

# the Travelling Beehive

Elena García and Manuel Ángel Rosado

Illustrated by Juan Hernaz

















The travelling beehive  
(γυμναστήριον μέλισσας)











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Chapter 1 *Polli the honey bee*

Hello dear friends!  
My name is Polli and I am a honey bee.

I believe that all of you have seen a bee before, although it is possible that all you know about us is that we produce honey and that we will sting you if you bother us. But don't panic! We very rarely sting humans and we only do it to defend ourselves when we are seriously threatened.

I live with my mom and my sisters in a small field, inside one of the eleven beehives placed next to a super-duper cold-water stream, outside a big city.

What? You don't know what a beehive is?

Well, the beehive is the bee's home. We used to live inside hollowed tree trunks, among rocks or other sheltered places that we could find. But nowadays, almost all of us live inside wooden boxes that you humans build for us.

In exchange for some of the sweet honey we produce, the beekeepers (that is the name of the people who take care of us) make sure that we get all we need and they take care of us when we get sick.

There can be up to 60,000 bees living together in the same hive! So we must organize and divide tasks very well.

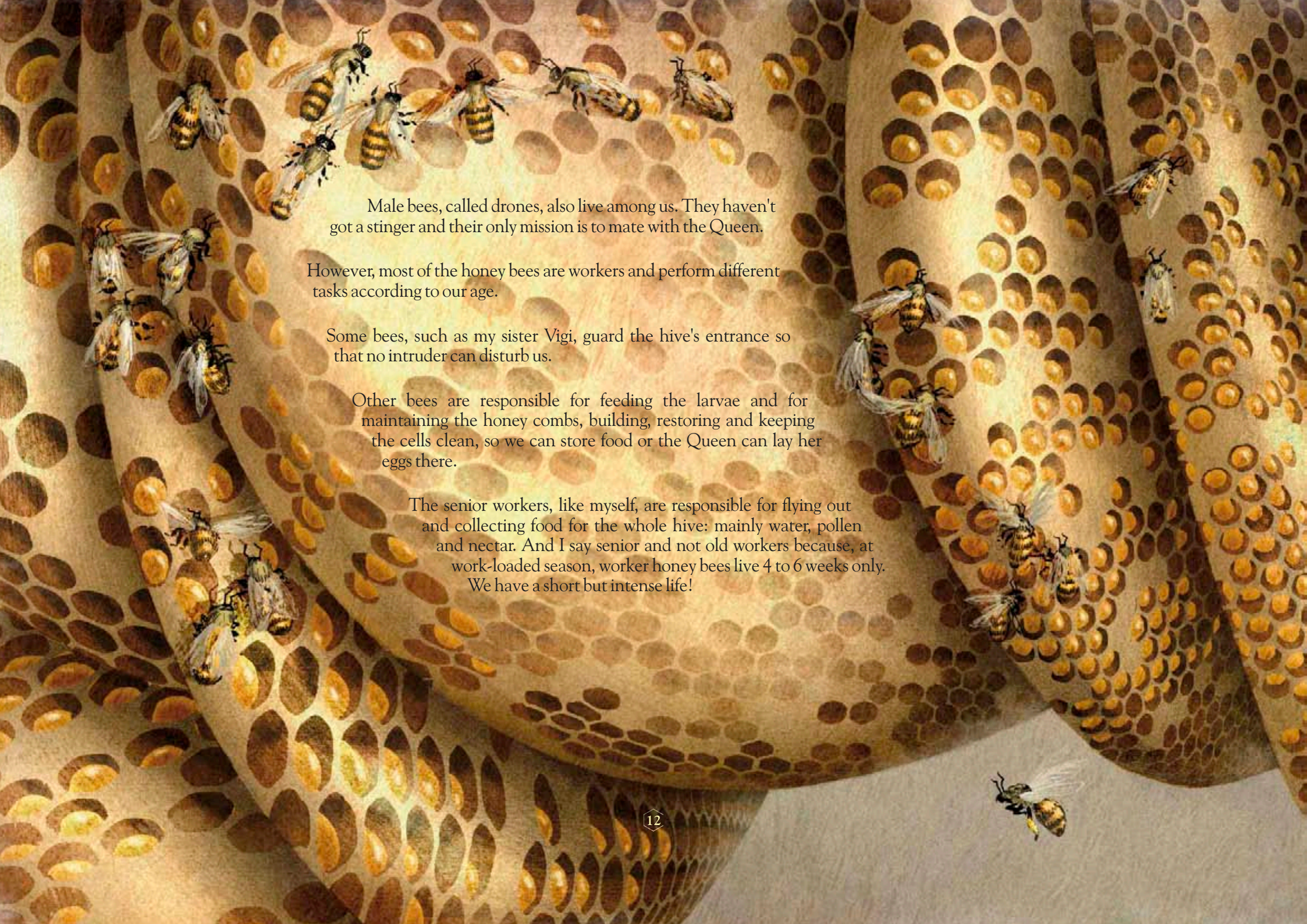




Within each beehive there is a bigger and more stylized bee. She is the mother of everybody in the colony. For her whole life, she feeds on the royal jelly that the workers make in our nursing phase, and she lays eggs, making sure that the family keeps growing.

Can you see her?  
She is easy to spot, isn't she?





Male bees, called drones, also live among us. They haven't got a stinger and their only mission is to mate with the Queen.

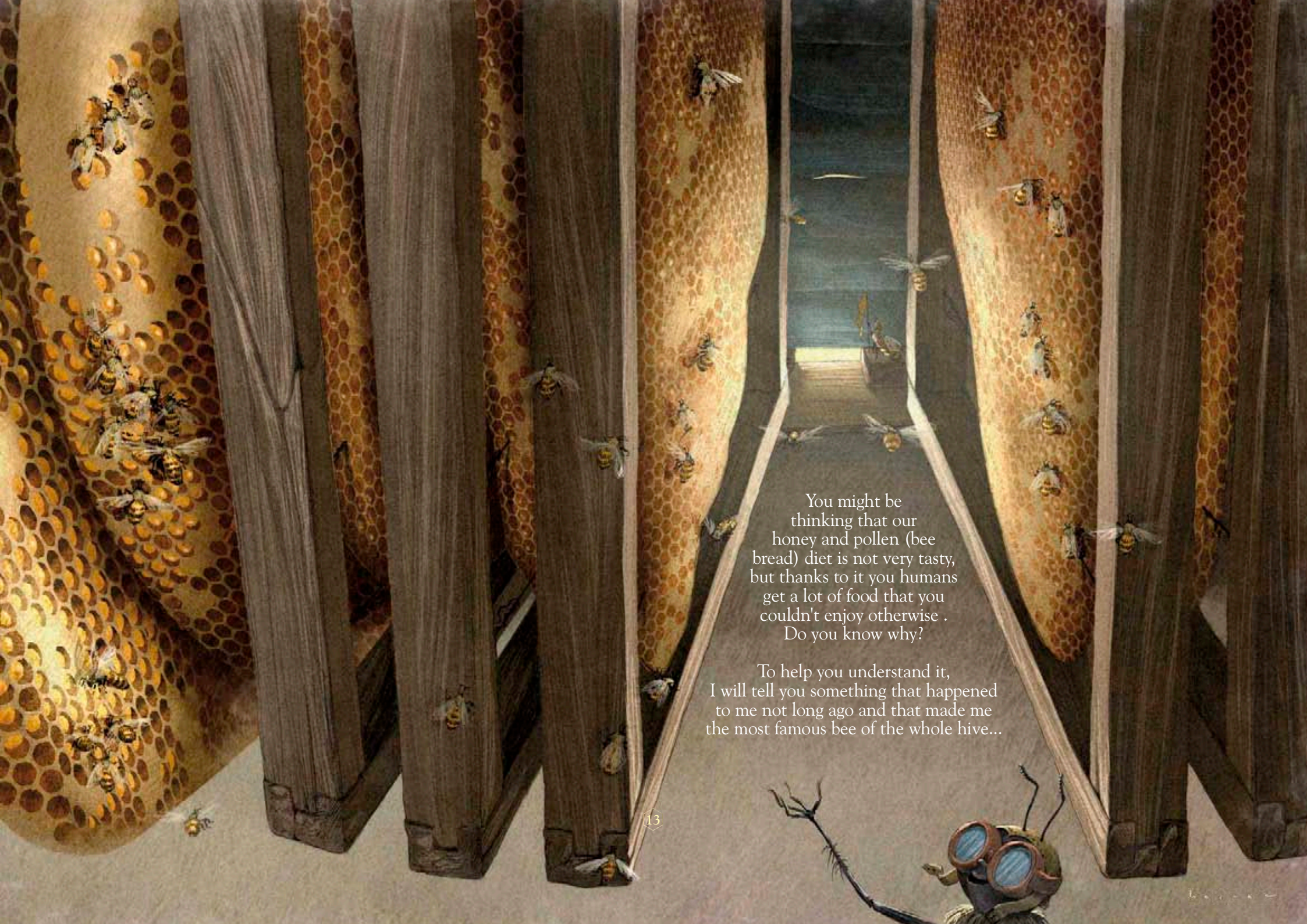
However, most of the honey bees are workers and perform different tasks according to our age.

