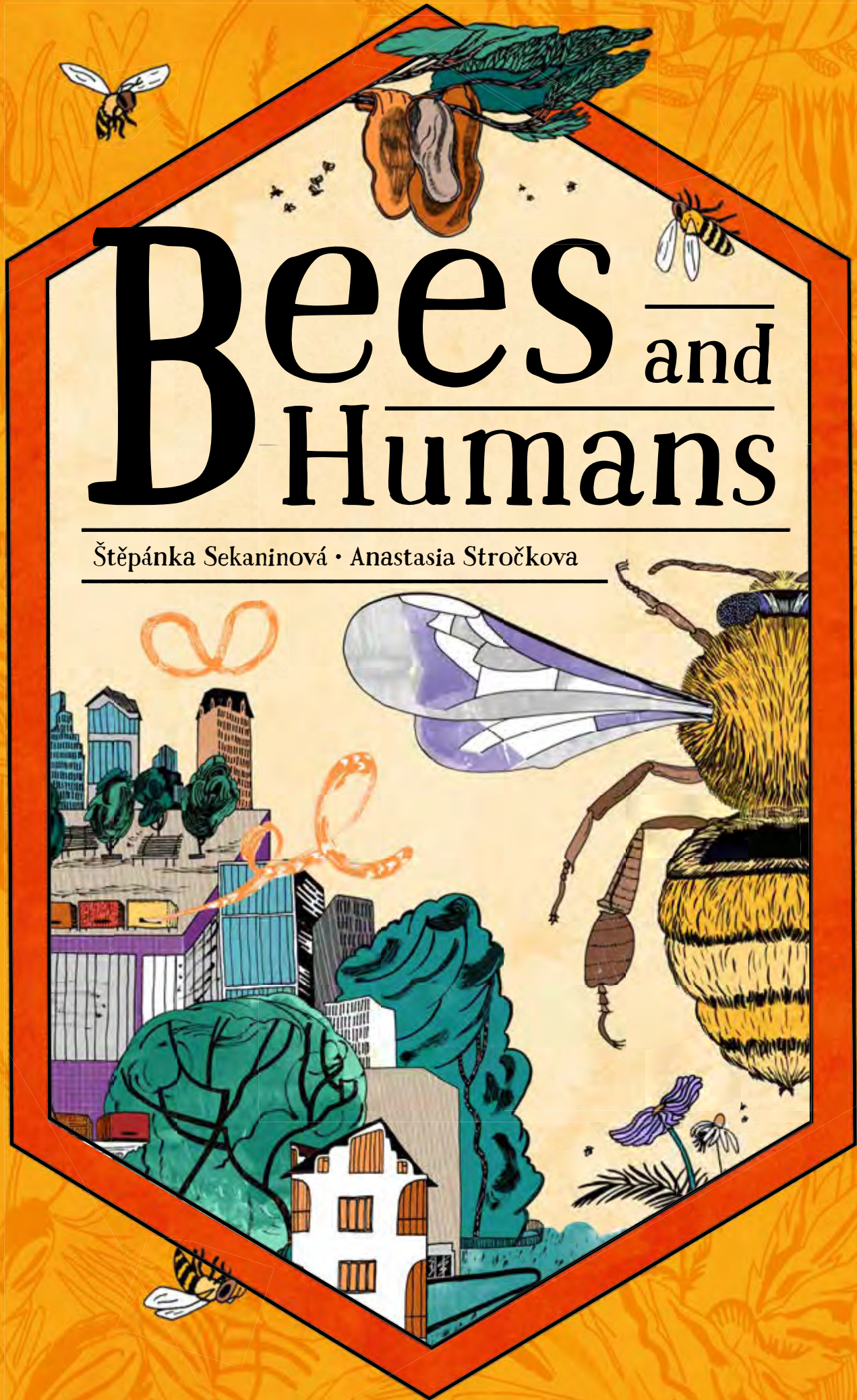




Štěpánka Sekaninová • Anastasia Stročkova

Bees and Humans



# Bees and Humans

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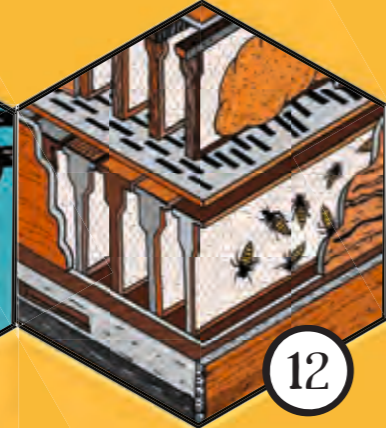


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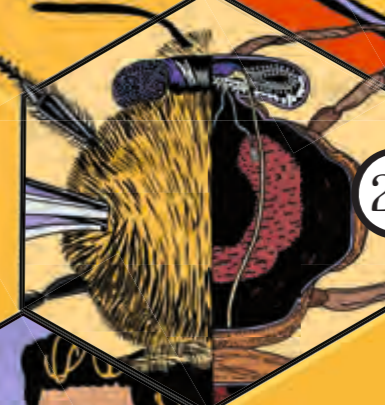
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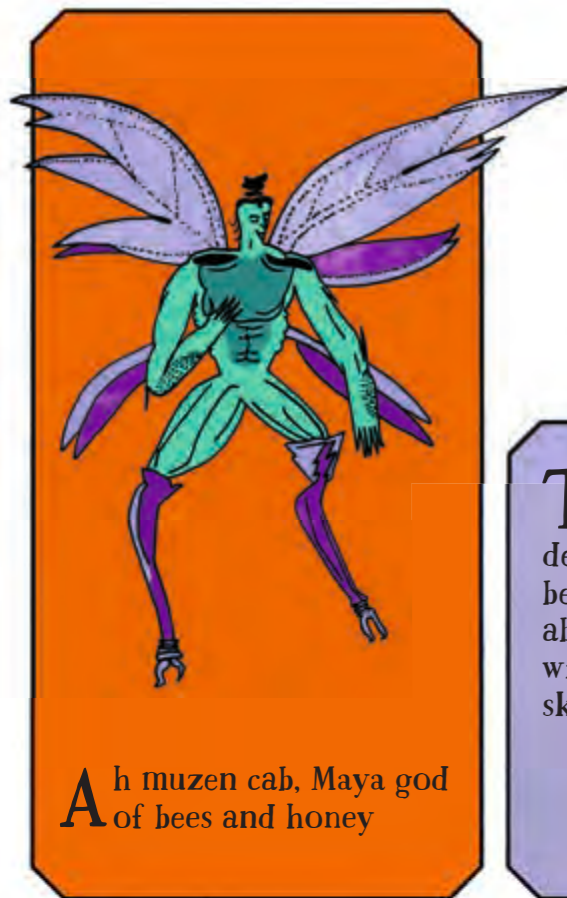


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# Saints, sovereigns & scholars



Ah muzen cab, Maya god of bees and honey

Hardworking bees have been considered sacred beings since ancient times, and this sacredness extends to their produce. For our ancestors, bees came to symbolize fertility, immortality, long life and purity. In many cultures, bees were viewed as souls of the dead, or even souls of the as-yet unborn. They became symbols of diligence and division of labour. For these characteristics, many rulers have included them in their insignia. In the Middle Ages, bees represented the gift of eloquence; by landing on the lips of an infant, the bee was said to grant that child the orator's gift.

The goddess Artemis, depicted as a bee, with jointed abdomen, bee-like wings and long skirt



Zeus, greatest of the Greek gods, who as an infant in the cave Dictaeon Antron was kept alive by honey from sacred bees. The adult Zeus showed his gratitude to the bees by assuming the epithet Melisseus ("bee-man") and giving them their gold colouring and the strength to withstand bad weather.



