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bee first

NOT ALL HONEY OR HIVES ARE CREATED EQUALLY. ONE AUSSIE GUY IS TAKING A MORE NATURAL APPROACH TO BEEKEEPING BY BUILDING ON A CLASSIC DESIGN.

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IF YOU WANT SOMETHING DONE RIGHT, DO IT YOURSELF... THEN DO IT 350 DIFFERENT TIMES OVER 15 YEARS.

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In 1916, Father Abbé Emile Warré decided to throw in the cloth, turn his back on the church and devote himself to a higher calling: building beehives. Like many great designers, the former priest had an obsessive mind and a wild energy, which he poured into researching, building and tweaking what would become his life's work and lasting creation, the People's Hive.

Over 80 years later, a version of the design sits overlooking the forest at Mount Tomah in the Blue Mountains National Park, two hours north-west of Sydney. It's a place where the tree-covered ridges stretch as far as the horizon and the air roars with high-decibel cicadas. But we're here because of a softer sound; a buzz that spans centuries, cultures and, importantly, condiments.

"A jar of honey, no matter how it's produced, contains two million flowers," says Tim Malfroy of Malfroy's Gold, an organic, biodynamic honey producer based in and around the Blue Mountains. "And that's just a small jar."

Malfroy is literally the beekeeper's beekeeper. "I was born in the bee shed," he jokes. "In all seriousness, I was born in the hospital, but

the first few years of my life were spent in a bee shed." Son of a master beekeeper and bee breeder, Malfroy grew up surrounded by the *Apis mellifera* honeybee. His father kept 1000 hives when Malfroy was born and retains the same number today. But the industry has changed a lot in 30 years, not necessarily for the better, and one of the many problems has to do with honey as a condiment.

"In Australia, people spread honey on toast and it is marketed as a spread, up against mega-industrialised peanut butter, Vegemite and Nutella at four dollars a jar on shelves," Malfroy says. "It's not sustainable when you know more about the work that goes in. To produce one teaspoon of honey a bee has to fly the equivalent of the circumference of the earth."

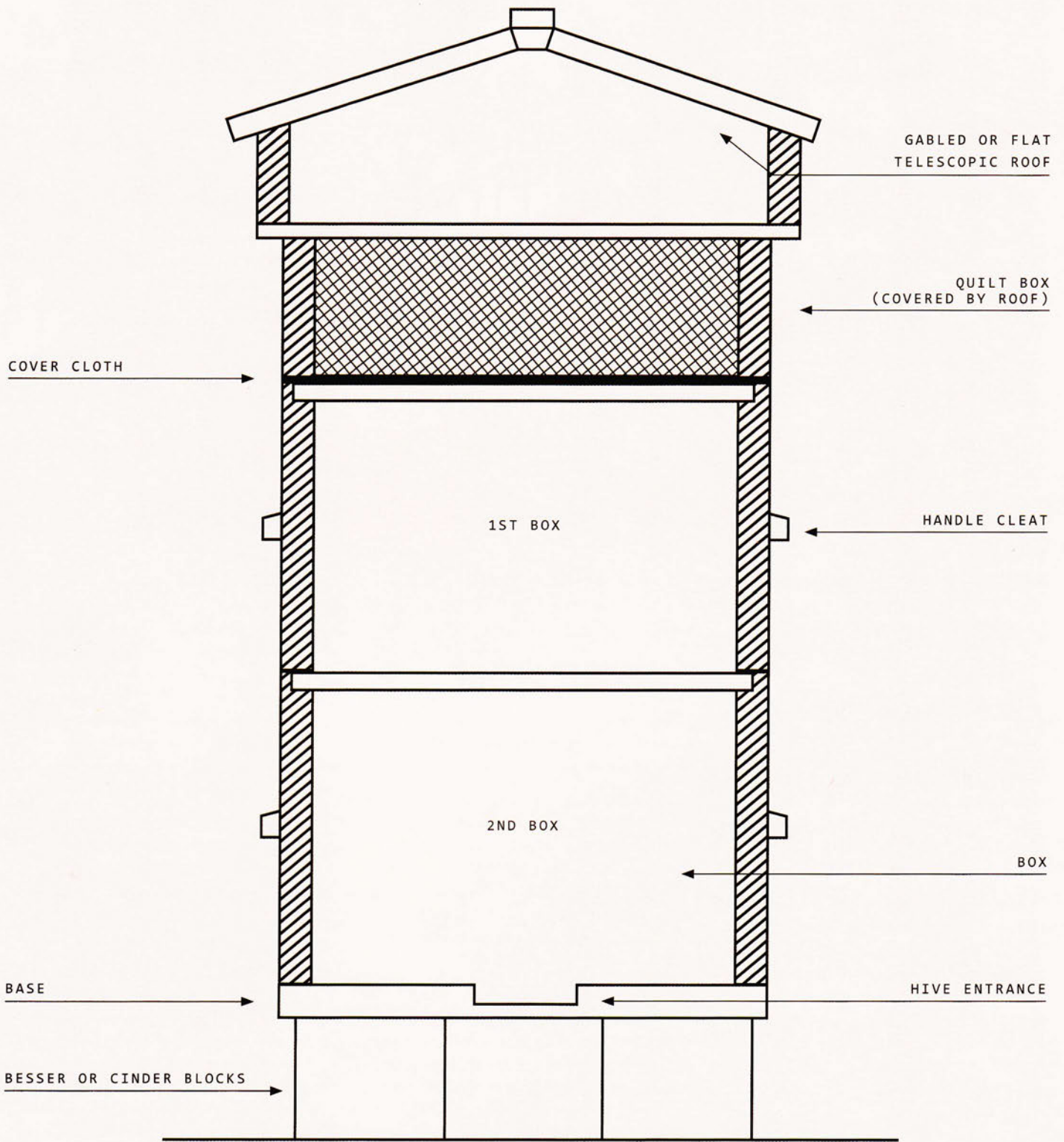
Australia has the highest honey yield per hive in the world. Rich in flora with a largely temperate climate, the environment is primed for production. "The vast majority of our flora is nectar producing," Malfroy says. "What's interesting to me is that, although honeybees are introduced, they plug you into this different way of thinking about the ecology of Australia. The majority of the insects here, and we've got thousands of different species, are nectar feeding. We've got over 1000 native species of bees; there are possums, bats and birds and they all live off nectar. The whole landscape is built on it."

