

# Beekeeping

Howard Cohen

# The Honey Bee

## *Apis Mellifera*



**Order: Hymenoptera (bees, wasps, ants, sawflies)**

# What a honey bee is not



**Yellow Jacket**



**Bumble Bee**



**Paper Wasp**

# A Bee???



# A Bee???



# BACKYARD BEES OF NORTH AMERICA



# Old Ways of Obtaining Honey



**Gathering Wild Honey  
Petroglyph  
Cave of the Spiders  
Valencia, c. 6000 BC**



**a skep**

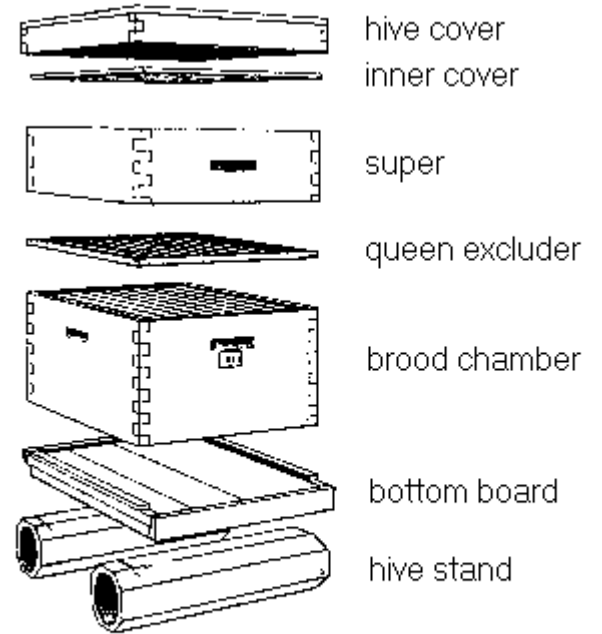




# The Modern Hive



Lorenzo  
Langstroth  
(1810-1895)



# Types of Bees



**Queen  
(female)**

**Worker  
(female)**

**Drone  
(male)**

# According to Cole Porter: “Bees do it”



**The Nuptial Flight**

# Sex Determination

- Egg + Sperm = Female (Diploid)  
Becomes a worker or a queen
- Egg = Male (Haploid)  
*Parthenogenesis – Virgin birth*  
Becomes a drone

# What good are the males?



- ~10% of hive in spring and summer.
- They can't feed themselves. Must be fed by workers.
- Don't work.
- They have no stingers. Can't defend hive.
- Only can mate with a queen from another hive.

