Chesterfield & District Bee Keepers Association

2019 Study Group for the BBKA Basic Assessment

Paul Loxley

Timings

- Start 7.30pm prompt
- Coffee 8.30pm 15’
- Finish around 9.30pm (depending on you…)

Hands on session timings to be confirmed by e-mail later

Objectives

To:

1. **give you enough information to pass the *BBKA Basic Assessment* (or) to improve your basic bee keeping knowledge if you choose not to take the assessment**

2. **test your understanding of the information in the study notes and fill any gaps**

3. **practice interpreting and answering the assessment questions**

Agenda

Study Group 1 (today)

- What to expect during the assessment process
- A run through of (practical) questions 1.1 to 1.21 – Manipulation & Equipment
- A run through of (theory) questions 3.1 to 3.7 – Swarming & Swarm Control
- Practice making a frame

Study Group 2 (14th May)

- A run through of (practical) questions 2.1 to 2.16 – Natural History (oral)
- A run through of (theory) questions 4.1 to 4.11– Diseases &Pests (oral)
- Lighting a smoker

Hands on demonstration (18th and 19th May)

- A run through of (practical) questions 1.1 to 1.21 – Manipulation & Equipment
- Demonstration of two methods of swarm control

What to expect on the day…

- We'll use the associations apiary
- Duration = 1 hour
- Only you and the examiner
- 'Nice' colony
- Single Brood box with supers
- Two parts:
  - Manipulations
  - Theory

Section 1: Manipulation & Equipment

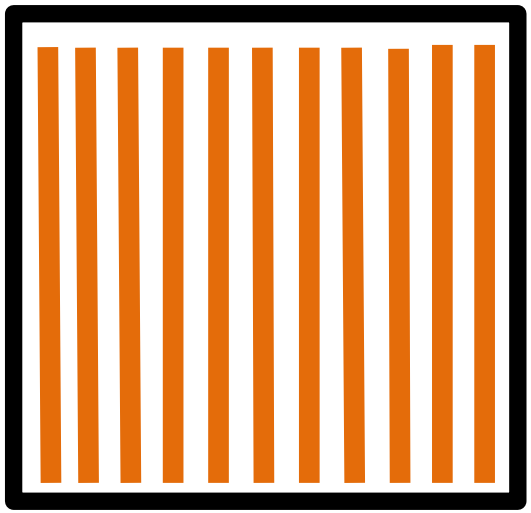
1.6 …Record Keeping…

Hive No:	Year:	Q Marked/clipped?	History	Rating A B C

Date	Q Seen?	Q Cells?	Eggs	Brood	Stores	Room	Weather	Temper	Propolis	Runny?	Supers	(1=Placid, 5= Aggressive) (Propolis 1=little, 5=lot) (VC#/days = Daily Varroa Count) (Runny? 1=not, 2=very)

