MBKA Beekeeping Course
Session 2

Hives Bees' requirements
Bee space, hive types, hive parts
Assembly of flat-pack hives

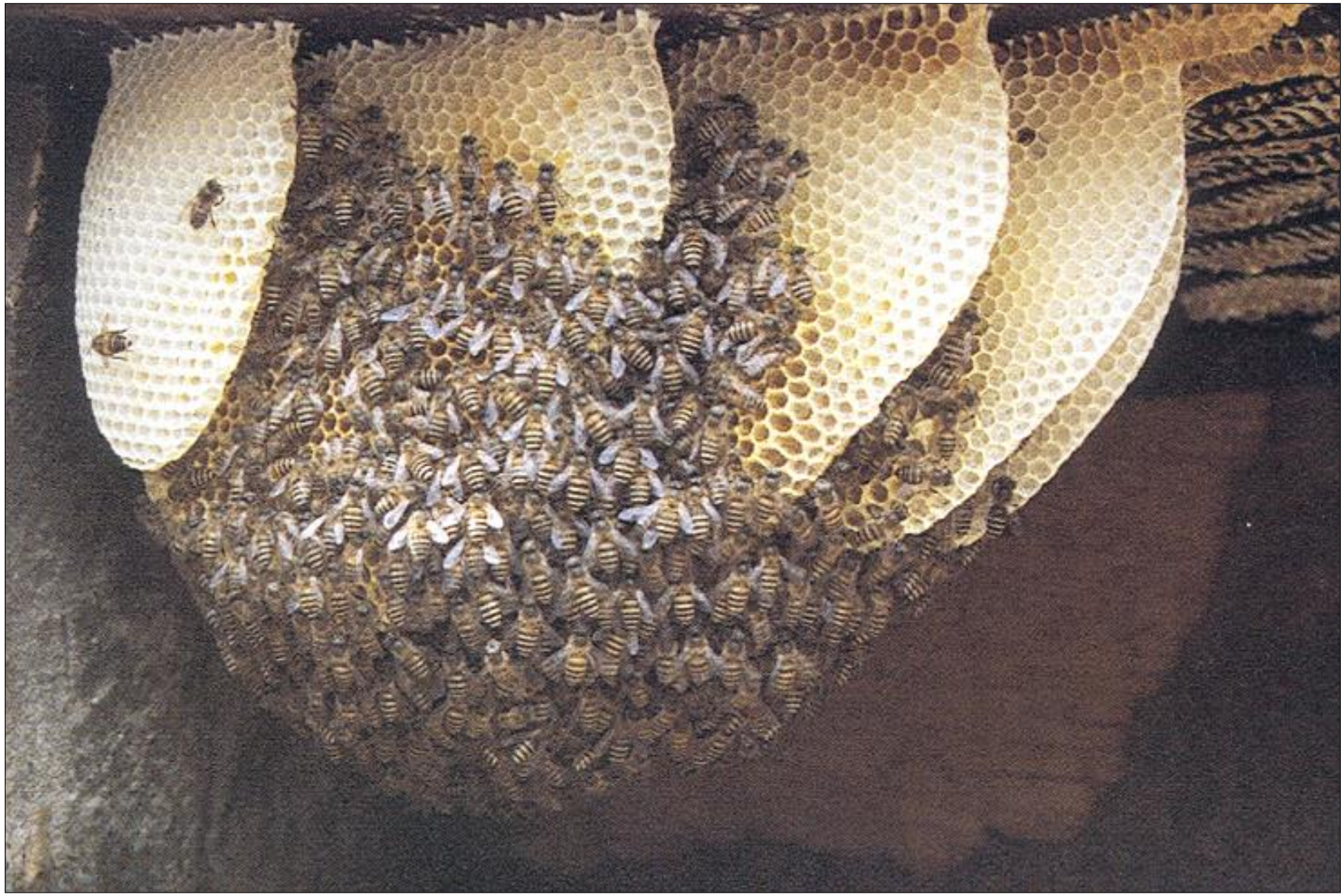
Coffee

Forage plants
Apiary sites
Frame assembly

Lunch

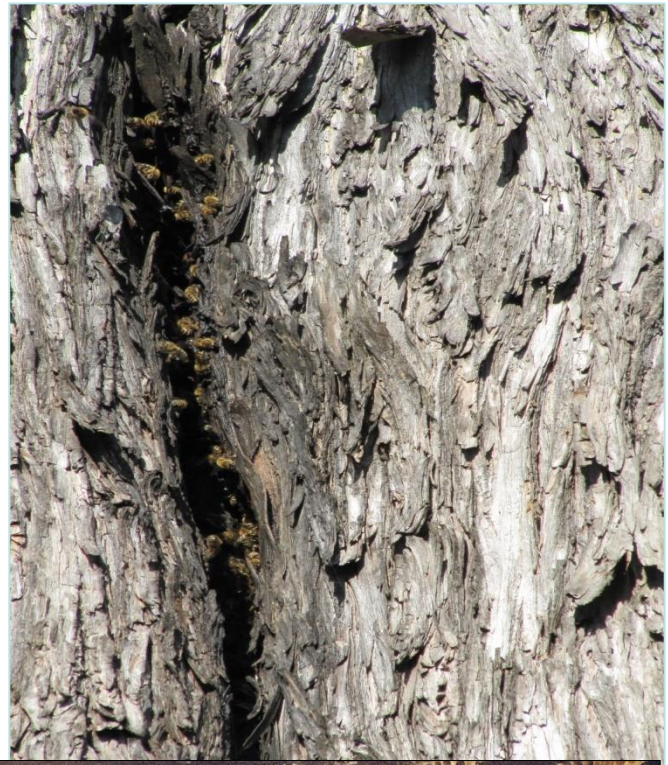
What the beekeeper does Opening colonies
The beekeeping year
Managing supers
Harvesting
Feeding

What is honey?



Honey bee requirements

- **Cavity of right size (approx. 40 l)**
- **Space to expand into**
- **Weatherproof (dry) cavity**
- **Easily protected entrance**
- **Entrance allowing ventilation**
- **At height away from predators (3 – 5m)**
- **Away from other colonies**



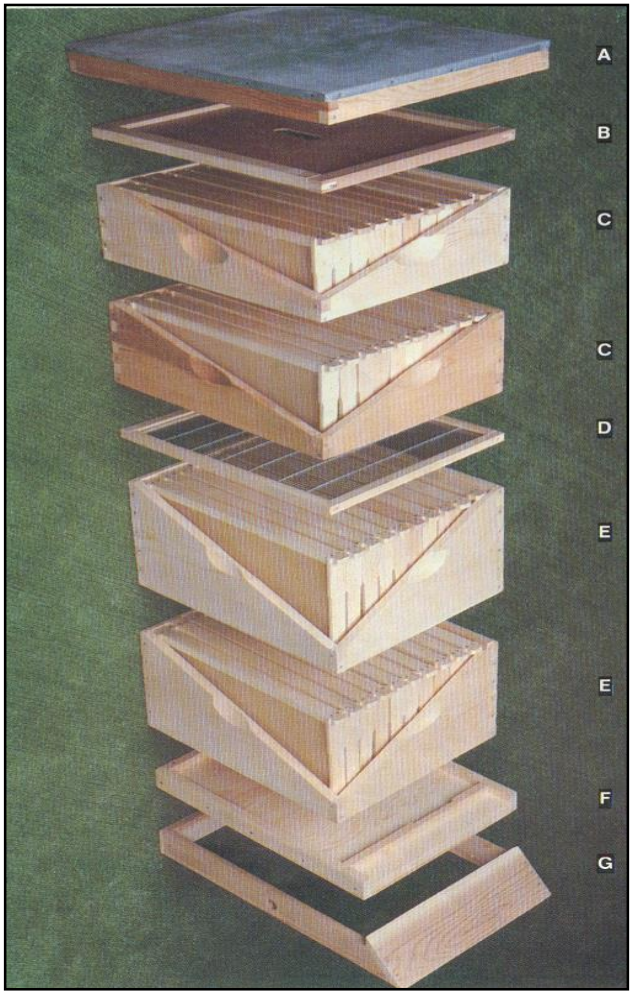
Beekeepers' requirements

- Moveable container, expandable size
- Convenient height to access and lift
- Access to combs for harvesting and colony manipulation
- Ability to harvest honey without disturbing brood
- Maintain bee space so combs/frames remain moveable
- Defendable / adjustable entrance
- Close to a few other colonies
- Work WITH the bees rather than destroy their hard work

Bee Boles

- Skep beekeeping
- Weather protection

Hive components



A ROOF

B CROWN BOARD

C SUPER

C SUPER

D QUEEN EXCLUDER

E BROOD CHAMBER 2

E BROOD CHAMBER 1

F FLOOR

G STAND/ALIGHTING BOARD

Common hives in UK

National

WBC

Smith

Courtesy of Thornes Catalogue

The Dartington

Kenyan top-bar hive

Optimal brood box capacity

- Maximum Queen's daily rate of egg laying in summer about 2000 eggs a day
- Worker eggs will take 21 days to emerge as adult