**But, take them away and honey production drops.  
They must do something to make the females happy!  
Pheromones?**

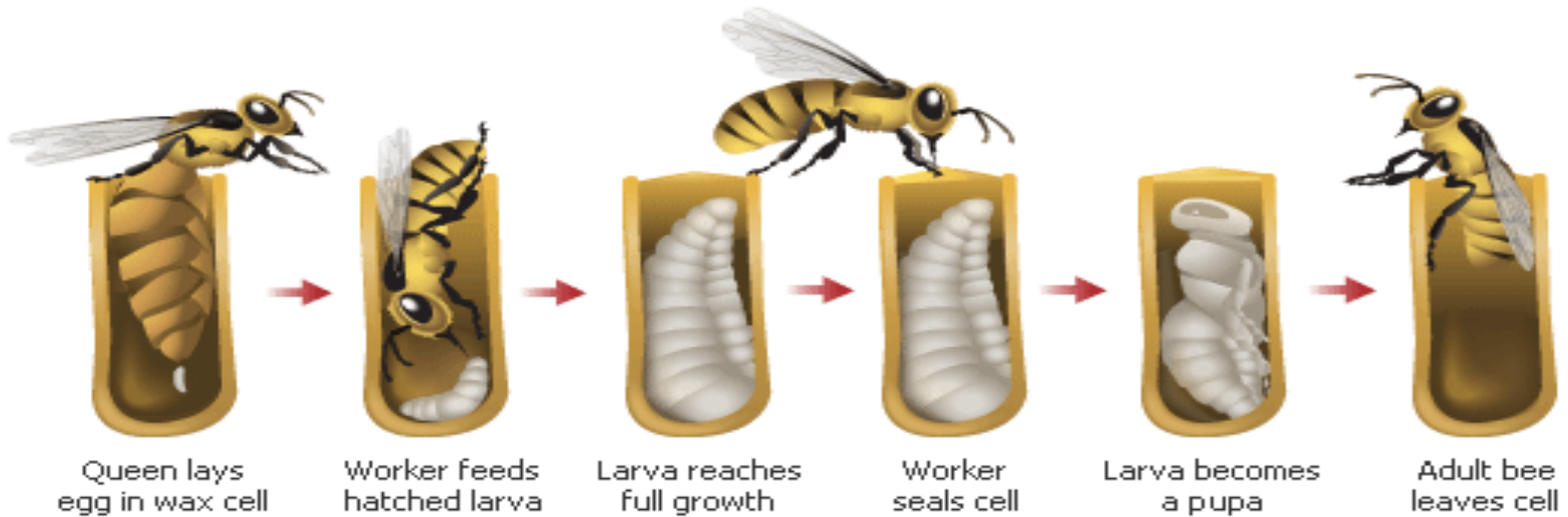
# Massacre of the Males

- No mating in the winter
- Therefore, no need for males
- Can't waste winter food on males
- In fall, sisters kill their brothers