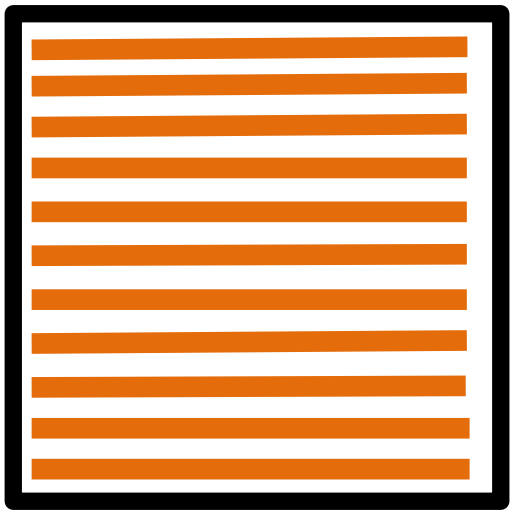
1.7 …open colony…

Entrance



Cold Way

Entrance

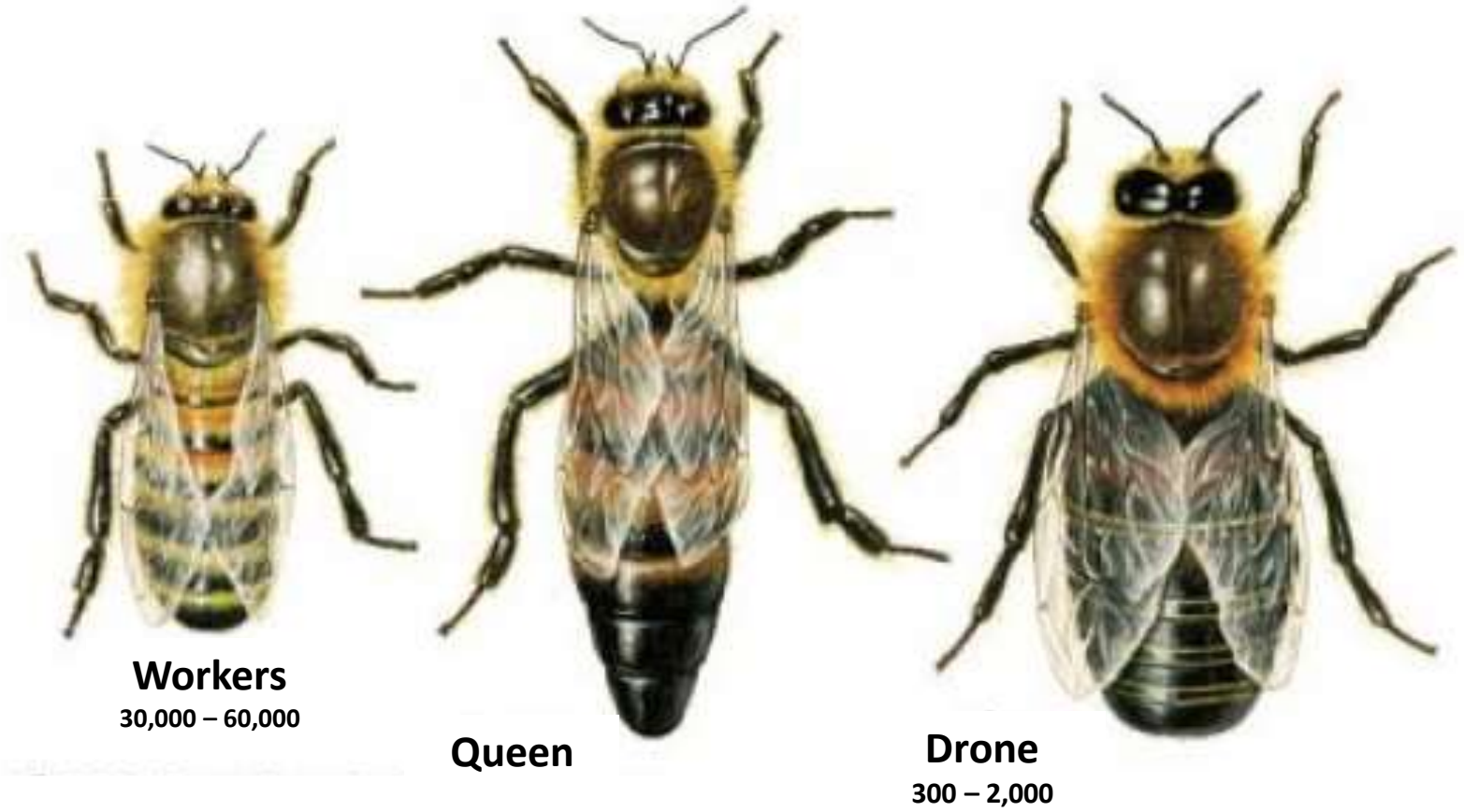


Warm Way

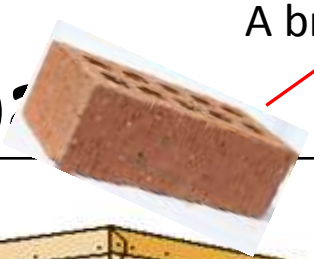
Queen cells vs ‘play cups’