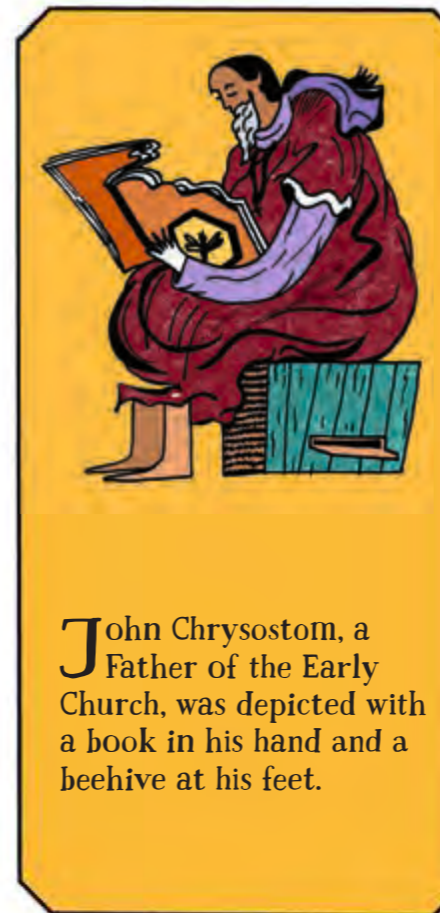
In ancient Egypt, bees were regarded as tears of the god Ra. The tears transformed into bees on falling to earth.



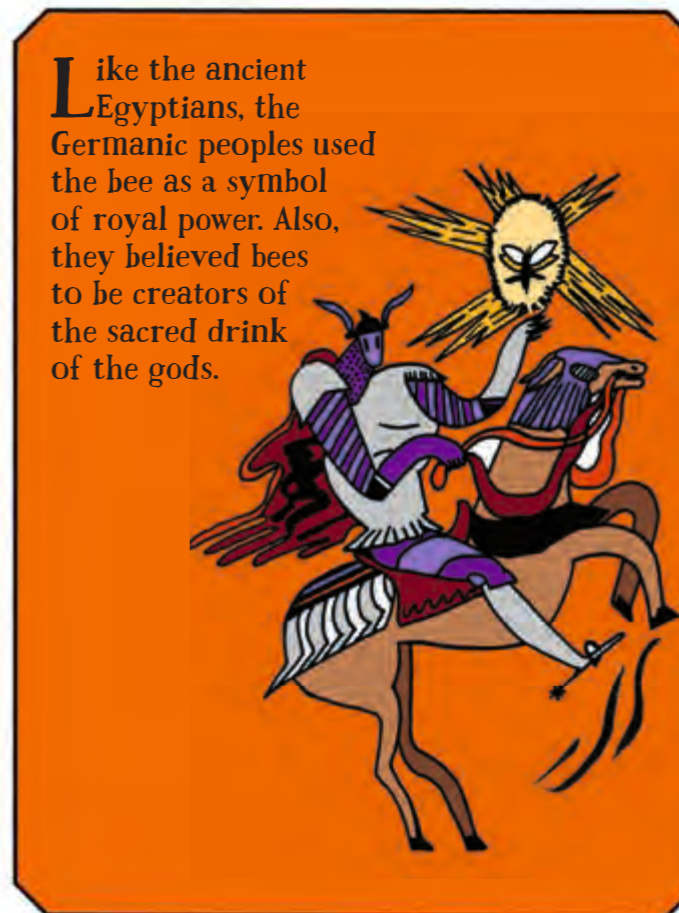
Greek philosopher Aristotle placed bees in three castes. He believed that the queen gave birth to workers and the workers to drones. The workers also organized, built and cleaned the shelter, made the honeycombs, took care of the eggs and food supplies, and drove the drones from the hive.