Some bees, such as my sister Vigi, guard the hive's entrance so that no intruder can disturb us.

Other bees are responsible for feeding the larvae and for maintaining the honey combs, building, restoring and keeping the cells clean, so we can store food or the Queen can lay her eggs there.

The senior workers, like myself, are responsible for flying out and collecting food for the whole hive: mainly water, pollen and nectar. And I say senior and not old workers because, at work-loaded season, worker honey bees live 4 to 6 weeks only. We have a short but intense life!





You might be thinking that our honey and pollen (bee bread) diet is not very tasty, but thanks to it you humans get a lot of food that you couldn't enjoy otherwise . Do you know why?

To help you understand it, I will tell you something that happened to me not long ago and that made me the most famous bee of the whole hive...





## Chapter 2

# Polli... what?

**I**t all started on a hot summer morning. I had left the hive early in the morning in search of pollen and I was near the apple orchard of a man named Dorian.

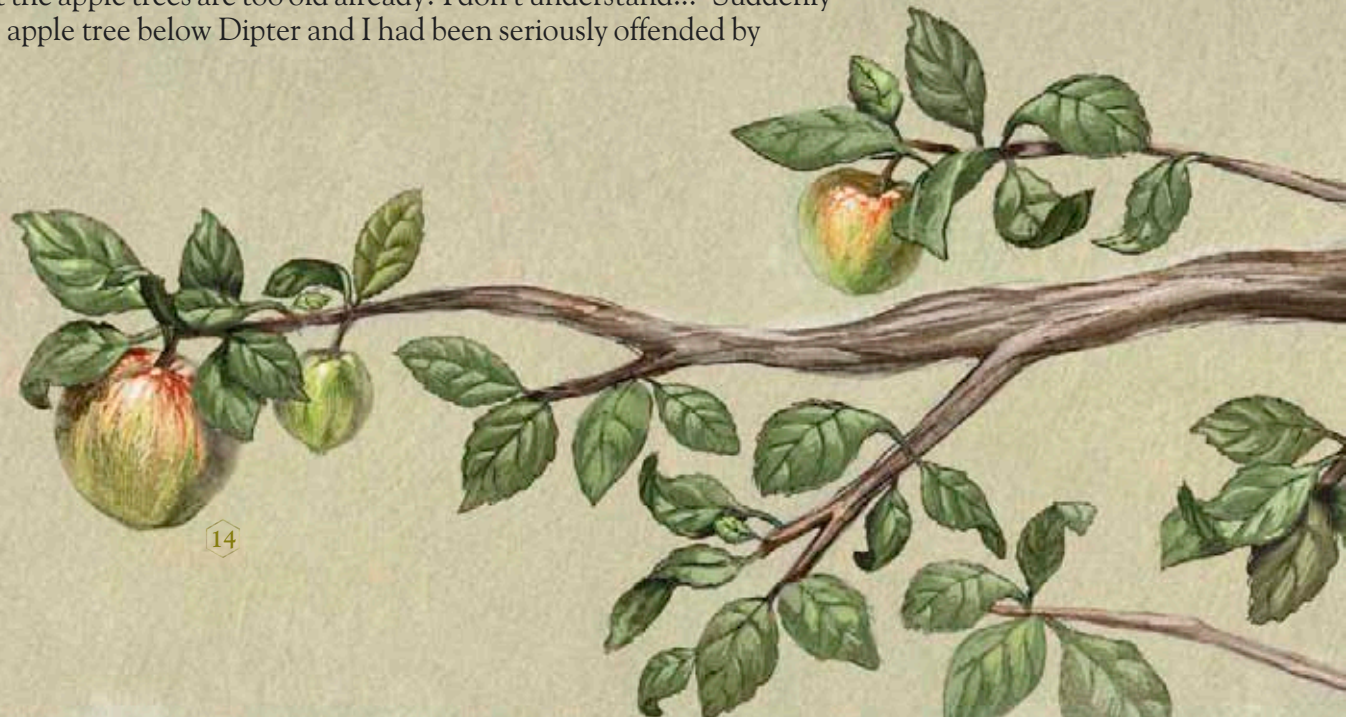
We bees do not usually fly long distances from our hive and that orchard was quite far. But I am a bit adventurous and love to explore new territories. It was there that I had met my friend Dipter, a hover fly that also loved the flowers in that place. Both of us were very busy flying from flower to flower when, Dorian appeared unexpectedly.

He looked sad and asked himself many questions.

"Hey! What is happening this year? Why are there so few apples? Is it due to the famous climate change that scientists are talking about? Is it be that the apple trees are too old already? I don't understand..." Suddenly a loud hoarse voice gave us a fright. The apple tree below Dipter and I had been seriously offended by Dorian's words and replied.

"How do you dare to call us old trees?"

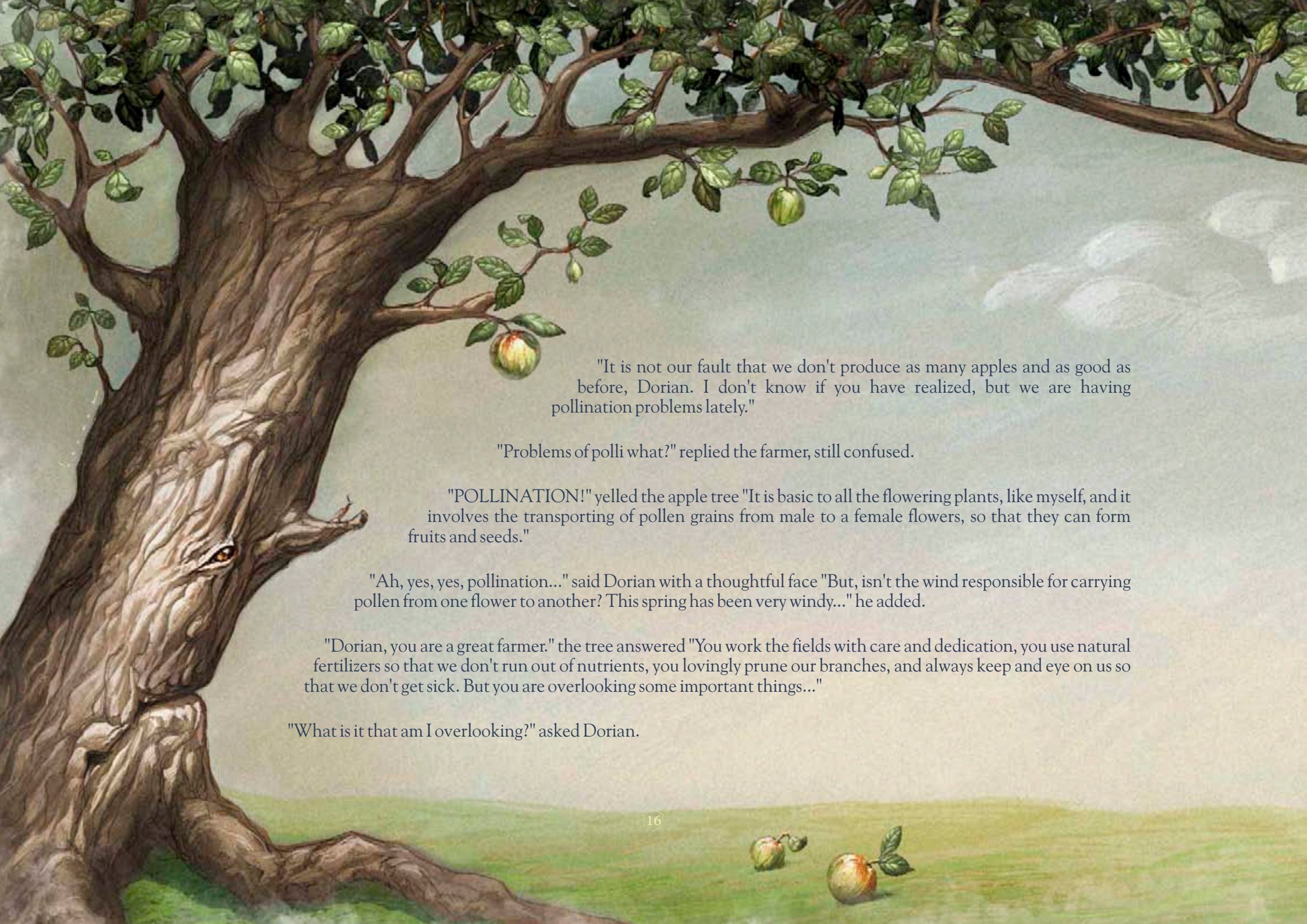
Dorian, as scared as Dipter and I, looked around, confused, he didn't know where that voice came from. Suddenly, a small apple fell on his back and when he turned around he could see the angry face of the tree, who carried on talking.











"It is not our fault that we don't produce as many apples and as good as before, Dorian. I don't know if you have realized, but we are having pollination problems lately."

"Problems of polli what?" replied the farmer, still confused.