1.11 …identify castes…

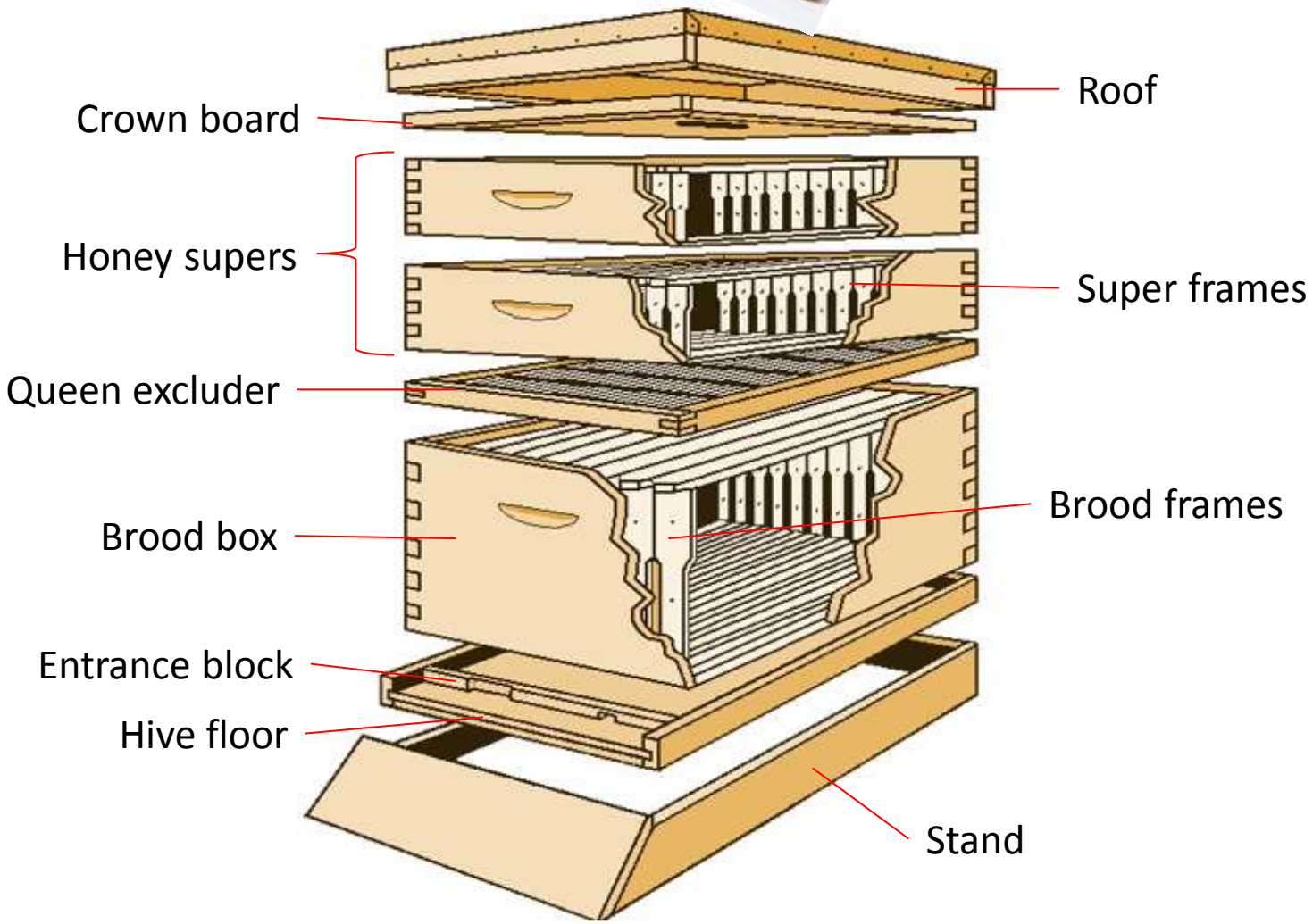
There are three castes of bees:-



1.18 …Hive p



A brick to keep the roof on



Beehives - types

WBC

National

Dadant

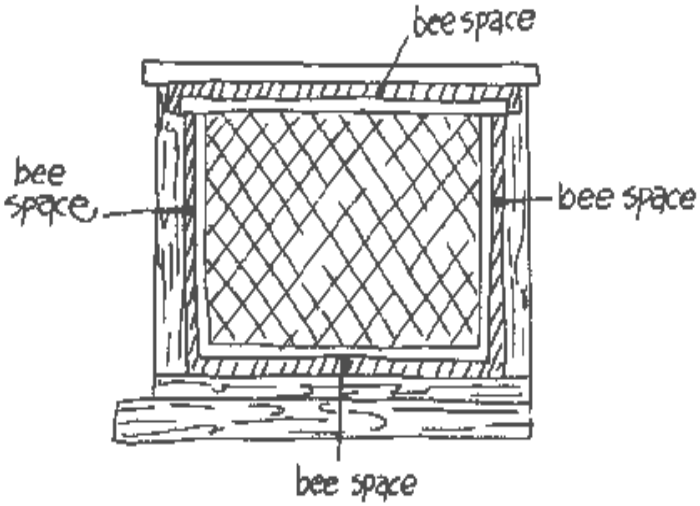
Langstroth

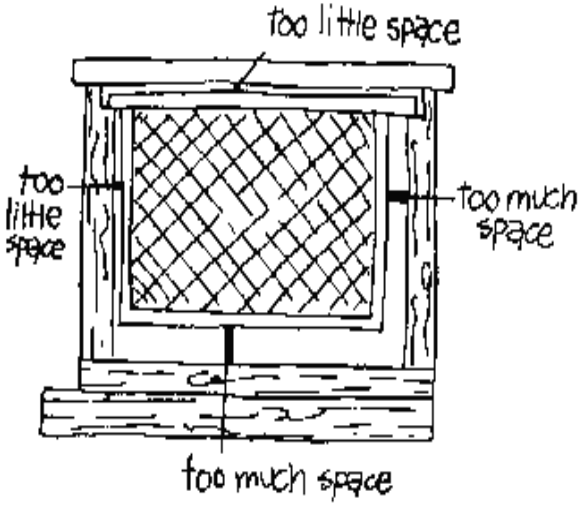
Top Bar

National Poly Hive

1.19 …Bee Space…

- … is the gap that bees need to pass freely within the hive.
- It governs the separation of frames, the spacing vertically and horizontally between frames:-