Despite this, to keep honey competitive on shelves, some industrial producers are putting a huge amount of pressure on their bee colonies. "Bees can be fed sugar syrup and pollen supplements to get them to produce larger quantities," Malfroy says. "In the States, it is high-fructose corn syrup." Sometimes, honey is even mixed with glucose to lower the price, although this is not a common practice in Australia.

As an alternative, a number of small-time producers are adopting a 'bee first' approach to beekeeping and honey production, and Malfroy is one of the experts leading the way.

The average bee colony or hive holds around 40,000 to 60,000 bees. Each will fly thousands of kilometres to collect nectar in its lifetime, which can range from 15 to 38 days. Since 2006, Malfroy has immersed himself in beekeeping full-time, not only to understand hive and colony culture – the complex network of queens and drones and workers – but to also study the natural environment and local flora. Over the years, this knowledge has lent itself to classes, which Malfroy teaches, and building hives suited to the Australian conditions, which he knocks together with the help of his friend: farmer, horticulturalist and woodworker Bernhard Koch.

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In the spirit of Emile Warré, whose People's Hive was immortalised in the book *Beekeeping For All*, Malfroy worked for years to create a non-invasive bee-friendly hive for the Australian environment. Using the Warré design as a base, his modified People's Hive incorporates salvaged wood, in-built pest protection and specs that meet Aussie standards.

TIMBER

"It's like taking out all your organs and replacing them with plastic," says Malfroy of plastic hives, a popular option for many industrial and city beekeepers. "The plastic cooks in the heat and the bees mind."

Alternatively, many modern wood hives are made from plantation Radiata Pine, which is often imported from overseas and doesn't age well. Dipping a hive in copper, then painting it inside and out is common practice to preserve the wood – a chemical dose that's no good for the bees, or honey.

After years testing different options, Malfroy and Koch settled on *Macrocarpa* Cypress. Planted in Australia in the late 1800s, the timber is harvested from old fallen farm, forest, or garden trees. Once salvaged and milled, it's brought to Koch's farm where it's seasoned and dressed before being made into hives. "It's naturally durable out in the weather, and will last 20 or 30 years," Malfroy confirms.

BOX

Built from identical squares with handle cleats, the People's Hive was designed to mimic a wild colony. "Warré studied beehives in tree hollows and the actual dimension of an internal tree hole was what he wanted to recreate: a foot by a foot," Malfroy explains. "He said the only fault with his hive was that it's square and not round, but we're lucky because a square is easier to build."

Malfroy's modified version is slightly larger to better mirror the Australian conditions and uses standard timber sizes, to minimise waste. A small 'rebate' ledge is chipped around the top to hold the frames, which, in turn, hold the honeycomb.

In the wild, bees move into a tree hole and build their comb for brood from the top down. Mimicking nature, the People's Hive adds boxes underneath as the colony grows, not on top like many other designs. As a colony

expands, bees use the upper boxes for honey storage, and the lower for brood nest and to build more comb. Each box simply sits on the other; no strapping is necessary till a hive grows to six or seven boxes.

FRAMES AND COVER CLOTH

At the top of each box sit eight three-sided wood frames, one with a piece of 'starter comb', or a wax strip, to kick the bees off. The traditional People's Hive featured top-bars – thin wood strips with no sides – from which the bees fixed the comb to the hive walls.

Malfroy has modified this element of Warré's design for an important reason: Modern day Australia is a different place to 19th century France. By law, each frame must now be removable so beekeepers can inspect honeycomb for disease.

To meet the standards, Malfroy added a 7.5 millimetre 'bee space' between the sides of each frame to stop the bees connecting the comb as they work. "Any measurement smaller than that, the bees will fill with propolis, or tree resin," Malfroy says. "But any measurement over nine millimetres, they fill with the burr comb, natural beeswax."