- Cells required for workers is 21 X 2000 = 42,000
- Drone cells = 1,000
- Honey stores = 10,000
- Pollen stores = 10,000
- Unusable cells, wastage, cleaning approx. = 9,000

TOTAL = 72,000 cells

Hive capacities

- WBC - 10 Frames – 52,000 cells
- Smith - 11 Frames – 57,200
- BS National Brood - 11 Frames – 57,200
- Langstroth - 10 Frames – 72,300
- Commercial - 11 Frames – 74,300
- BS Deep 14 X 12 - 11 Frames – 78,600
- BS “Brood and a half” - 22 Frames – 92,800
- Modified Dadant - 11 Frames – 93,700

Colony requirements

- Temperature
- Water
- Nectar
- Pollen
- Propolis

Forage Trees

Forage Plants










Setting up an apiary

- Liaise with neighbours
- Forage all year (pollen & nectar)
- Water nearby
- Early sun & ideally shade at mid day
- No frost pocket
- Away from another beekeeper's apiary
- Hives not in a regular pattern
- Safe flight path
- Shelter from wind

- Stock proof (horses, cattle, badgers?)
- Level ground
- Plenty of room to work on the hive
- Easy access (vehicle)
- Storage for spare equip.
- Hidden from road or paths (& thieves)

Why disturb the bees?

They can manage very well on their own without our “assistance” so why do we open the hive?

- Health - To check the colony are healthy and take any necessary measures to assist them in combating disease, pests, starvation, etc.
- Swarming - To prevent swarming or attempt to reduce the swarming impulse;
- Honey - To provide space to store more honey and to harvest a surplus if available;
- To learn - a valid reason for new beekeepers.

What to look for

Hooper's 5 questions:

- Is the **queen** present and laying as expected?
- Is there sufficient **space** for expansion and nectar storage?
- Is there any indication of **swarming**?
- Are there any signs of **disease**?
- Are there sufficient **stores** until the next inspection?

Autumn / Winter

- Check stores in September and feed as necessary. Aim for 40lbs honey ~ 8 full National brood frames
- Mouse guards
- Woodpecker protection
- Beware wind and frost pockets
- Bees cluster to keep warm. They use honey and shiver to generate heat
- Don’t open the hive
- “Heft” the hive to weigh stores
- Watch the entrance for signs of first pollen being taken in

Spring

- First inspection
  - change or clean the floor
  - check queen is laying
- Colony rapidly builds in strength
- Soon into weekly inspections checking Hooper's 5 questions
- Swarm control

Summer

- Enjoy
- Anticipate the bees' requirements
- Encourage colony strength to build up without swarming by ensuring sufficient space for brood
- Add supers as necessary to provide space for nectar storage
- Harvest honey if ready
- Always leave enough honey/nectar stores for periods of poor weather!
- Be vigilant for disease
- Help bees to defend stores against robbers, eg: wasps or other honey bees

Supers

- Designed to be stacked one on another
- Provide space to store nectar and honey
- Shallower than brood box
- Frames can be spaced more widely than in brood box to store more honey
- Above a queen excluder means no brood so honey can be harvested
- Also provide space for bees to prevent congestion in the brood box
- Add supers before the bees need them

Honey

- ~ 78% natural sugars: mostly fructose and glucose which are readily absorbed by the body
- < 18% water
- inhibits microbial action
- many health benefits from trace elements including pollen, phytochemicals (from plants) and enzymes added by bees.

Plants produce nectar:
80% water

Bees convert it to honey:
18% water

Workers exchanging nectar on the comb

A frame of ripe honey stored in the comb under a non-porous capping

Brood comb with porous capping

Harvesting Honey

- Any time between May (OSR) and Sept.
- When more than 50% of cells are capped and the honey doesn't shake out
- Leave enough for the bees
- Clear bees from super with Porter bee escapes (or shaking or blowing)
- Remove boxes of frames
- Extract honey (uncap & spin; cut out & squeeze, or melt)
- Replace "wet" frames for cleaning by the bees

Feeding

What	How	When	Why
Thin syrup	Approx. 1kg white sugar in 1.25 l water (1lb/1pt)	Spring or Summer	To simulate a nectar flow and increase egg laying rate
Thick syrup	Approx. 1kg white sugar in 625ml water (2lb/1pt)	Autumn	To supplement honey stores for winter
Candy or fondant	2.4kg white sugar boiled in 0.5 litres water (6lbs/1pt)	Winter or early Spring	If colony is running short of stored honey
Pollen patties	?	Spring	If there's insufficient pollen forage available