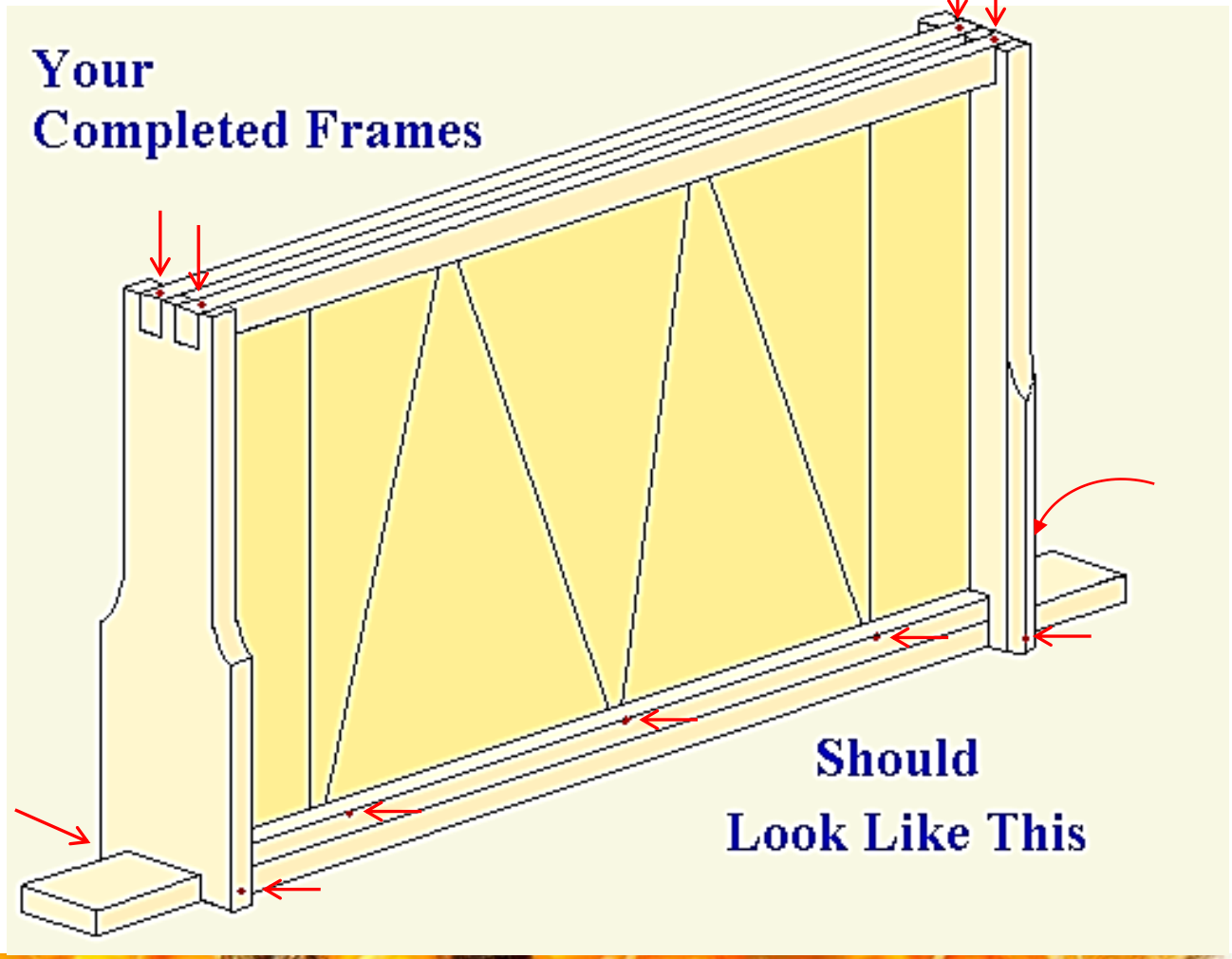


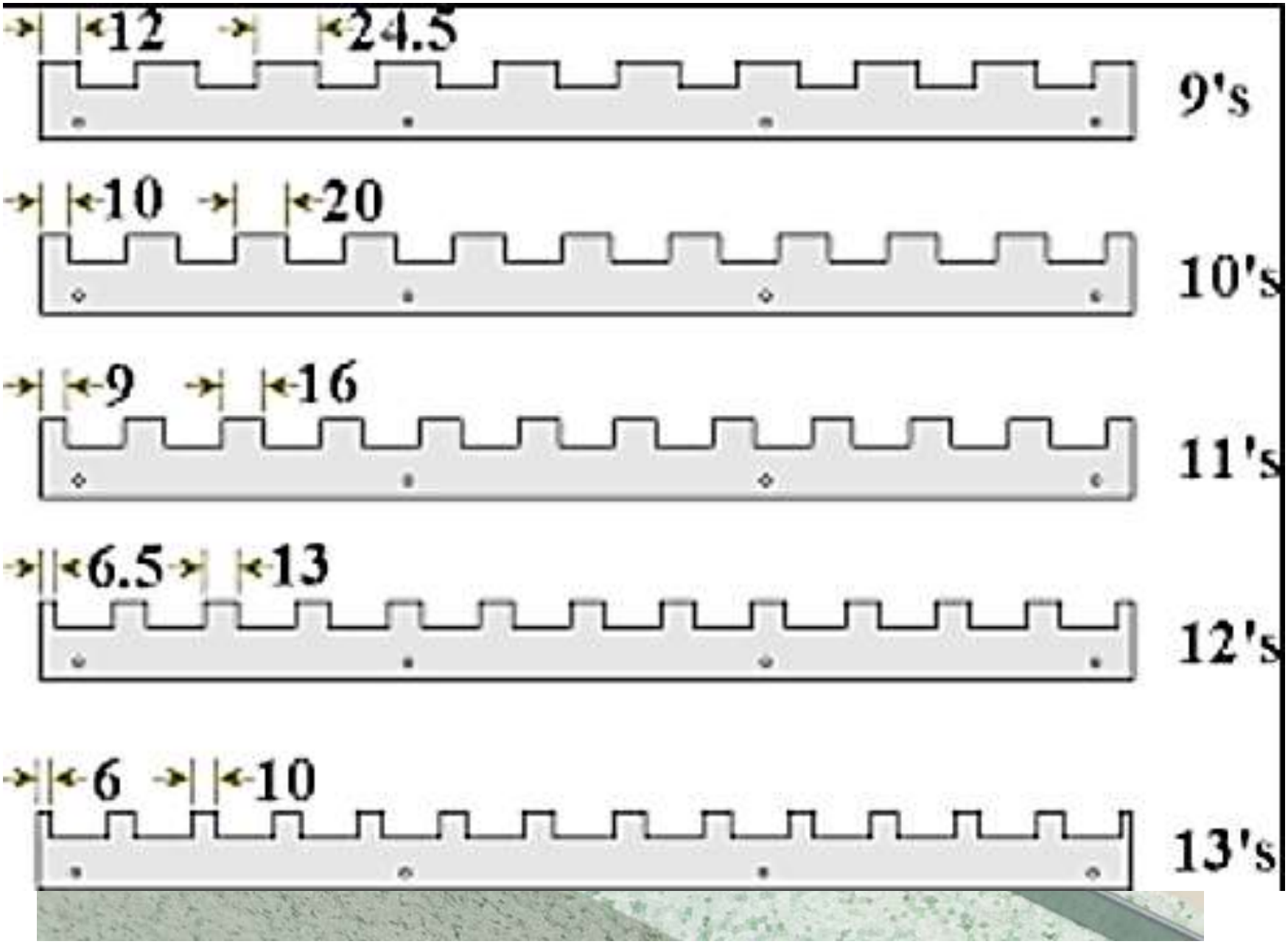


- Between 6 and 9 mm.
  - A gap of 4 mm. or less will be filled by the bees with Propolis
  - A gap of more than 9 mm. will be susceptible to filling with ‘Brace Comb’.