"POLLINATION!" yelled the apple tree "It is basic to all the flowering plants, like myself, and it involves the transporting of pollen grains from male to a female flowers, so that they can form fruits and seeds."

"Ah, yes, yes, pollination..." said Dorian with a thoughtful face "But, isn't the wind responsible for carrying pollen from one flower to another? This spring has been very windy..." he added.

"Dorian, you are a great farmer." the tree answered "You work the fields with care and dedication, you use natural fertilizers so that we don't run out of nutrients, you lovingly prune our branches, and always keep an eye on us so that we don't get sick. But you are overlooking some important things..."

"What is it that am I overlooking?" asked Dorian.





"Well, for instance, you are ignoring all the other living beings that share the orchard with us and that are very important. It is true that the wind itself is able to pollinate some plants, but many of us need animal collaboration. It is usually insects who take care of pollination, but we can also get help from some reptiles, birds or mammals, such as bats." the apple tree explained.

"Interesting" mumbled Dorian "And what do those animals get in return for transporting pollen from one flower to another?"

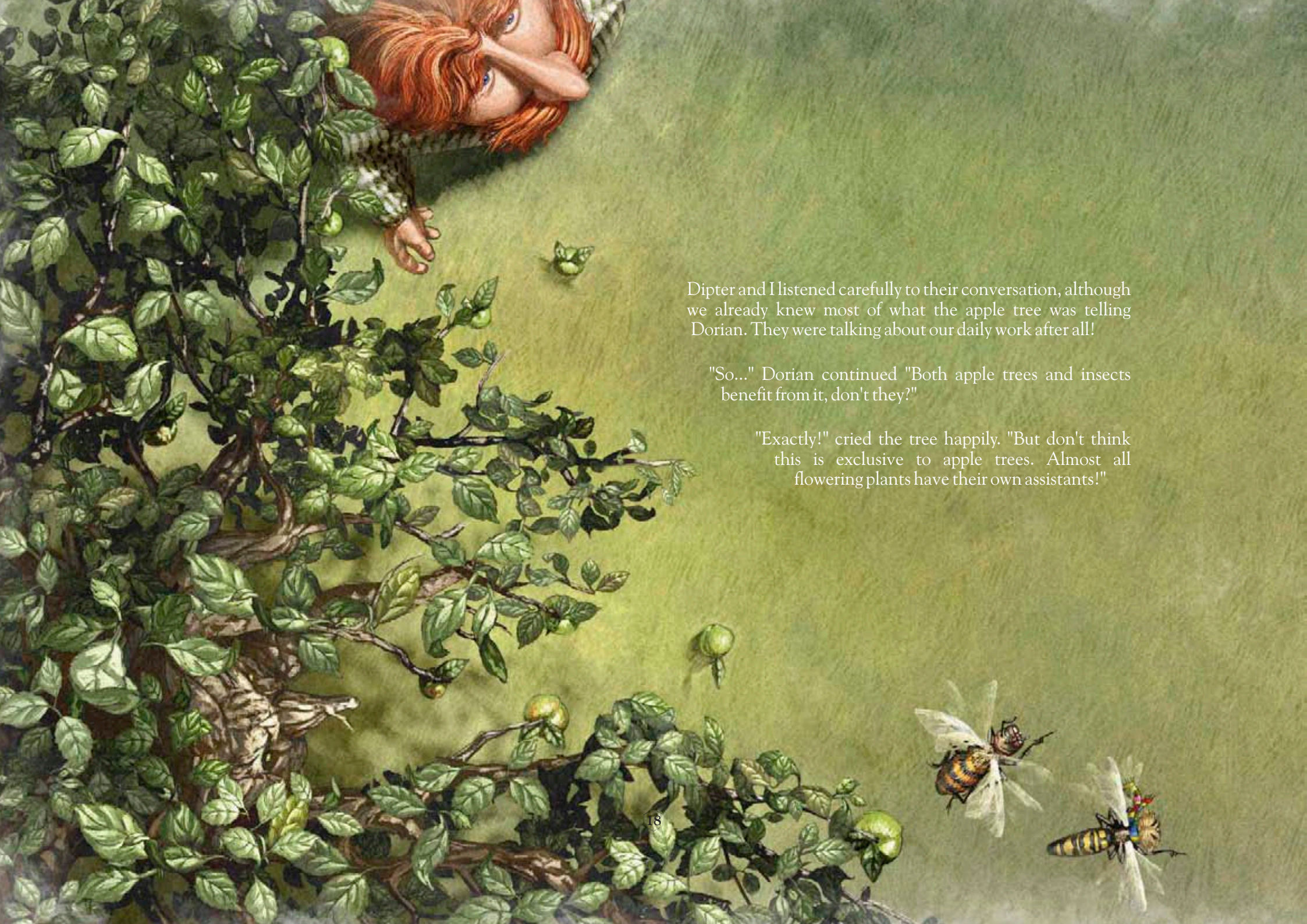
"I'm glad you asked." said the apple tree with pride "Plants don't have money, but as you may very well know, there are more important things than money."

"Really?" asked Dorian "What sort of things?"

"Well, in return for such a big favour, plants present animals with a very sweet and nutritious liquid called nectar, and they love it. Some of them also eat part of the pollen we make, but it doesn't bother us since we produce a lot. Our flowers also provide shelter to other animals that pollinate us."







Dipter and I listened carefully to their conversation, although we already knew most of what the apple tree was telling Dorian. They were talking about our daily work after all!

"So..." Dorian continued "Both apple trees and insects benefit from it, don't they?"

"Exactly!" cried the tree happily. "But don't think this is exclusive to apple trees. Almost all flowering plants have their own assistants!"



"And why do you say that you are currently having pollination problems? Don't you make that rich, insect attracting nectar anymore?" asked Dorian.

All of a sudden, the tree became serious and its face saddened.

"We keep making pollen and nectar, but there are less and less insects coming to our flowers searching for it." he replied.

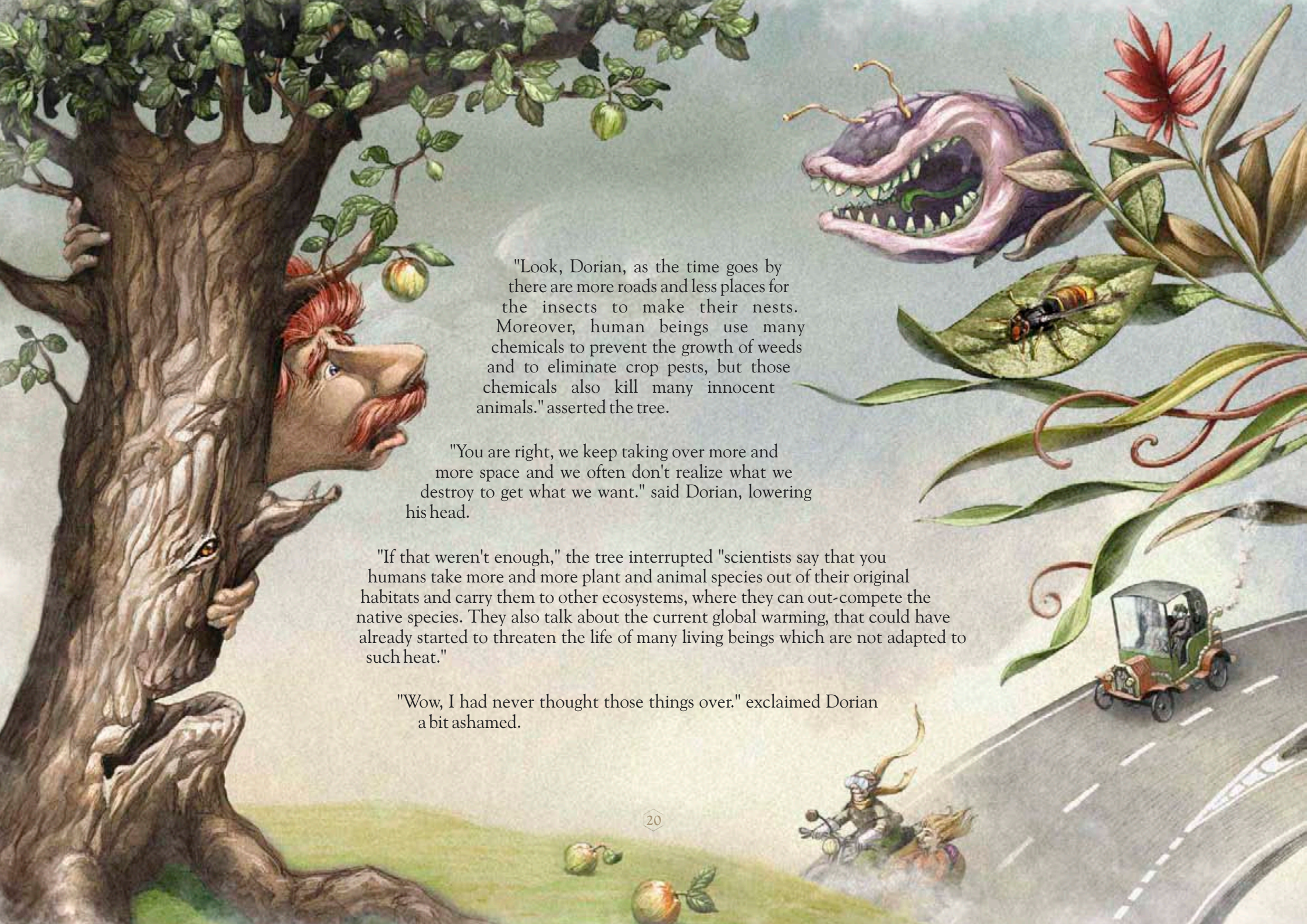
"And why do you think there are less, how do you call them? Ah, yes, pollinators!" asked Dorian out of curiosity.