# A Swarm



# Development of a Bee





# Taking Care of the Babies



# Life of a Worker

**1<sup>st</sup> Nursemaid**

**2<sup>nd</sup> Comb builder**

**3<sup>rd</sup> Janitor and undertaker**

**4<sup>th</sup> Receiver and processor of pollen and nectar**

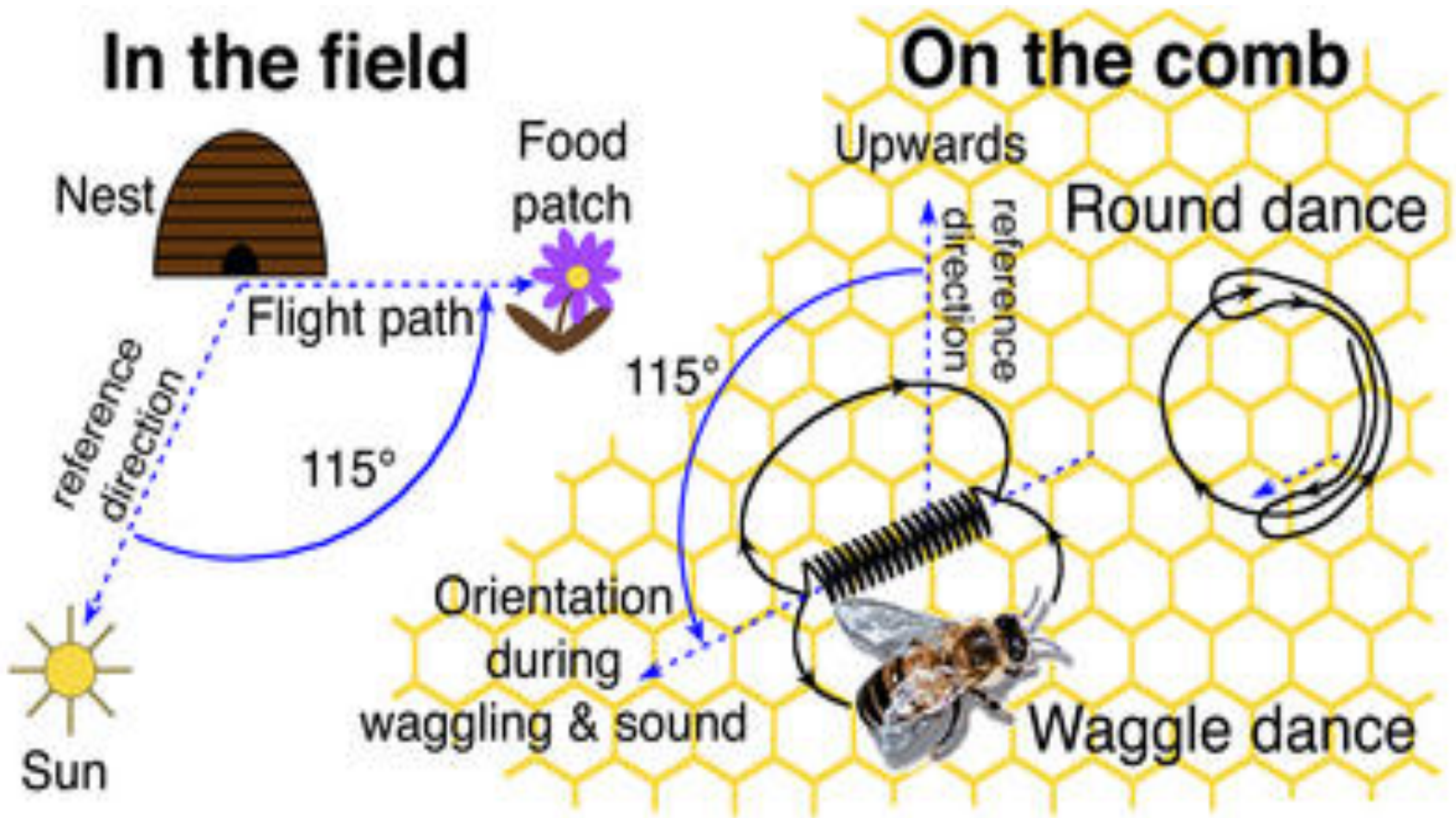
**5<sup>th</sup> Soldier**

**6<sup>th</sup> Forager, until she works herself to death**

2<sup>nd</sup> through 5<sup>th</sup> not necessarily in given order



# The Bee Dance



# Killer Bees



# Africanized Honey Bees

- **Better honey production in tropics – a success**
- **Look just like European bees**
- **Same sting**
- **More defensive**
- **Lower threshold for perceiving danger**
- **Attack in larger numbers, for greater distances**
- **Greater tendency to swarm and abscond**
- **Africanized genes are dominant**