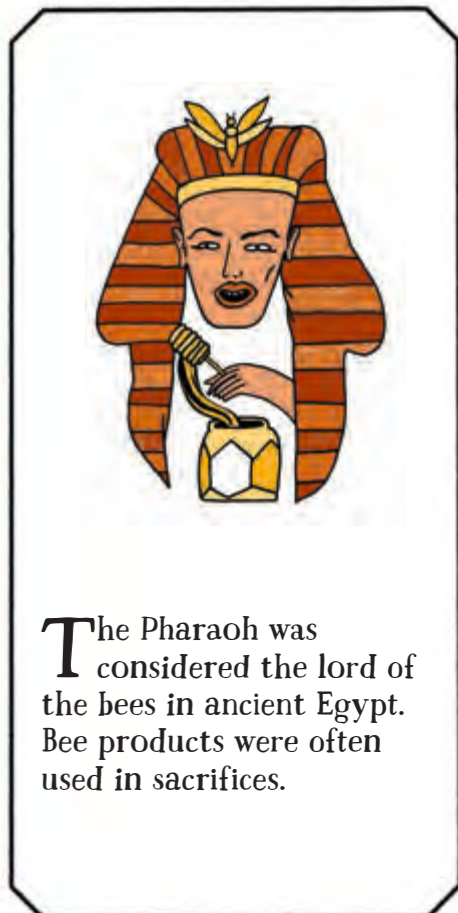
The official stamp of Pope Urban III depicted a bee.



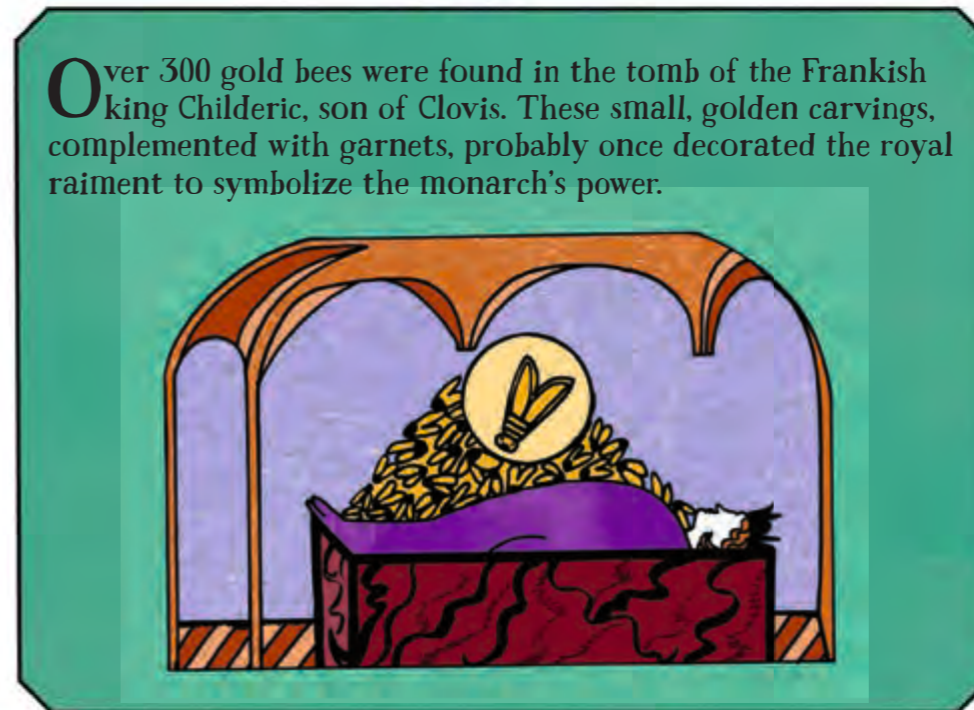
John Chrysostom, a Father of the Early Church, was depicted with a book in his hand and a beehive at his feet.



Like the ancient Egyptians, the Germanic peoples used the bee as a symbol of royal power. Also, they believed bees to be creators of the sacred drink of the gods.