1.20 …assemble a frame…

11 pins




12
24.5
9's
10
20
10's
9
16
11's
6.5
13
12's
6
10
13's


COFFEE!

Its size...is immeasurable.

Its power... is limitless.

Its enemy...is man!

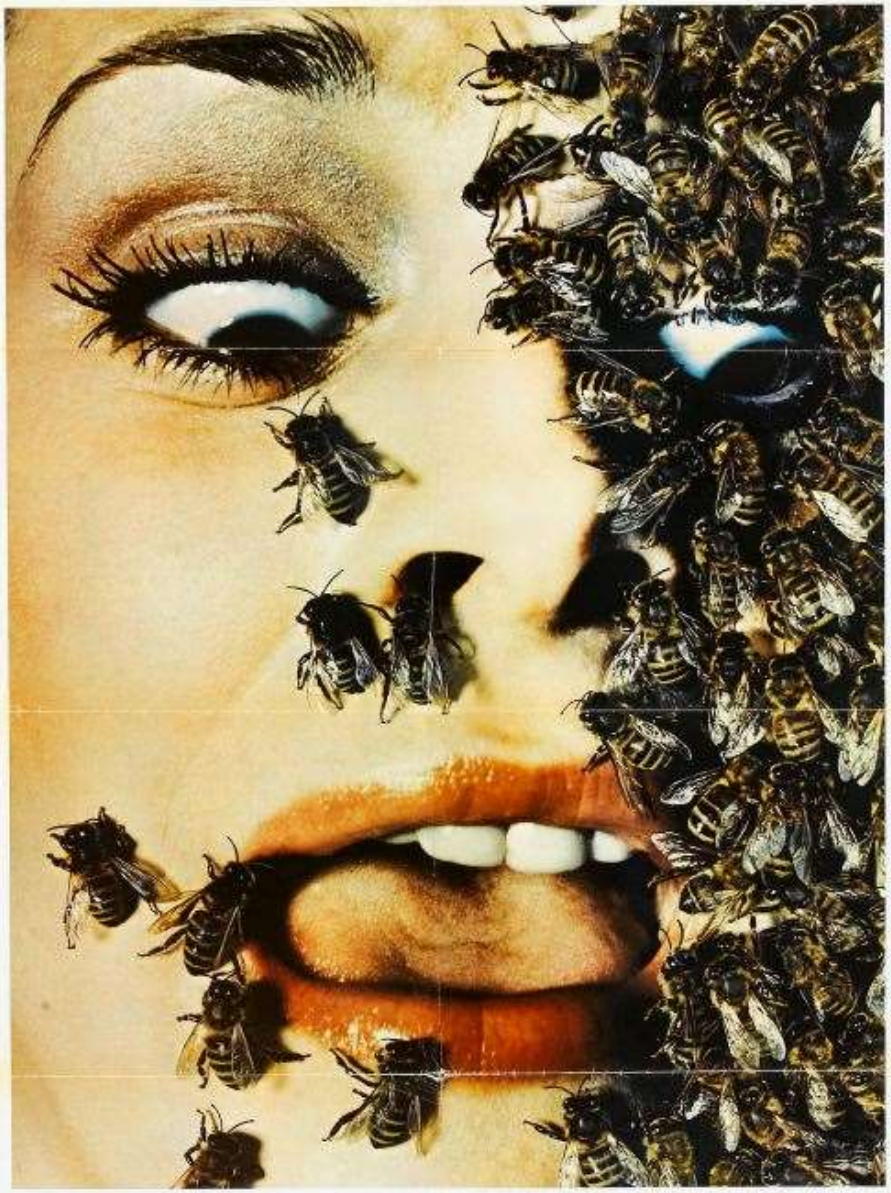
THE SWARM

is coming!

