WORLD OF WONDERS INSPIRING THE FUTURE

知の挑戦

Anthony Sellick

John Barton

Ai Ogasawara

SEIBIDO

Preface

World of Wonders Inspiring the Future is the second in a series of books looking at a variety of important trends that are shaping the modern world. Each of the chapters examines a topic or issue that affects our lives, or which will change our lives in the future. We hope that you will find these topics interesting and thought-provoking. We also hope that they will be sufficiently stimulating to encourage you to learn more about these topics and issues.

The topics covered in the 20 essays range widely and are grouped into five distinct sections: the worlds of food, culture, science, business, and politics. The topics are drawn from a number of areas such as the world's favorite fruit (the banana), the history of spices, and the importance of sleep, through the impact of MOOCs (Massive Online Open Courses) and online shopping, to cyber warfare and international law. We hope that having read these essays, you will actively seek to develop your own views on the issues raised in this book, and that you will debate them vigorously.

As well as notes in Japanese following each essay, each chapter contains a pre-reading vocabulary exercise in the form of a short narrative related to the topic, and post-reading exercises are presented to test your comprehension of the essays. There is also a summary exercise for every chapter and a data analysis section for the odd-numbered chapters.

Finally, while we have tried to ensure that the material in this book is up-to-date, due to the fast-changing nature of some of the topics, it is inevitable that by the time the book is published, some things may have changed.

We sincerely hope you enjoy the book.

John Barton

CONTENTS

THE WORLD OF FOOD

THE WORLD OF CULTURE

THE WORLD OF SCIENCE

THE WORLD OF BUSINESS

THE WORLD OF POLITICS

CHAPTER 1

Flying Gold
Honey and Honey Bees

GETTING READY

① 02

Choose the correct word or phrase from the list below to complete the story.

1. In 2012, beekeepers in Ribeauville in France had to destroy the honey their bees had _____.
2. This was because the hives did not _____ regular golden honey, but blue and green colored honey.
3. The farmers were worried and searched for _____ to explain the mysterious honey.
4. They discovered that large _____ candy from a local Mars factory were stored nearby.
5. The bees had been getting sugar from the colored candy instead of from local flowers and _____.

amounts of	contain	crops	evidence	produced

READING

① 03～09

1 CD 03 Most people enjoy sweet foods. We even use words like sugar, sweetheart, sweetie, honey, and honeymoon in connection with love and romance. Of all the sweet foods that we eat, honey is probably the oldest. But have you ever thought about how we get honey, or about honey itself?

2 CD 04 Honey is the only food eaten by humans that is produced by an insect. Honey is a food made by bees so that they have something to eat during the winter. To make honey, bees visit flowers, drink the nectar they make each day, and then return to the hive. Enzymes in the bees change the sugar in the nectar (sucrose), into the sugars that we like to eat (glucose and fructose). In

the hive, the bees mix the nectar together and then let water evaporate from it. The result is honey, which is stored in a honeycomb made from beeswax. An average beehive contains between 20,000 and 40,000 worker bees, which collect the nectar. However, there is not much nectar in one flower, so for a beehive to make one kilogram of honey, the bees need to make about one million nectar-collecting trips. That means each worker bee in a hive must visit between 25 and 50 flowers for each kilogram of honey made by the hive. Each year, an average hive will produce around 20 kilograms of honey. No wonder we say someone who is very busy is a "busy bee."

The bees in an average hive like this will produce about 20 kilograms of honey every year.

3 CD 05 In 2010, more than 1.5 million tons of honey, worth $1.2 billion, was consumed around the world. One quarter of all the world's honey comes from just one country, China. Africa and the European Union produce about 12 percent of the world's honey supply each, with the rest of the world producing the remaining 50 percent of the world's honey.

4 CD 06 Honey is a special food. Because it contains a very high level of sugar and a very low level of water, bacteria and fungi cannot survive in it. As a result, honey is the only food that does not go bad. Furthermore, the different flowers visited by the honey bees all add different flavors to the honey, and honeys made by honey bees visiting just one kind of flower, such as heather or acacia, are very popular. Although honey is mostly made of different kinds of sugar, it also contains small amounts of vitamins and minerals including B vitamins, iron, magnesium, and zinc. As well as a food and a sweetener, honey is used in cooking and also to make an alcoholic drink called mead.

5 CD 07 Honey is also used by doctors. Because bacteria and fungi cannot survive in honey, it is useful for treating infections that are resistant to antibiotics. There is also evidence that honey can help burns to heal more quickly. However, because honey sometimes contains botulinum spores, which can cause botulism, it shouldn't be given to children under one year old.