Although he wishes he could take credit for this original calculation, it was first published by 19th century American beekeeper, the reverend Lorenzo Lorraine Langstroth. Malfroy simply applied it to the frames.

Traditionally, a hessian layer would sit between the frames and the quilt box to stop them sticking together. These days, the woven fabric is often treated with chemicals, so Malfroy prefers calico dipped in beeswax or a thin sheet of fibreglass 'miniweave' mesh: good old Aussie fly screen.

ROOF AND QUILT

Keeping the bees cosy or chilled, depending on the season, is the job of the quilt box. It sits on top of the cloth, filled with wood

shavings or a similar insulating material. Malfroy puts his wood shavings in a natural calico sack to keep them dry and easy to change. Above the quilt is a wood cover board, where notes about the colony are recorded to track their history.

Like all good houses, a beehive needs a sturdy roof. The traditional Warré design features an attractive, ventilated gabled variety with sloping sides to shed rain and snow, but Malfroy reckons a standard telescopic roof works pretty well in Australia.

BASE

In the year 2000, athletes poured into Sydney for the Olympic Games. Australia claimed 16 gold medals and one less-glorious prize: *Aethina tumida*, the Small Hive Beetle (SHB), which found its way past quarantine around the same time.

Common in parts of the States, adult beetles infest beehives and lay eggs so their maggot larvae can eat the bee brood, pollen and honey. This causes a "slime out event", Malfroy says. "The combs collapse, turning into a big ball of maggoty honey. It's disgusting." In the early days, Australian beekeepers lost entire hives.

To help reduce SHB numbers in the People's Hive, Malfroy swapped his standard wood base for a tin version with laser slots cut towards the back. When the beetles fall off the comb, they drop to the base and eventually crawl through the slots into a trap filled with garden lime. The trap can be removed without opening the hive, making it non-invasive and easy to manage. "We haven't lost a hive to small hive beetle in seven years," Malfroy says. "I had nightmares about it for ages. To actually solve the problem just with the design change is great. I sleep easier."

In areas where SHB is less of a problem, a thick wood base will do, propped up on besser or cinder blocks. Malfroy also tilts all his hives ever so slightly so any moisture drains out.



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These days Malfroy keeps 100 hives, which are scattered around the Blue Mountains and over the New South Wales Central Tablelands. Business is so good it's hard for him to keep up. "There's only one of me and it's a complete juggling act at the moment," he says. When he's not tending the bees or teaching classes, Malfroy delivers wild honeycomb, still in its wood frame, to local restaurants. He reckons he eats up to a kilo himself every week, too.

The life of a beekeeper is at the mercy of many elements – frost, windchill, fire and heavy rain – sometimes all on the same day, but one variable that irks Malfroy is the misinformation about beekeeping that makes headlines. "The reason amateur beekeeping became popular in other parts of the world is because they have problems with diseases and there was fear about losing the bees," he says.

Australia is the only country without *Varroa destructor*, a parasitic mite that attacks honeybees and destroys colonies. The threat of *Varroa* and widespread colony collapse has led to a rise in city-based beekeeping around the world. "In Australia we have abundant bee colonies, but a lot of the stories are about our bees disappearing," Malfroy says. "It's completely untrue. I do worry that when we do have those problems, and we will, it will be like the boy who cried wolf."

There might be no need to 'save' the bees here at the moment, but the level of

interest from amateur beekeepers is still a good thing. "I love that so many people are interested," Malfroy says. "Even if you get a 90 per cent burn out rate, you have 10 per cent of people who are really into beekeeping. They are curious and want to learn about the bees and the hives and that's great." Australia currently has around 10,000 registered beekeepers, but the real number is probably much higher. Seems not even the occasional sting can put them off.

"A lot of people are very fearful, but with bees it's just a comfort thing," Malfroy states. He lifts a roof to demonstrate, removes the top board and quilt, then sticks his bare hand into a box of bees, casually pushing them aside as he extracts a frame, loaded with milky virgin honeycomb.

As he cuts the comb from the frame and breaks it in half with his hands, the cells pop with light golden honey. Malfroy carves it into bite-sized squares, to be eaten at once. The taste is complex, polyfloral and rich: tea tree, white clover, Christmas bush, Angophora. There's a subtle, bitter note in there as well. It's chestnut, Malfroy confirms, chewing on a small square. After a lifetime surrounded by bees he says he's still learning new things every day. He stares at the comb, the honey starting to pool onto the plate. "There's probably about five million flowers in there."

To find out more, build a beehive or to take a class, visit naturalbeekeeping.com.au •

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One of Tim Malfroy's modified People's Hives at Mount Tomah, northwest of Sydney.

Above, clockwise:
A three-sided frame filled with wild honeycomb. Malfroy tweaked the frame from the original top bar design by Emile Warré; note the 7.5 millimetre 'bee space' on each side.

Malfroy extracts wild honeycomb from a hive.

Apis mellifera crawl all over the top of an opened hive.