Warner Brothers Pictures Presents Irwin Allen's Production of "THE SWARM"
Starring MICHAEL CAINE KATHARINE ROSS RICHARD WIDMARK RICHARD CHAMBERLAIN
OLIVIA DeHAVILLAND BEN JOHNSON LEE GRANT JOSE FERRER PATTY DUKE ASTIN
SLIM PICKENS BRADFORD DILLMAN with FRED MacMURRAY and HENRY FONDA as Dr. Krim
Music by JERRY GOLDSMITH Screenplay by STIRLING SILLIPHANT
Produced and Directed by IRWIN ALLEN

PG PARENTAL GUIDANCE SUGGESTED

From Warner Bros.
A Warner Communications Company



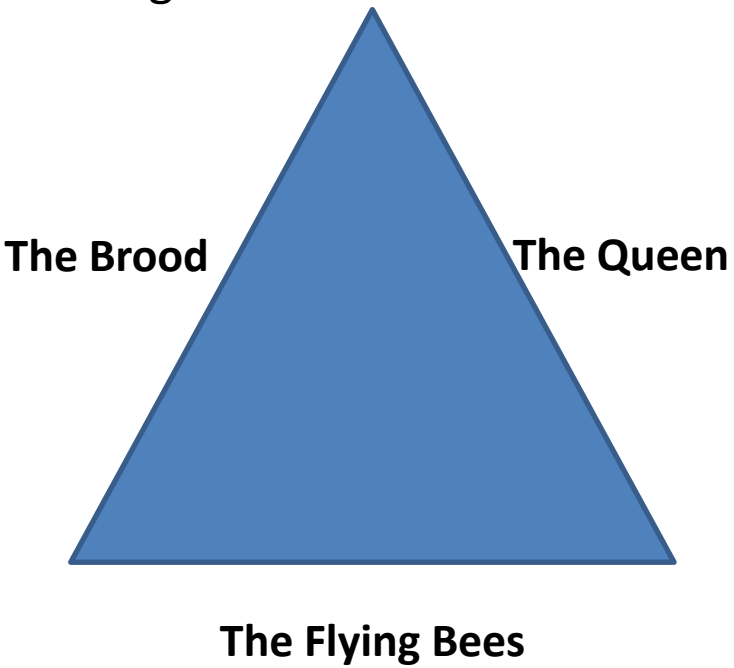
The Savage Bees

GEORGE BARRIE - BRUT PRODUCTIONS PRESENT AN ALAN LANDSBURG / DON KIRSHNER PRODUCTION
Starring BEN JOHNSON · MICHAEL PARKS · PAUL HECHT in THE SAVAGE BEES
Special Guest Star GRETCHEN CORBETT · Special Appearance by HORST BUCHOLZ as Dr. Jorge Meuller
Director of Photography RICHARD GLOUNER, A.S.C. · Music Composed and Conducted by WALTER MURPHY · Written by GUERDON TRUEBLOOD
Executive Producers ALAN LANDSBURG / DON KIRSHNER / MERRILL GRANT · Produced and Directed by BRUCE GELLER · COLOR

Section 3: Swarming, swarm control & effects

3.2. Swarm Control

Think of swarming as a triangle:

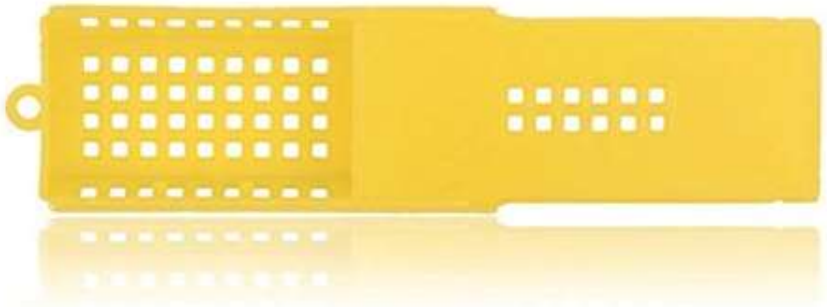


Swarm control MUST take away one side of the pyramid from the other two…

3.4. Egg laying workers…

3.4. ….drone laying Queen

3.4. Queen introduction cages




End of session

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Second Session

Paul Loxley

Section 2: Natural History & Beekeeping

Life cycle of a Queen bee

- Egg is laid (or moved by workers) into a Queen cup and continually fed Royal Jelly.
- Emerges on or around day 16.
  - First 5 days – being groomed & fed
  - Wings open day 3
  - Mating flights at 5 – 14 days
  - Starts to lay eggs 5 days after mating
- Lays around 2,000 eggs per day
- Remains productive for up to five years