"Rumours have it that their decrease could be due to several reasons." answered the apple tree.

"Such as?" Dorian enquired, interested in knowing about the whole problem.







"Look, Dorian, as the time goes by there are more roads and less places for the insects to make their nests. Moreover, human beings use many chemicals to prevent the growth of weeds and to eliminate crop pests, but those chemicals also kill many innocent animals." asserted the tree.

"You are right, we keep taking over more and more space and we often don't realize what we destroy to get what we want." said Dorian, lowering his head.

"If that weren't enough," the tree interrupted "scientists say that you humans take more and more plant and animal species out of their original habitats and carry them to other ecosystems, where they can out-compete the native species. They also talk about the current global warming, that could have already started to threaten the life of many living beings which are not adapted to such heat."

"Wow, I had never thought those things over." exclaimed Dorian a bit ashamed.





"Don't worry, Dorian, surely this could still be fixed." the apple tree encouraged him.

"Don't worry, if there is a solution, we'll find it!" answered Dorian grabbing with his thick fingers one of the tree's branches.

The apple tree's words echoed in the farmer's head, as he slowly walked back home.

Dipter and I, were very curious and followed him. We were puzzled after that conversation and we were wondering what Dorian would do.







## Chapter 3 Seeking a solution

As soon as he arrived at his living-room, Dorian checked a phonebook and picked the phone up. Dipter and I watched him from behind the half-closed window.

"Good morning, could I please talk to Ramon?" the farmer asked with his worn voice.

"Yes, it's me, who is this?" was the answer from the other end of the line.

I thought I recognized that voice. Dorian had connected the phone's speakers so we could hear it all.

"Ramon, this is Dorian. I'm calling you because I am worried about my apple trees and I was wondering if you could help me?"

"Dorian, it's being a long time! Tell me what's wrong ...." answered the man at the other end of the line.

Now I knew who he was! Dorian was talking to Ramon, the beekeeper that was taking care of me, my sisters and the neighbouring beehives. We needed to listen closely to what they were saying, so Dipter and I stretched our antennae so as not to miss any detail.

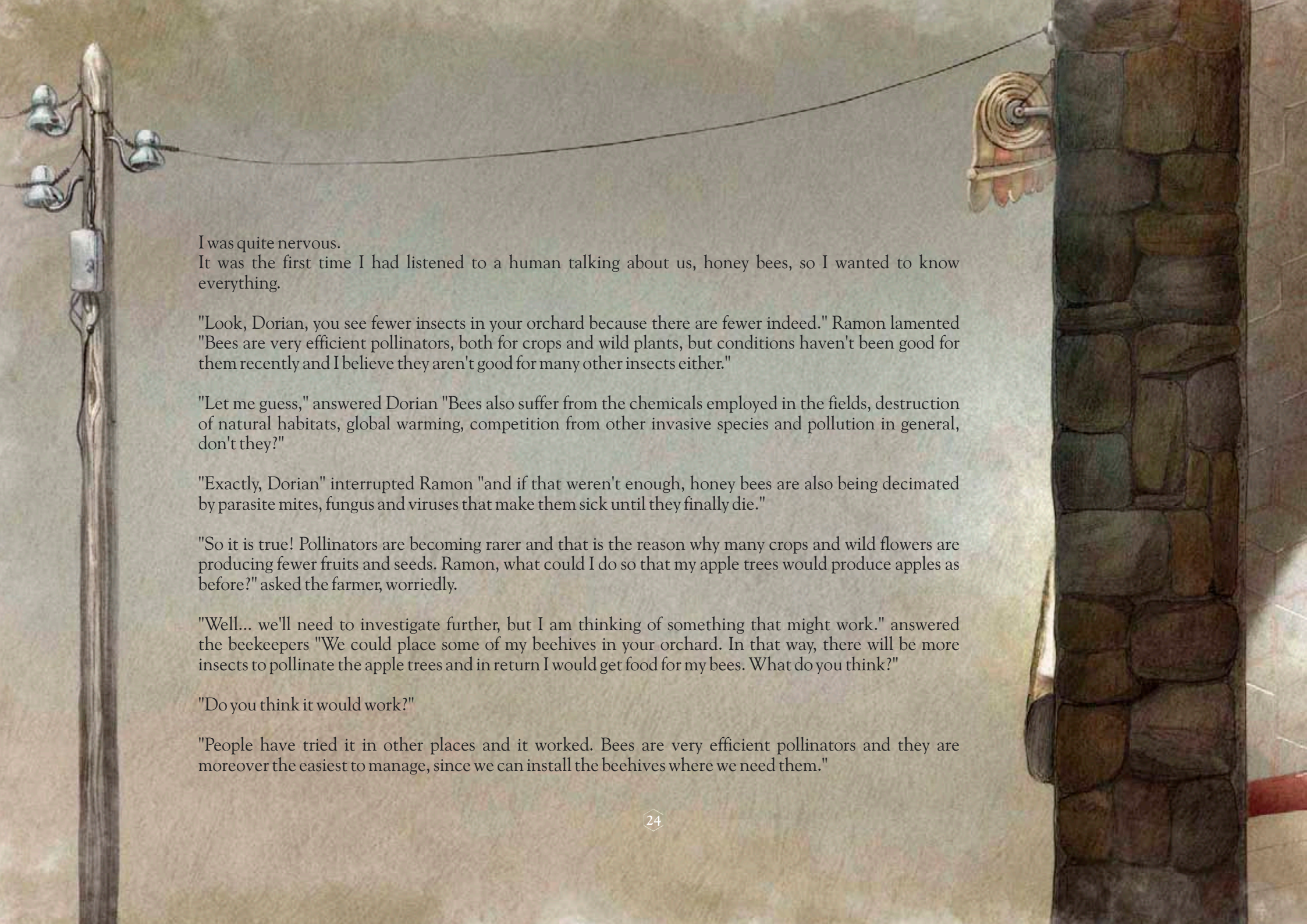
"I've been told" continued Dorian "that many of the problems I'm having with my trees could be due to a pollinator shortage. I've been observing my orchard and it is true that I'm seeing fewer insects flying among the flowers of my apple trees. Even bees, that used to be so abundant, are now disappearing. Have you experienced any problems with your beehives?"

I shocked when I heard that.

"Bees? Beehives? They are talking about us!" I said to my friend.

"So it seems! Let's get closer to listen to it all" answered Dipter.



A street lamp with three glowing lights on the left and a stone pillar on the right.

I was quite nervous.

It was the first time I had listened to a human talking about us, honey bees, so I wanted to know everything.

"Look, Dorian, you see fewer insects in your orchard because there are fewer indeed." Ramon lamented "Bees are very efficient pollinators, both for crops and wild plants, but conditions haven't been good for them recently and I believe they aren't good for many other insects either."

"Let me guess," answered Dorian "Bees also suffer from the chemicals employed in the fields, destruction of natural habitats, global warming, competition from other invasive species and pollution in general, don't they?"

"Exactly, Dorian" interrupted Ramon "and if that weren't enough, honey bees are also being decimated by parasite mites, fungus and viruses that make them sick until they finally die."

"So it is true! Pollinators are becoming rarer and that is the reason why many crops and wild flowers are producing fewer fruits and seeds. Ramon, what could I do so that my apple trees would produce apples as before?" asked the farmer, worriedly.

"Well... we'll need to investigate further, but I am thinking of something that might work." answered the beekeepers "We could place some of my beehives in your orchard. In that way, there will be more insects to pollinate the apple trees and in return I would get food for my bees. What do you think?"

"Do you think it would work?"

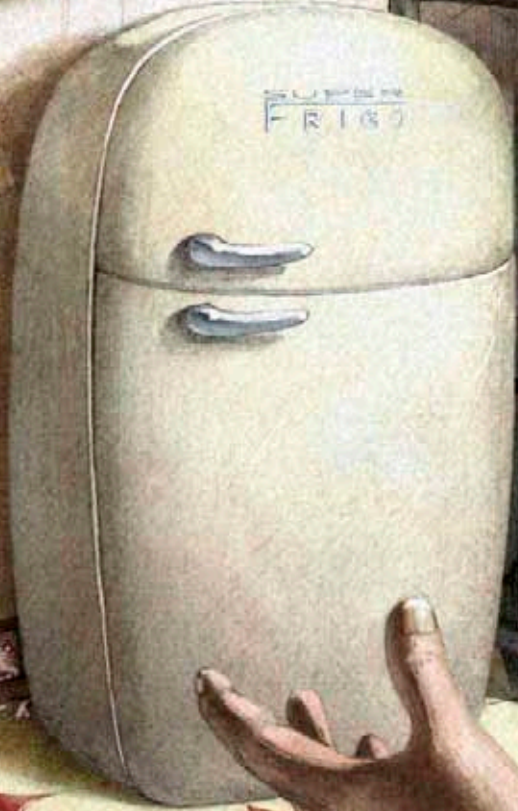
"People have tried it in other places and it worked. Bees are very efficient pollinators and they are moreover the easiest to manage, since we can install the beehives where we need them."