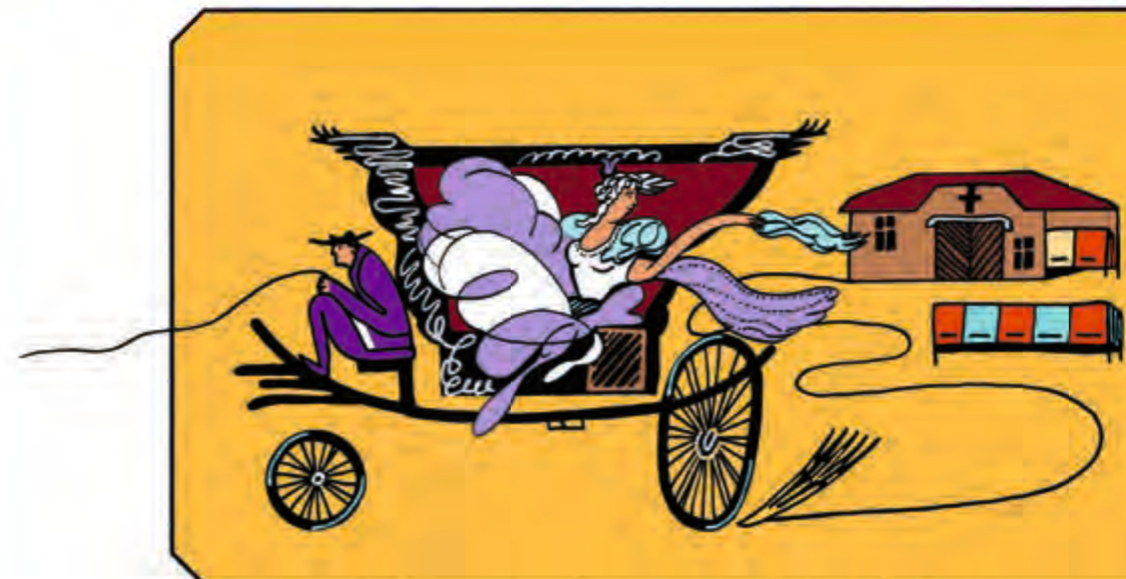
The Pharaoh was considered the lord of the bees in ancient Egypt. Bee products were often used in sacrifices.



Over 300 gold bees were found in the tomb of the Frankish King Childeric, son of Clovis. These small, golden carvings, complemented with garnets, probably once decorated the royal raiment to symbolize the monarch's power.



Thanks to the discovery of the golden bees in the tomb of the Frankish king Childeric, Napoleon Bonaparte went back to the Merovingian dynasty's symbol of the bee. It appeared on his royal mantle in place of the Bourbon lily.



With her Beekeeping Patent of 1776, Maria Theresa exempted beekeepers from taxation whilst forbidding extermination of bees. She founded several beekeeping schools in Austria-Hungary and herself kept bees near her Vienna residence, making a great contribution to the development of the craft. The Patent also forbade great landowners from expelling beekeepers from their estates.

# Beekeeping in cities



A colony of bees needs about half a litre of water a day.

Bees among the high-rise blocks? Nonsense, surely? Where would bees get the pollen they need amid all the grey concrete? We must remember that parks (large and small) in cities have lots of different flowers – providing wonderful, diverse pastures for bees and their relatives. But where do the beehives go? Well, raise your eyes to the roofs of buildings. There they are – beehives in the city! Beekeeping has become something of an urban trend. Hives also thrive on balconies, terraces and edges of parks.

## + Advantages of roofs

Built-up areas of large cities retain heat for a relatively long time. As a result, plants remain in bloom there for considerably longer than in the wild, so that bees always have something to gather. Another advantage of the city is its wider range of flowering plants. In the country, the range may be limited to a single species, so significantly weakening bees' immunity. As plants in urban spaces are not grown for economic purposes, they tend not to be treated with chemicals, which are a threat to bees.

## - Disadvantages of roofs

Are there any disadvantages to roofs? Well, the distance from the ground can be a problem. Bees need a regular supply of water. It costs them immense effort to fly from a roof to the street before returning to the roof with water. If the weather is bad – very windy, for instance – many hard-working bees fail to return to a hive up in the roof. Fortunately, there is a solution for this: a container of water near roof hives, so that the bees don't have to rush about the city for a drink.