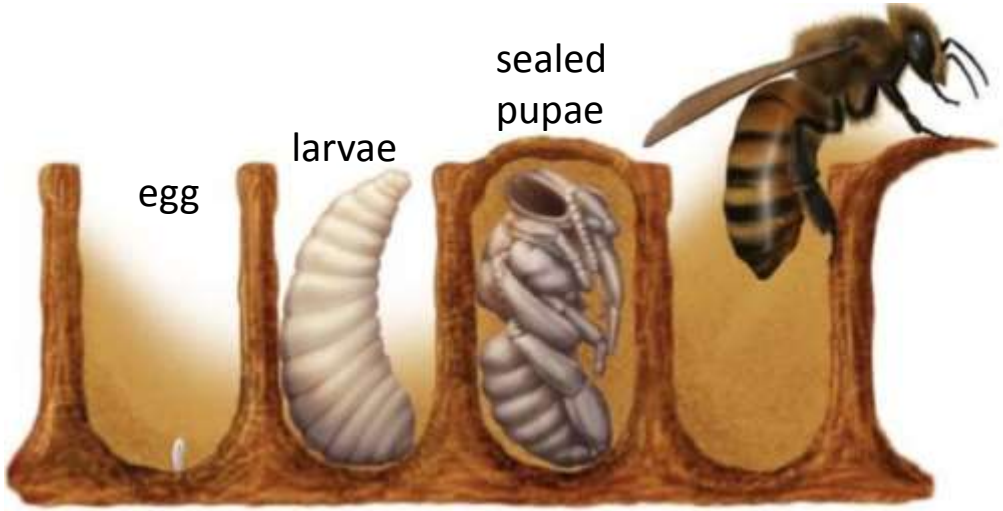
Life cycle of a worker bee

- Eggs laid in open cells – upright at first then ‘falls over’ onto side
- Larvae fed Royal Jelly for 2 days then *bee bread* for remaining 3 days
- Hive duties for first three weeks:-
  - Housekeeping bees – cleansing the hive and helping maintain temperature
  - Nurse bees – feeding queen, drones and brood
  - Guard bees
- Foraging for last weeks of life for Pollen, Nectar, Water & Propolis
- 30,000 – 60,000 in summer and 15,000 – 20,000 in winter
- Live for about 6 weeks through the summer and around 4 – 9 months in winter.

Life stages of a drone bee

- Appear in Spring
- Similar life cycle as workers. Sexually mature one week after hatching then only role is to eat and mate
- 300 – 2,000 in a hive
- They are killed or evicted by the colony in Autumn when the days get shorter and the nights get colder

Lifecycle of the honeybee



Stage \ Caste	Queen	Worker	Drone
Egg	3 days	3 days	3 days
Larvae	5 days	6 days	7 days
Pupae	8 days	12 days	14 days
Total time	16 days	21 days	24 days

Stages of Pupation


End of session

Section 4: Disease & Pests

The main culprits

- Varroa Mite
- Sac Brood
- Foulbroods:
  - European
  - American
- Tropilaelaps
- Small Hive Beetle
- Asian Hornet

These are notifiable pests or diseases and the Regional Bee Inspector must be informed if foulbrood is suspected.

Animal &
Plant Health
Agency

The National Bee Unit

Tropilaelaps

parasitic mites of honey bees

4.1 Appearance of healthy brood

4.4 American Foulbrood (AFB)

American Foulbrood (A = After sealing)

- AFB is caused by a spore forming bacteria.
- Infection begins when food contaminated with spores are fed to larvae by the nurse bees.
- AFB spores are very resistant to extremes of heat and cold, and many disinfectants so remain viable for many years.

Symptoms of AFB?

Signs of AFB include some or all of the following:

- **Sunken, greasy or perforated, darkened cell cappings**
- **Uneven or 'Pepper-pot' brood pattern**
- **Roping - sticky larval remains can be drawn out with a matchstick (around 1”)**
- **Dark "scales", which are difficult to remove from cells**
- **Black remains with proboscis protruding**
- **An unpleasant smell at later stages**

Treatment of American Foulbrood?

- This is a notifiable disease and the Regional Bee Inspector (RBI) must be informed if foulbrood is suspected
- Suspect colonies must be sealed pending an RBI inspection
- All infected colonies are destroyed.
  - The first stage is to destroy the adult bees and brood combs by burning
  - then the hives and any appliances are sterilised by scorching with a blow lamp.

European Foulbrood (EFB)

European Foulbrood (E = Early, before sealing)

- EFB is caused by a bacteria.
- Larvae become infected by consuming contaminated food fed by the nurse bees.
- The bacteria multiply within the larval gut and compete for food. Infected larvae die from starvation.
- This normally occurs shortly before the cells are capped

Symptoms and spread of EFB?

Signs of EFB include some or all of the following:

- An unpleasant ‘funky’ odour
- Unsealed and uneven brood pattern
- Melted down, yellowy/white/green larvae
- Twisted/uneasy lying larvae with creamy-white gut visible through the body wall
- Loosely-attached brown scales

Unlike AFB, the remains of larvae that die from EFB do not rope when drawn out with a matchstick.

Treatment of European Foulbrood?

There are three options available in the UK:

1. **The colonies may be destroyed.**
   (This will be carried out if the colony is too small, is too heavily infected or at the beekeepers request.)

2. **Shook Swarm**
   National Bee Unit trials show Shook swarm is more successful than OTC.

3. **The colonies may be treated with Oxytetracycline**
   (OTC, as the formulation Terramycin®).

Symptoms of Chalkbrood?

Symptoms appear in damp and cold springs. Symptoms include:

- Dead larvae covered with a white cotton wool-like floss
- These dry out and shrink to chalk-like greyish black ‘mummies’
- Worker uncap the cells so the mummies will be clearly visible
- shrunken chalk-like mummies in the brood and on the open mesh floor
- Look for ‘poached eggs’

Treatment of Chalkbrood?