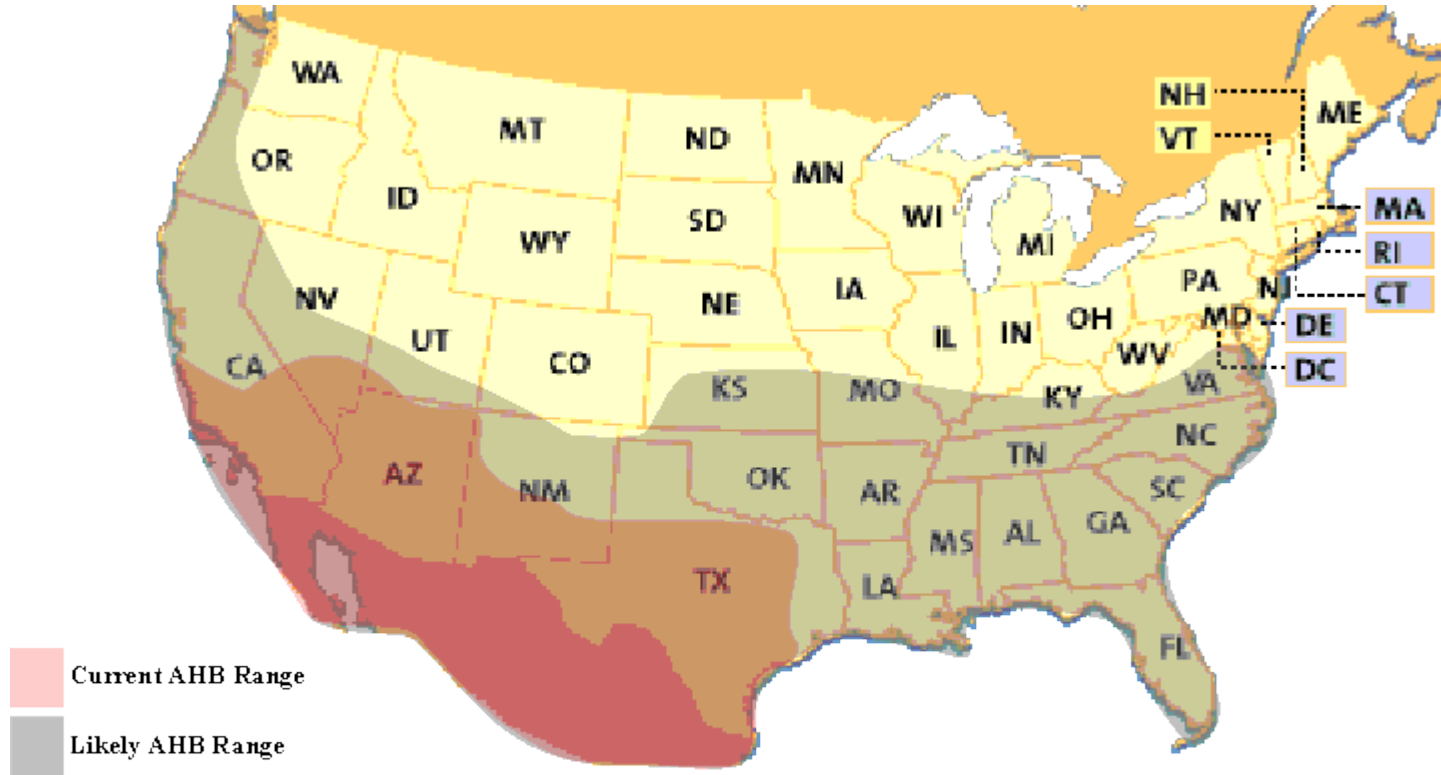
# Africanized Honey Bees

- “Killer bees”
- Introduced into Brazil in 1957
- Extended range ~200 miles/year
- Brownsville, Texas – Oct. 1990
- 1<sup>st</sup> US casualty – May 1991
- 1<sup>st</sup> US fatality – July 1993
- In Tampa 2002; in Mobile 2004

# Migration of Africanized Bees



# Likely Africanized Bee Range



Current range out of date



# Common AHB Nesting Sites

abandoned vehicles

empty containers

places with holes

barbeques

lumber piles

manholes

water meters

utility infrastructures

old tires

trees

garages

outbuildings

sheds

walls

chimneys

crawl spaces

under buildings

# The Stinger



It stings you and dies!

# How not to get stung

- Don't make fast movements
- Be gentle
- Don't wear scents
- Wear lightly colored clothes
- Cover curly hair
- Avoid baggy openings to clothing
- Stay away from feral hives
- Approach hive from side or back
- Beware of strong vibrations

**If attacked en masse, run away**



# Pollination

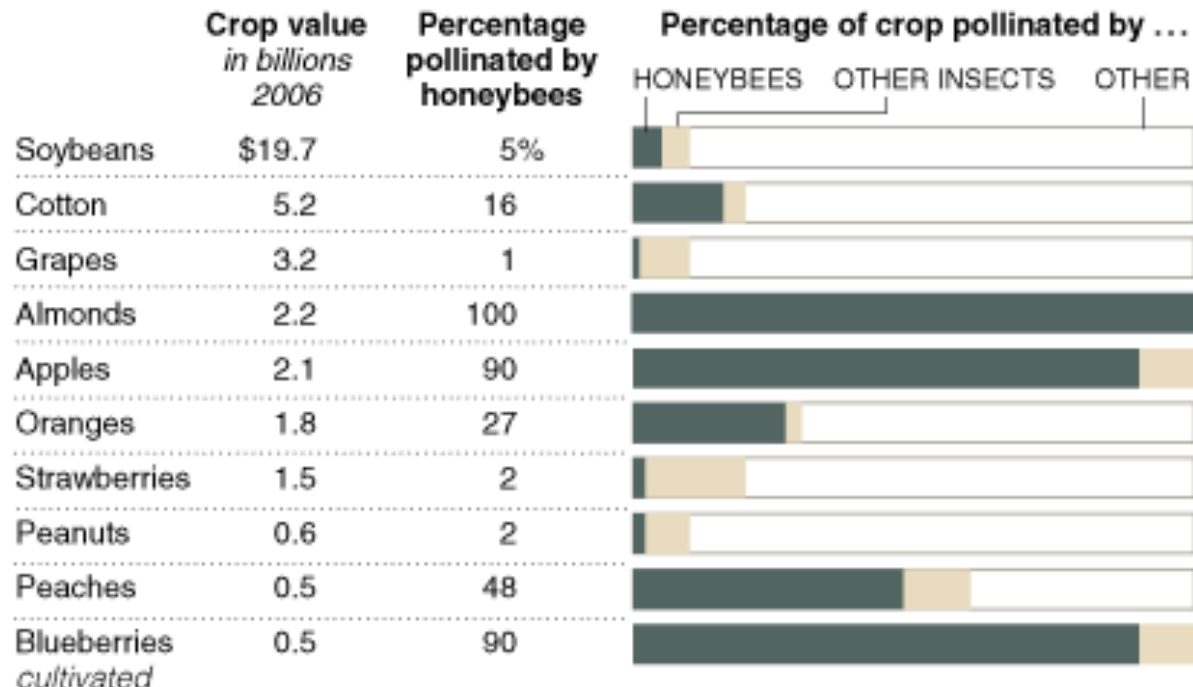
- 15% of our diet is dependent on insect pollination (fruits, vegetables, legumes, herbs, etc.)
- Reduction of natural pollinators from pesticides, land use, and monoculture
- Commercial bee pollination industry