Illustration of a calendar and a framed picture of a man and insects.

CENTENNIAL						
	1	2	3	4	5	6
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		







"Sounds good..." mused Dorian.

"You'll get more and better fruits and my bees will make delicious honey, don't you think it is a perfect plan?"

"I think your idea is very good, but I need to think it over. Thank you very much for the information, Ramon" answered the farmer.

"You are welcome, that's what friends are for" said Ramon.

Dorian hanged the phone and sat on his green sofa. The farmer scratched his moustache. Dipter and I knew it was a sign he was not convinced. We had often seen him doing that gesture at the orchard. Dorian was a countryside man, and experience was telling him that things are very rarely 'perfect' they always have pros and cons.

Dipter and I looked at each other. Would it be my beehive that they were thinking of moving? I was looking forward to it, since I have always lived in the same field and I loved to get to know new places.

We could not stay there, I had to report everything we had heard to the Queen, so I left buzzing as fast as I could, looking forward to the possible moving.









Chapter 4


*Buzz  
in the beehive*

**D**ipter had come home with me. Although he also collected flower nectar, he did it to satisfy his hunger how and when he wanted. He did not have to report to anyone. How jealous I was!

When we arrived at the beehive I was exhausted and almost didn't carry any pollen on my hind legs.

"It's urgent I see the Queen." I said to Vigi, who was firmly in her place.





"Go ahead." answered "But your friend will have to wait outside. You already know that only a bee from this hive is allowed in."

You might think that bees are not very welcoming if we don't let anyone in, but our own security depends upon it.

"It's ok" Dipter assured me "I'll wait here."

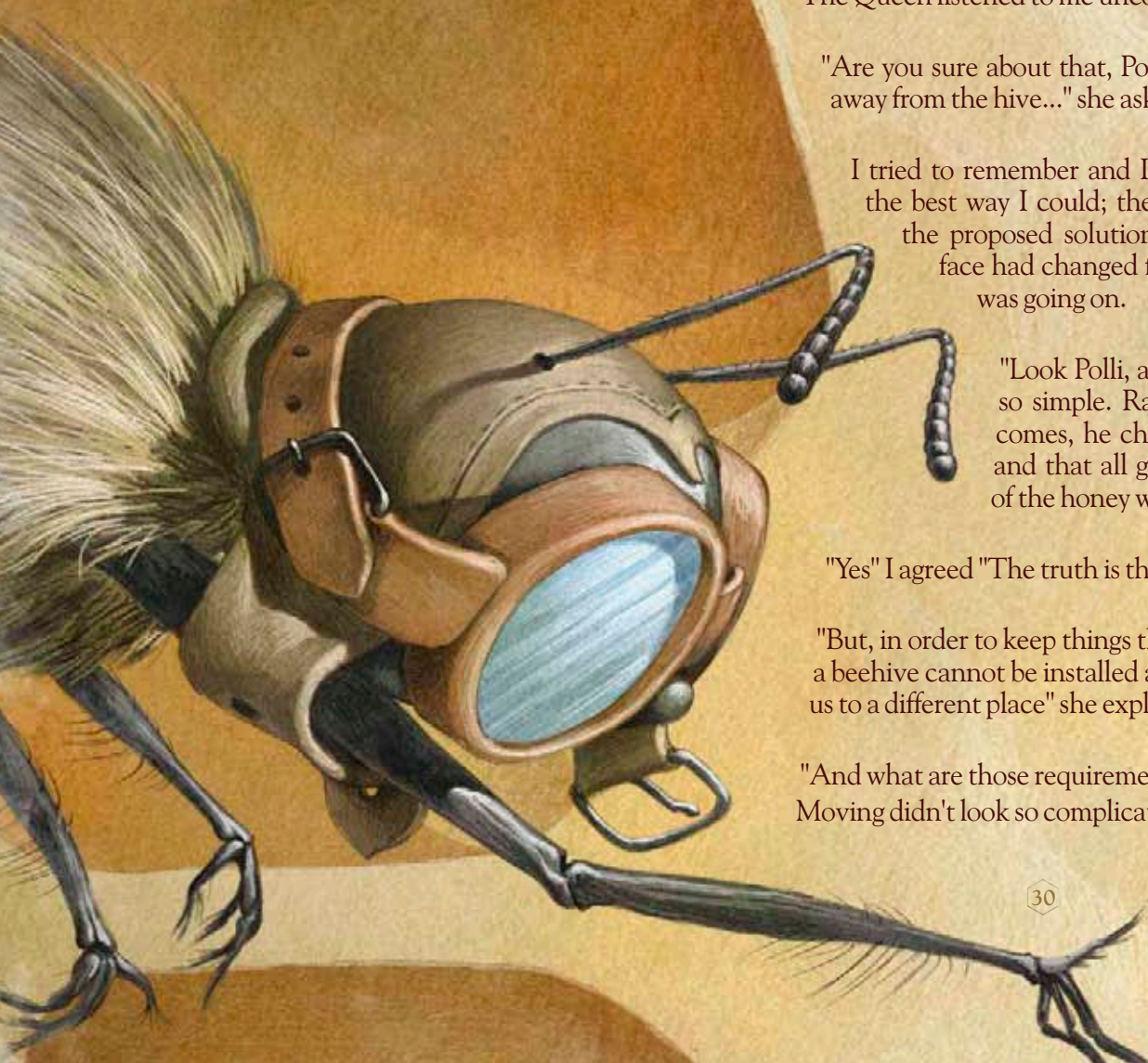
I quickly found the Queen and I called out to her.

"Your Majesty! Your Majesty!"

She turned towards me scowling.

"Polli, where have you been? Your sisters have been tirelessly working all morning and you... you haven't even brought a single load of pollen! You know that cannot be. Every single one of us must meet our obligations. Moreover, do you think that is a proper way to ask for me, yelling around the hive? Where are your manners?" scolded me the Queen.





"Excuse me, your Majesty." I apologized. You are right, but I have got a good excuse this time. I have heard that we might be moved to an apple orchard located a few kilometres east from here. It is good news, isn't it, your Majesty?" I said excitedly.

The Queen listened to me unconvinced.

"Are you sure about that, Polli? Tell me everything, including what were you doing so far away from the hive..." she asked.

I tried to remember and I told her all I had found out during in the morning in the best way I could; the complains from the apple tree, Dorian's doubts and the proposed solution from Ramon. When I had finished, the Queen's face had changed from anger to concern. I couldn't understand what was going on.

"Look Polli, although it seems like a great idea to you, it's not so simple. Ramon has always treated us well. Each time he comes, he checks we are healthy, isolated from rain and cold and that all goes well. In return, he is rewarded by taking part of the honey we prepare." said the Queen.

"Yes" I agreed "The truth is that Ramon has always taken good care of us."

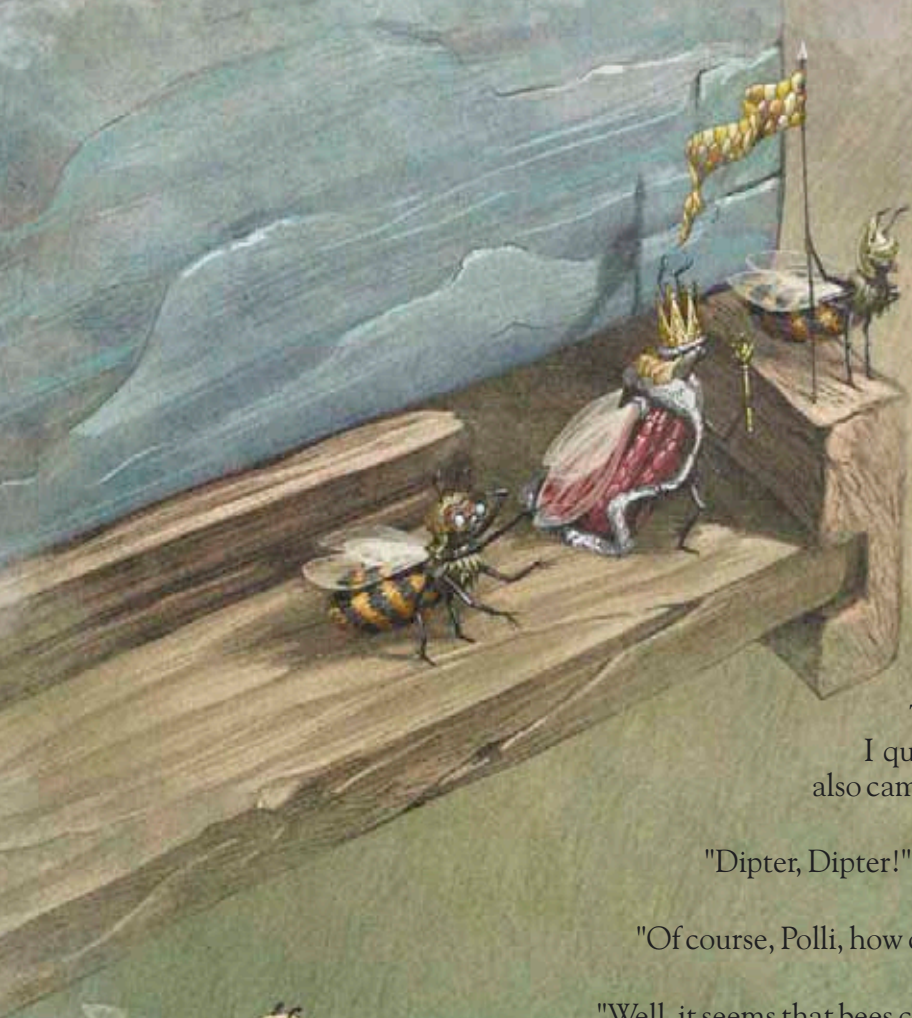
"But, in order to keep things that way" she went on "bees need certain requirements, a beehive cannot be installed anywhere! Ramon should know that if he wants to take us to a different place" she explained.