- Avoid damp apiaries
- Keep good circulation in the hive
- Maintain strong colonies
- Re-queen if severe or prolonged

Symptoms of Sacbrood?

Typical symptoms include:

- Infected larva turns pale yellow and will die and begin to dry out
- Then turns a dark brown/black colour - 'Chinese slippers'
- Workers uncap infected cells creating an uneven brood pattern
- Discoloured, sunken or perforated cappings scattered through the brood cells (but NOT "greasy")
- Skin of dead larva changes to a tough plastic-like fluid filled sac
- The sac can be carefully removed using tweezers.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Treatment of Sacbrood?

- Maintain strong colonies
- Control Varroa
- Re-queen if infections are prolonged or repetitive

Varroa – *Varroa Destructor*

Symptoms:

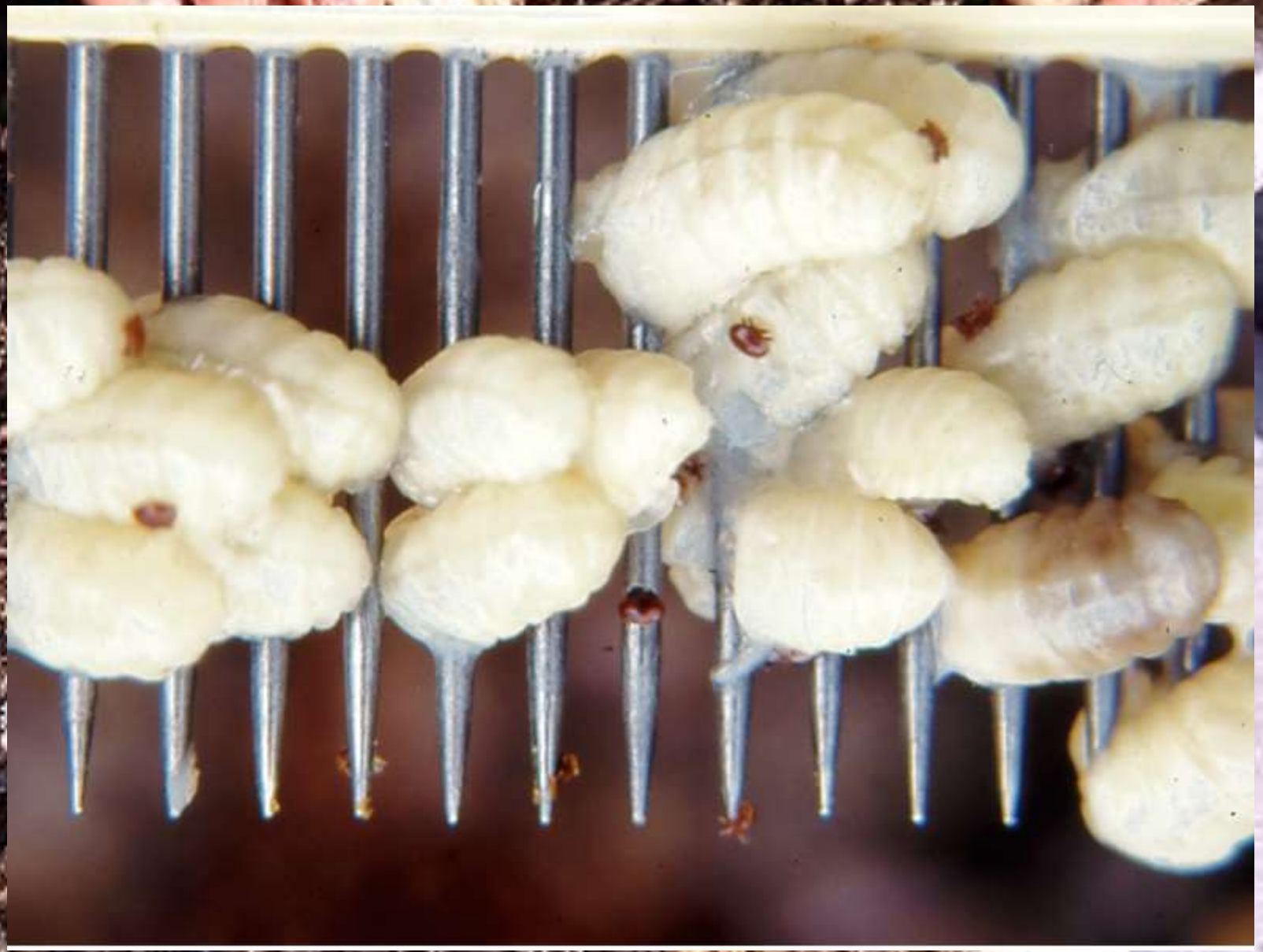
- Deformed Wing Virus

Deformed wing virus


© alexander

Treatment?

- There is no ‘cure’
- Beekeepers use a system of Integrated Pest Management (IPM) to keep the infestation below the level at which it becomes a major problem:-
  - Regular monitoring
  - Oxalic Acid in winter
  - Apiguard in late summer
  - Some dust with icing sugar during inspections
  - Drone brood combing/trapping

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