**Nomadic bees** The initial impetus for moving bees around – which, as you know, occurred in ancient Egypt – came from the wish to conserve their energy. Moving bees in carriages has many advantages. The bees do not have to undertake long, tiring flights for copious winter supplies to be brought within their reach. In providing us with a lot of tasty honey, and by pollinating plants from spring to autumn, they comply with the basic human rule of quid pro quo. A well-thought-out migration of bees begins in the south in early spring, in a region where the flowers are already in bloom. The carriage-loads of bees move gradually to the north, where the flowers blossom later.

When is the best time of day to move a hive? At night, when all its bees are at home.



# Bee magic

## Formation of wax

As they grow, bees develop wax-producing glands on the abdomen. When the bee is about 12 days old, these glands begin to secrete wax in the form of small scales. As well as being a guarantee of the wax's pliable consistency, this secretion is an ingenious material with which to build honeycombs.

## Made of wax

People were quick to notice the excellent properties of wax. They made wax candles to see by at night. Wax also served as an excellent sealing and insulating material. What's more, wax products had natural protection against excessive moisture.

## An ancient Egyptian legend

A court scholar called Vabaoné was so tormented by his faithless wife that he decided to act. Having found some beeswax, he had it modelled into a small crocodile. This he tossed into the garden pool. As bees and their products were sacred in Egypt, the wax crocodile came to life, as the scholar was expecting. Now a predatory giant, it punished the faithless wife by swallowing her whole. Then it became a small, harmless wax figure again.



## Propolis

Propolis is a sealant and anti-bacterial substance. Bees collect resin, mix it with secretions from their glands and – hey presto! – they have propolis. They use this to fill unwanted holes and seal cracks in their hive. Propolis also kills bacteria and viruses. In ancient Greece, it was used to treat wounds of the skin and to disinfect the mouth.

## Multifunctional propolis

Whereas the Incas brought down a fever in a patient with the help of propolis, the ancient Egyptians used this rare substance for the embalming of bodies. In times long past, violinists would coat their instruments in it to get the loveliest sound.

## Royal jelly

Royal jelly, which is rich in all possible vitamins, minerals, and trace elements, is produced from pollen grains in the hypopharyngeal glands of young bees. It is the food of the queen bee, who lives up to 5 years; worker bees are around for a much shorter time. Could it be that royal jelly is behind the queen bee's longevity?