"And what are those requirements, your Majesty? What do we need?" I asked. Moving didn't look so complicated to me...









"Well, bees need to live in an area where there are flowers that we can visit most of the year searching for pollen and nectar. We do not know what plants are in the surroundings of Dorian's orchard. Have you thought what would happen when the apple trees are not flowering? What would we feed on if they take us there? And even worse ... what chemicals would Dorian use to keep his field clean from weeds and his trees healthy? Would have Ramon thought about that? Do you understand now what i'm not looking forward to it?"

"More or less..." I answered, overwhelmed by so many questions.

The moving didn't seem now as good as before. What if something didn't go well? I quickly went back to the hive's entrance, where Dipter waited for me. The Queen also came.

"Dipter, Dipter!" I called out "Do you remember what we heard this morning about moving?"

"Of course, Polli, how could I not remember?" my friend said crossly. He was a bit tired of waiting.

"Well, it seems that bees could have many problems of the moving is not done well."

"Bees? And what happen to the rest of us?" asked Dipter, offended. "The apple tree is right, there are fewer insects pollinating his flowers and often the wild insects need your help to keep up with all the work. But, what would happen if they take too many bees to the orchard? Each beehive is like an army... would we have food for all of us?"

"You, wild insects are also important, but not as much as we honeybees." answered the Queen without looking at the fly.



"Really?" asked Lepi.

Lepi was a delicate and brightly coloured butterfly, and with its wings spread delicately, had heard the conversation from a leaf on a nearby chestnut tree.








"So, Queen Bee..." continued Lepi "what do you tell me about the flowers that have their nectar hidden in the bottom of long corollas and that only some butterflies with very long tongues, such as myself, can access it? Who could pollinate them if it were only you?"

"Yes... well... no... perhaps..." The Queen blushed.

"We are tired that when someone talks about pollinators, humans only think about you and never remember about all the other many insects that also take care of such an important task for everybody! And I can't complain, they pay more attention to me thanks to my pretty wings." moaned Lepi.

Every insect that flew around, joined the discussion. What a mess! The honey bees complained about some things, the wild insects about others. The only thing we seemed to agree on was that moving the beehives to the orchard could bring problems to all of us if not done properly.





Suddenly Missis Bombus, a bumblebee, arrived. She was big, strong and one of the best pollinators around there, so when she approached all screams stopped.

"What is this uproar? What's happening?" asked the bumblebee with a scowl.

Bazumba, the wild bee, explained the reason why everybody were upset.

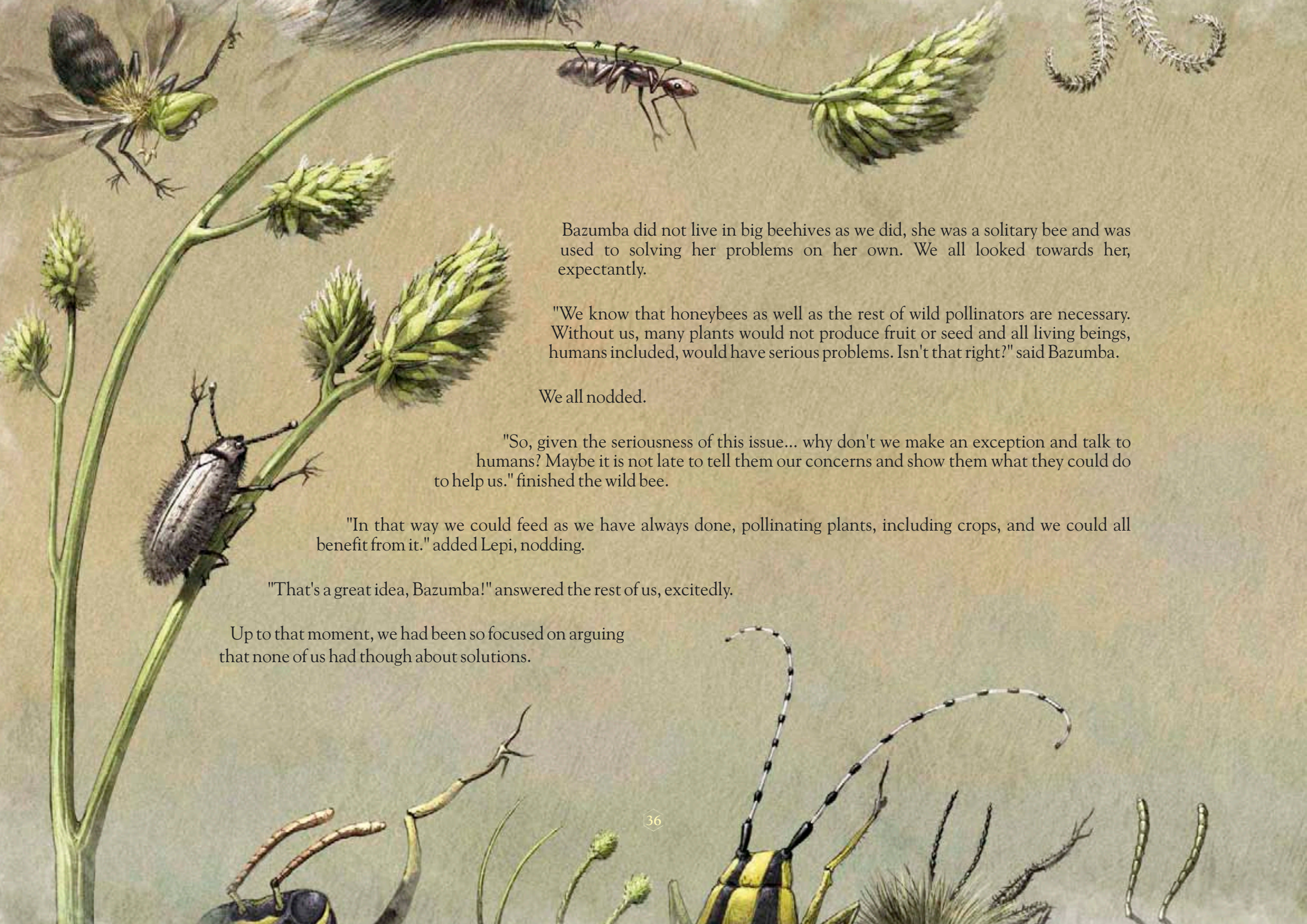
"I know the area you are talking about and I can assure you that there is enough food in the surroundings for all of us all year round, even if a few beehives are set in the orchard to help us pollinating Dorian's apple trees." said Bombus.

Everyone remained thoughtful for a few moments

"Perhaps you are right." answered Lepi. We don't like the same flowers anyway." he added.

"I have an idea!" Bazumba exclaimed.





Bazumba did not live in big beehives as we did, she was a solitary bee and was used to solving her problems on her own. We all looked towards her, expectantly.

"We know that honeybees as well as the rest of wild pollinators are necessary. Without us, many plants would not produce fruit or seed and all living beings, humans included, would have serious problems. Isn't that right?" said Bazumba.

We all nodded.


"So, given the seriousness of this issue... why don't we make an exception and talk to humans? Maybe it is not late to tell them our concerns and show them what they could do to help us." finished the wild bee.

"In that way we could feed as we have always done, pollinating plants, including crops, and we could all benefit from it." added Lepi, nodding.

"That's a great idea, Bazumba!" answered the rest of us, excitedly.

Up to that moment, we had been so focused on arguing that none of us had thought about solutions.





"Polli, quickly, bring us the biggest white petal  
you can find and something to write with."  
the Queen ordered to me.