6 CD 08 Honey is not the only product made by honey bees that humans use.

Beeswax is used to make candles, hand cream and other skin care products, cosmetics such as eye-liner and lipstick, chewing gum, medicine capsules, shoe polish, and surfboard wax. It is even used in surgery to stop bones from bleeding. Every year, around 10,000 tons of beeswax, worth $100 million, is used globally. However, the most important service provided to humans by honey bees is neither honey nor beeswax. It is fertilizing our crops. As the worker bees collect nectar, they also pick up pollen from the flowers. As they fly from flower to flower, the pollen is spread around, fertilizing the plants. With the exception of crops such as rice, wheat, corn, and barley which use the wind to spread their pollen, all of the crops we grow are fertilized by insects like bees. The value of the fertilization service provided by bees is estimated at $50 billion in Europe and more than $100 billion in Africa.

7 CD 09 Without honey bees to fertilize our crops, we would struggle to feed ourselves, and our diets would have very little variety. Honey bees fertilize all of our fruits and nuts, most of our beans and vegetables, and many of our herbs and spices. Imagine living in a world without oranges, tomatoes, potatoes, grapes, chilli peppers, coffee, or chocolate. As well as a boring and hungry world, we would lack clothes as well: cotton is also fertilized by honey bees. But this could be our future. As a result of pollution from pesticides used in agriculture, infection by the varroa mite, and climate change, honey bees have been dying in huge numbers in recent years. Unless we find ways to protect our honey bees soon, our 10,000 year honeymoon with honey may soon be over.

NOTES

Ribeauville「リボーヴィレ」フランス東部オー＝ラン県のコミューン(最小行政区)。ストラスブール南方75キロに位置し、ゴシック教会や古い街並みを残している。リボーヴィレ村では年間約1,000トンの蜂蜜を生産している。 **Mars**「マース」世界74カ国でペットケア、チョコレート、食品など6事業を展開し、年間売上330億ドルを計上するグローバル企業。1911年、米国ワシントン州で設立。M&M'S、Milky Way、スニッカーズなどのチョコレート菓子を販売している。 **hive**「ミツバチの巣」 **enzyme**「酵素，エンザイム」 **sucrose**「ショ糖，スクロース」 **glucose**「ブドウ糖，グルコース」人間の代謝作用の主たるエネルギー源 **fructose**「果糖，フルクトース(=fruit sugar)」果実や蜂蜜の中に存在する。 **honeycomb**「ミツバチの巣，ハチの巣，ハチの巣状のもの」直訳は「ミツバチのくし」で、ハチの巣状に正六角形または正六角柱が並ぶ構造をハニカム構造(honeycomb structure)と呼ぶ。工業的に応用されると軽くて丈夫な構造を実現するため、サッカーのゴールネットや飛行機の翼に利用されている。 **beeswax**「蜜蝋(みつろう)」ミツバチが巣作りのために分泌する蝋(ワックス)。 **European Union** = EU「欧州連合」 **fungi** fungusの複数形「菌，カビ」 **go bad**「腐る」 **heather**「ヘザー」各種ヒースの総称。ツツジ科の常緑低木で、小さな釣り鐘状の花をつける。 **zinc**「亜鉛」 **mead**「蜂蜜酒」ハチミツを原料とする醸造酒 **botulinum spores**「ボツリヌス菌の胞子」sporeは菌類・植物の胞子 **botulism**「ボツリヌス中毒」ボツリヌス菌による致命的な食中毒で、視覚障害や呼吸麻痺を起こす。 **fertilize**「受粉させる」 **varroa mite**「ミツバチヘギイタダニ，バロアダニ」ミツバチに害を与える寄生性のダニ

Questions for Understanding

Look at the following statements. Write T if the statement is True, and F if it is False. Write the number of the paragraph where you find the answer in the parenthesis.

1. _____ In order to make one kilo of honey, a bee must visit 40,000 flowers. (#)

2. _____ According to the passage, China consumes 25 percent of the world's honey. (#)

3. _____ According to the passage, honey can kill micro-organisms such as bacteria and fungi. (#)

4. _____ The passage states that beeswax is the most valuable product humans obtain from bees. (#)

5. _____ According to the passage, we rely on bees to help produce many of our food crops. (#)

Summary

① 10 CD

Fill each space with the best word from the list below.

fertilize	sweetener	antibiotics	beeswax	doctors	heal

Humans love sweet flavors, so it is no surprise that we love the taste of honey. However, honey is not only used as a 1)_____ in our cooking, it is also used by 2)_____ to 3)_____ burns because its high level of sugar kills bacteria as effectively as regular 4)_____. As well as honey, we also collect the 5)_____ that bees make, and use it in products ranging from candles to lipstick. Finally, bees 6)_____ our crops as they collect pollen, and this is the most valuable service they provide humanity.

Data Analysis

Use the information in the passage to complete the table below.

Global Honey Production (2010)

	Proportion of global production	Weight (tons)	Value ($)
China			
Africa		187,500	
European Union	12.5%		
Rest of World			600 million
Total:	100%		