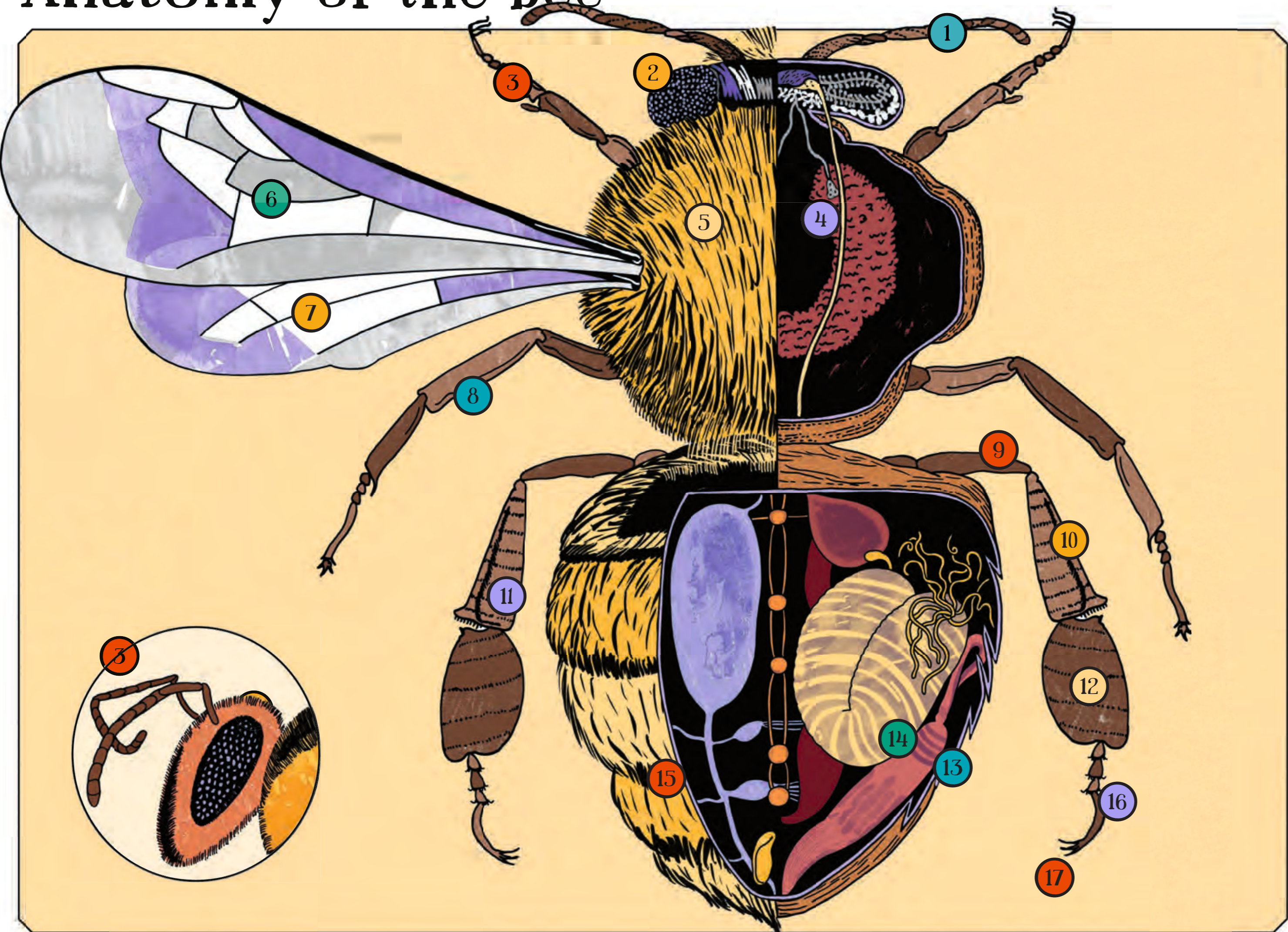
# Anatomy of the bee

Bees are important pollinators of plants. Although not the only insects to perform this role, bees are the only ones who treat plants gently and don't damage them; they do not bite through to the pollen, and they don't nibble at a plant's anthers. They land lightly on a flower, wiggle, and let the pollen stick to their hairy body. They return to the hive with deposits of pollen lumped in balls on their hind pair of legs. They transport the sweet nectar in the so-called honey pouch, an enlarged part of the oesophagus.

## Body parts

antenna.....	①
compound eye.....	②
antennae cleaner.....	③
pharynx.....	④
thorax.....	⑤
forewing.....	⑥
hind wing.....	⑦
foreleg.....	⑧
coxa.....	⑨
femur.....	⑩
middle leg.....	⑪
tibia.....	⑫
respiratory muscles.....	⑬
stomach.....	⑭
rachea.....	⑮
tarsus.....	⑯
claws.....	⑰

Speed of bee flight - 8 m/s; a bee visits up to 10 flowers in 1 minute.







**D**oes anyone not like honey? I doubt it – I know of no such person. Honey is sweet for the tooth and good for our health. Only thanks to bees do we get to enjoy it. Humans discovered the connection between honey and the hard-working bee many ages ago. You would be right to think that beekeeping has a long history. But when and how did we begin to care lovingly for bees in return for their products, and how has our relationship with bees developed and changed over time? How do we think of bees, what do they mean to us, and are they truly indispensable to life on our planet? You can read about all this and more in the book now in your hands. Do you hear that gentle buzz?