When I came back with the improvised  
notebook, we all had things to contribute and  
we rose our legs in an orderly fashion to give our  
opinions. The meeting lasted till dusk and  
finally, we managed to agree on the most  
important things we needed to tell humans.

It only remained to decide who would be  
the brave insect that would talk to them.



## Chapter 5

# Managing *nature*, wisely



"Polli, Polliiii!" I heard the Queen when I was going to sleep.

"Here I am, your Majesty." I answered.

"Polli, we have all decided that it will be you who will tell Ramon all we agreed upon." she said with firm voice.

"Me?... Oops! "I could feel how my body started trembling. One thing was to watch humans from a corner, or fly around them and quite another talking to them directly. We bees never do such thing.

"Yes, Polli, the sooner the better. Don't worry, Ramon is a beekeeper and will understand you." the Queen trying to calm me down.

"It's alright." I said. I couldn't argue much. My duty was to obey her.

I could barely sleep that night. As the sun began to peek over the horizon, I got ready to go in search of Ramon. I was very nervous, but I said goodbye to everybody and left the hive buzzing, taking with me the petal where we had summarized our conclusions.

I didn't have to fly very far, as Ramon had just arrived to the apiary and was putting on his white suit, the one that beekeepers wear to protect themselves from our stingers when they annoy us too much.



"Bzz bzzz bzzzz..." I got closer.  
I was scared to death.

"Hey, it seems that you have come  
to say hello!" joked Ramon.

"Yes, indeed." I answered.

Ramon, whose skin was usually bronzed  
by the sun, turned as white as his suit.

"It can't be. I enjoy coming to see you  
so much that I am imagining that  
you can talk..." he said,  
recovering from the fright.

"I'm actually talking to you, Ramon.  
I've got very important things  
to tell you." I answered with  
a trembling voice.





Ramon could not get over his astonishment. I'm sure that would happen to you too if you found a talking animal, am I right? Surely most people would run away... But Ramon didn't do it.

"Tell me." he mumbled.

"Look, we have heard about your idea of moving the beehives to Dorian's orchard to pollinate his apple trees and all the insects, not only the honey bees, are very worried." I explained.

"But... Worried about what?" he showed interest.





"For many reasons, Ramon." Then I told them everything we had been talking about, the problems caused by moving the beehives without proper planning.

"Chemicals Dorian uses in the orchard, food availability to all the insects, not only the honeybees... The truth is that I hadn't stopped to think about those issues." answered Ramon.

"The idea of moving the beehives to the orchard to increase apple tree production is great. We are willing to work wherever you take us, but we would like to give you some advice that all the pollinators have agreed on. Would you like to hear it?"

"I most certainly would." said the beekeeper.

Then I unfolded the rolled petal I was carrying in my forelegs and I started reading our conditions:

**First.** *Human beings should learn to appreciate and respect the functions of the rest of animals and plants with whom they share the planet Earth and should also learn to disturb the environment as little as possible with their activities.*

**Second.** *All pollinators, not only honey bees, need suitable habitats to live, with enough food and places where to nurse our young.*

**Third.** *Humans would have to limit the use of herbicides, pesticides and other chemicals, employing only the less toxic ones when it is essential.*

**Fourth.** *You should also commit to preserve wild flora, even around crops, and to plant native species in your parks and gardens.*

**Fifth.** *It would be necessary to continue the research into the sicknesses that are killing so many honey bees until an efficient treatment is found.*

**Sixth.** *You should pass on, generation to generation, the important role that we pollinators play in nature, for both plants and animals, so the in the future we do not have the same problems.*





In return, we commit to continue playing our pollinator's role non-stop and for free!

Ramon listen carefully to all our requests.

"Hmm... To tell the truth, everything you propose makes sense. We'll follow your advice!" he said, winking.

I could not believe that it was so easy to convince him. Ramon understood us and seemed to be a sensible person.

"I'll talk with Dorian and I'm sure you'll hear from us soon" he said excitedly "See you soon, little bee!"

"See you soon, Ramon!" I said goodbye. Although I knew his name, it was normal he didn't know mine. How could he learn and remember the name of so many bees? Could you remember so many names?

I was happy, I had managed to tell Ramon all I had been told to transmit and even better... he agreed! It was fantastic!!

When I came back to the beehive and explained what had happened, all my sisters were very happy and congratulated me. Now we could just wait and continue with our daily tasks.

With all that activity, we hadn't gone out in search for food. Also, the beehive was a bit dirty and neglected, so we all went to work.



\* T.N. (translator's note): "Polli is the best! LONG LIVE POLLI!"







## Chapter 6 *And finally...*

A few days had gone by when I met Ramon again. He had been to Dorian's and both of them were at the apple orchard.

Now, you already know me a bit, so you know I like to get to know what's happening around me. You won't be surprised that I went closer to them and landed on a twig.

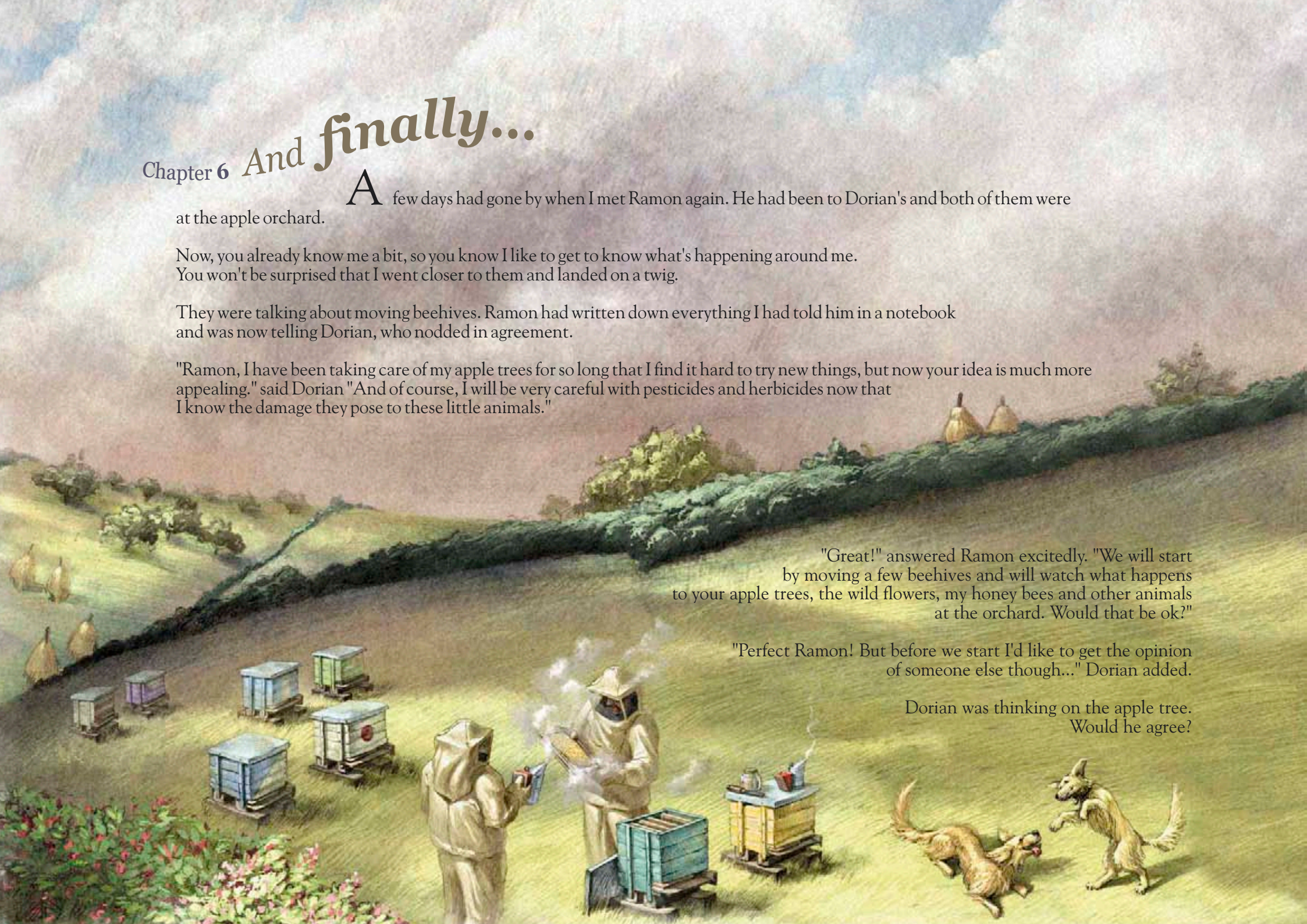
They were talking about moving beehives. Ramon had written down everything I had told him in a notebook and was now telling Dorian, who nodded in agreement.

"Ramon, I have been taking care of my apple trees for so long that I find it hard to try new things, but now your idea is much more appealing." said Dorian "And of course, I will be very careful with pesticides and herbicides now that I know the damage they pose to these little animals."