# Pollinators



## Relying on Bees

Some of the most valuable fruits, vegetables, nuts and field crops depend on insect pollinators, particularly honeybees.



Besides insects, other means of pollination include birds, wind and rainwater.

Sources: United States Department of Agriculture;  
Roger A. Morse and Nicholas W. Calderone, Cornell University

# Commercial Beekeeping



# Beekeeping in Manhattan



# Urban Beekeeping









# Enemies of Honey Bees



- Diseases – bacterial, fungal, protozoan, viral, ???
- Parasites – varroa mite, tracheal mite



## Hive Collapse Disorder !!!

- Predators and Pests – birds, raccoons, skunks, bears, wasps, spiders, wax moths, small hive beetle, etc.
- Man – pesticides, change of environment



# The **Murder** Hornet

## Asian giant hornet

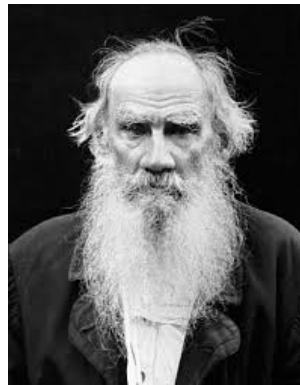
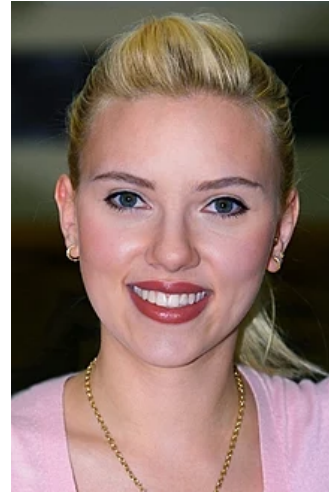
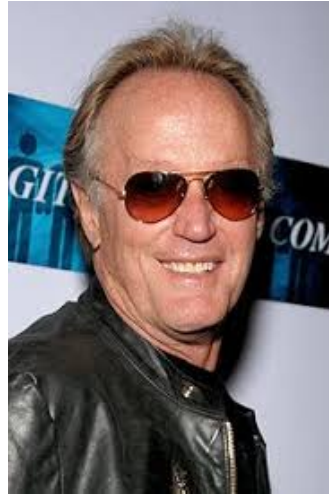
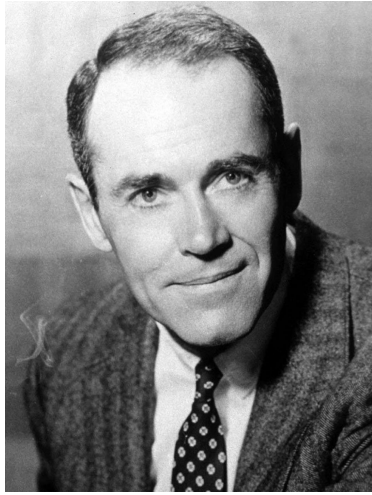
*Vespa mandarinia*



Destroys bee hives!!!

Extremely painful sting!!!

# Some Other Beekeepers



Henry Fonda, Peter Fonda, **Scarlett Johansson**, Morgan Freeman  
**Martha Stewart**, Sylvia Plath, Leo Tolstoy, Maria von Trapp, Edmund Hillary

And the greatest of them all



PETER FONDA



The story of a family  
on the edge, and the man  
who brought them back.



# ULEE'S GOLD

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