"Great!" answered Ramon excitedly. "We will start by moving a few beehives and will watch what happens to your apple trees, the wild flowers, my honey bees and other animals at the orchard. Would that be ok?"

"Perfect Ramon! But before we start I'd like to get the opinion of someone else though..." Dorian added.

Dorian was thinking on the apple tree.  
Would he agree?



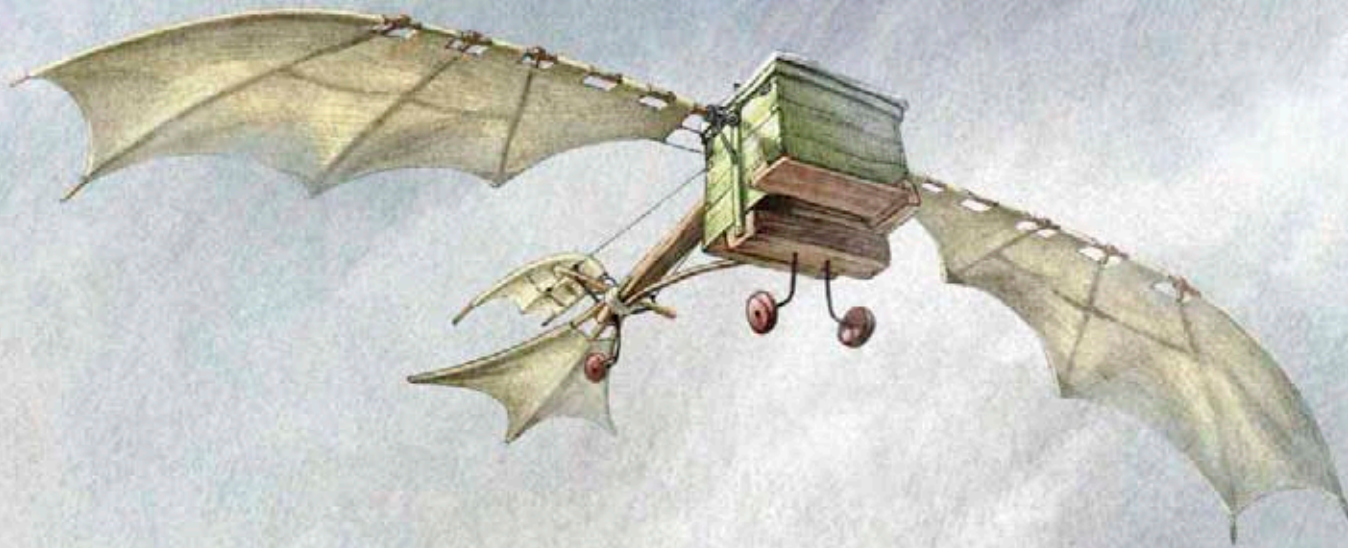




Before he could ask, a branch creaked and a little apple fell at his feet. Dorian knew what that meant. The tree agreed.

And so Dorian and Ramon put the beehives in the orchard, replaced the wire fence with a natural hedge of native species and checked that the apple trees could be healthy without using as many chemical products.





They followed our advice and the following spring... while they walked together among the apple trees, they could see flies, butterflies, ants, bumblebees and other wild pollinators happily fluttering around the orchard.

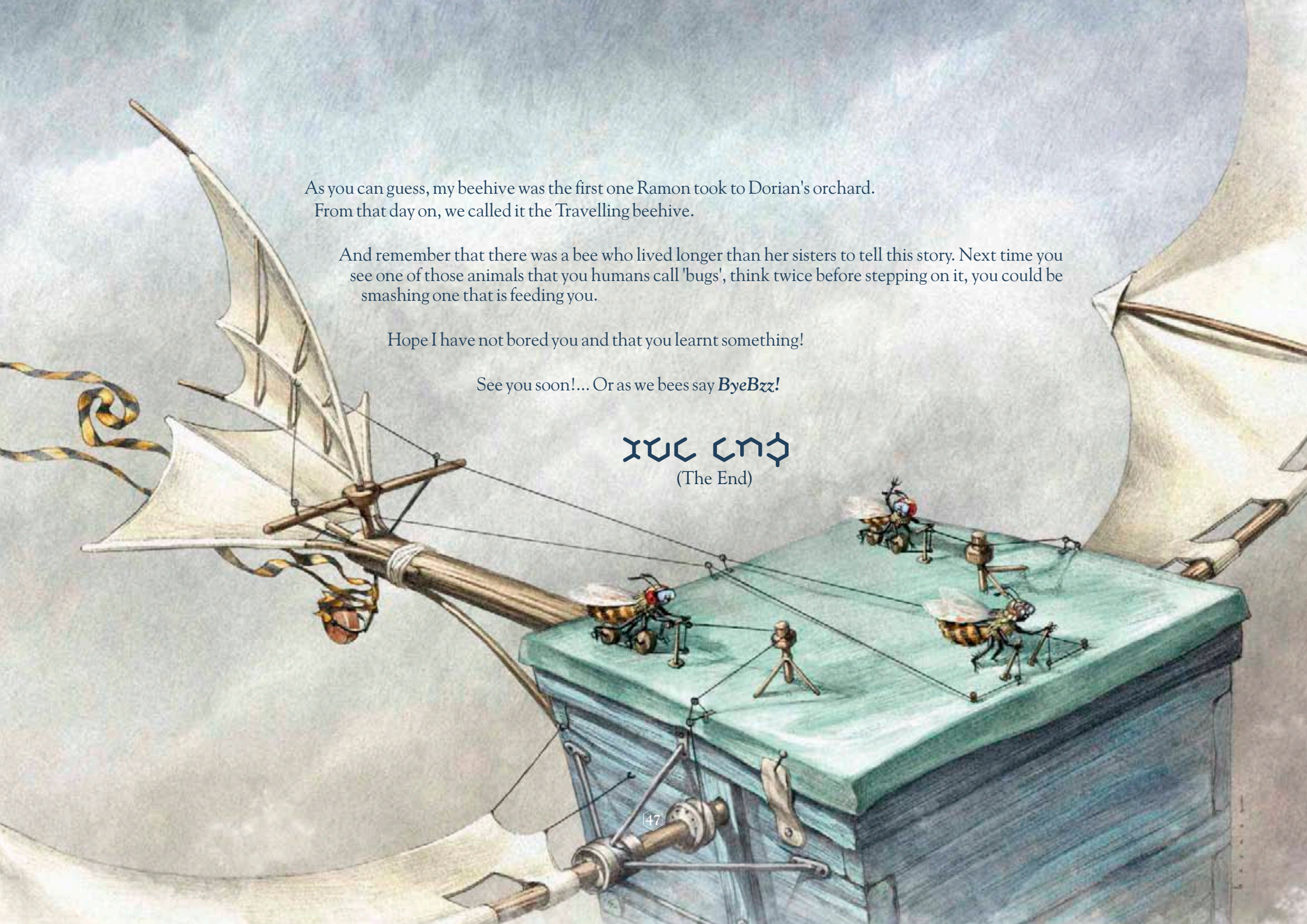
We, honey bees, didn't get sick that year and produced an excellent honey, from which Ramon took his part.

And the apple tree? As we all collaborated, the apple trees had their branches loaded with huge and tasty apples. Dorian's harvest was so big that he even used part of it to produce sweet cider. Have you ever tasted it? Mmmm, delicious!

"You see ..." Said Ramon amazed "We can learn great lessons even from the smallest creatures."

"Of course, Ramon" added Dorian "I think that we still have much to learn..."





As you can guess, my beehive was the first one Ramon took to Dorian's orchard.  
From that day on, we called it the Travelling beehive.

And remember that there was a bee who lived longer than her sisters to tell this story. Next time you see one of those animals that you humans call 'bugs', think twice before stepping on it, you could be smashing one that is feeding you.

Hope I have not bored you and that you learnt something!

See you soon!... Or as we bees say *ByeBzz!*

⋈ ⋈ ⋈ ⋈

(The End)





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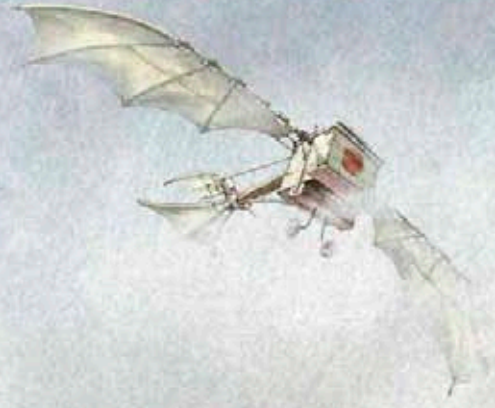


Preserving biodiversity and achieving a sustainable development are two closely related goals (it is not possible to attain one without the other) and represent one of the most important challenges of our society.

As pollinators are essential for the functioning of terrestrial ecosystems, so the educational community is essential to meeting this challenge. Current students may become the scientists, managers, farmers or businessmen of the future. Thus, teachers have the training of many generations on their hands.

Dedicated to teachers and students of all ages, as it is never late to learn: we hope you enjoy it!





*To Sixto, for his enthusiasm towards this publication*











