API CULTURE.

INTRODUCTION:- At the one end of the ladder of animal kingdom are dreadful and deleterious animals like tigers snakes etc. while at other end are such animals whose role hangs an adequate support to the human kind.

Honey bee has been termed as one of the most helpful insect whose miraculous contribution is illuminating the world of economics as well as providing stupendous nutritive substance to the human being since the times of vedas and Ramayana.

The primitive method of honey collection from the hive was performed by killing bees and cutting. The honey collected in this manner was not pure. This crude method of honey collection has been removed by modern techniques of rearing and collection. This is called apiculture.

TYPES OF BEES:- There are four species of genus Apis used for bee keeping in the world today. They are Apis dorsata (Rock bee or Sarang), Apis florea (Little bee or Bhunga) Apis indica (Indian bee or Kharai) and Apis mellifica (European honey bee). First three species are found in India and fourth one is found in Europe and America.

CULTURE OF BEE:-

A. dorsata is the largest honey bee in India. It is notorious for its ferocity and tendency to make unprovoked. Some times fatal massattacks on persons who approach its hives. It is a good gatherer and its single comb may yield more than 30 kg honey. It is not domesticated.

Apis indica and Apis Mellifera have been identicated abundantly. It's systematic position is

MEMBER OF THE COLONY:

Gregarious number of bees existing in the hive can be divided into three categories - Worker (sterile female), drone (male) and the Queen (female). Different functions are assigned to different individuals. This division of labour makes their life harmonious and extremely busy.

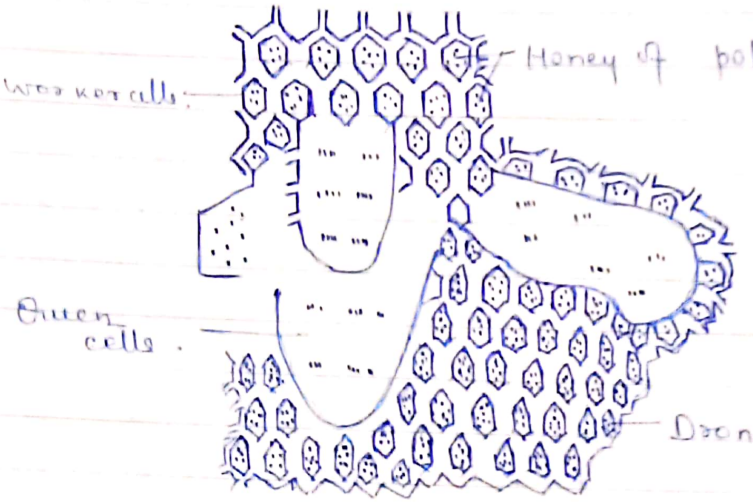
WORKER: These are sterile female arising from the fertilized eggs laid by the queen. These smallest member of the colony are incapable of sexual reproduction and possess various adaptation for the collection of nectar and pollen. Builders among workers manufacture wax and new combs. These are store keepers and guard bees watching at the gate way of the busy but well ordered city.

Fig:- Pollen basket on the hind leg bearing full load of pollen.

QUEEN: The queen is the only fertile female measuring 15-20 mm in length and possesses a long abdomen extending behind the folded wings she has Pointed Mandibles short Mouth Parts and stings and

She is looked after with great care by the workers bees known as her 'retinue' The mandibular glands of the queen secrete a "queen substance" (9-oxodecteone & enoic acid) This substance spreads over the queens body and is further licked by the workers. In this way this substance informs the presence of queen and simultaneously this chemical inhibits workers ovaries.

DRONE:- Flying Near the hive in the sunshine Can be seen the Sexual male bees or drones They are larger than the workers and smaller than the queen. They Posses large eyes, small mandibles and are devoid of wax-producing glands pollen collecting apparatus They are produced parthenogenetically and may be seen begging for honey from the workers



HONEY COMB OR HIVE:-

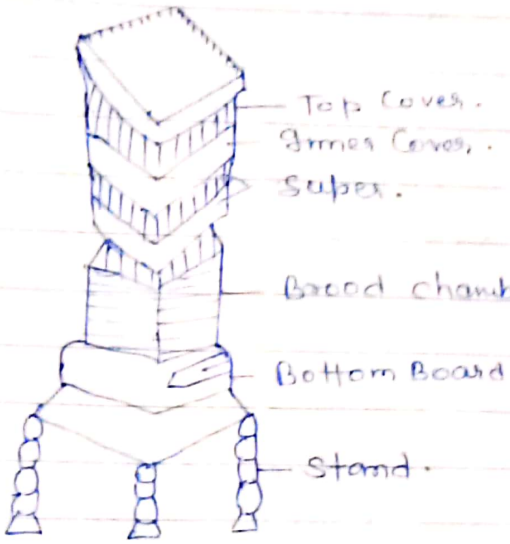
As Architects honeybees are second to none except man. The Comb is built hanging down vertically from rock building or branches of tree.

① The Comb Consists of two layers of hexagonal cells or chambers made by the wax.

(II) The storage cells are usually made just beneath the top cells of the Comb.

(III) The broad cells Containing young ones occupy the central portion.

(IV) The worker's cell is small being 5 mm across. The drone cells measure 8 MM across and the queen cells are the largest cylindrical or vase-shaped hanging from the bottom.



ARTIFICIAL HIVE:- With the development of knowledge man has started to culture bee by formation of artificial hive. There are several hive patterns introduced in india But the most popular is the Newton Model with 7-10 frames in the brood chamber. The artificial technique Can be studied under two heads:-

(A) which bees to keep? -

(1) Bees should be peaceful in temperment and not prone to stinging.

(2) Queen should be prolific.

(3) They should be good honey gatherers.

(4) They should able to guard the colony.

(B) Modern Methods of bee-Keeping:-

The methods for bee keeping are

(I) The Movable bar frames:-

The bees are made to built Comb seperately in wooden planes and all the Combs in a hive are capable of being taken out and examined individually.

(II) The honey extracting Machine:-

Combs are extracted in a machine and when becomes empty are given back to the colonies for refilling them. Two cheap type honey extractors using local Materials have been evolved in South India, for use with NEWTON shallow super frames

(III) Comb foundation:-

In Order to Save the bees this sheet of wax is provided on which the bees built the Comb. The bases of the future Comb are artificially inprinted on this sheet by special roller machine. Recently Central bee research station at pune arranged a manufacture of Comb foundation which Can Manufacture mills Capable of producing Comb foundation sheets with different cell sizes required in several regions of the Country.

(IV) The Queen exoluders:-

The portion of the Comb Containing more honey is Cooped by Means of perforated zinc sheet. The workers Can pass through the holes but not the Queen that is why it is know as queen excluders. In punjab a special type queen excluders wire gauze has been developed.

(V) Standard hive:- The bottom of standard hive is called the "floor board" having four legs fixed to it and a piece of "slapping board" in front of the entrance to serve as a "lighting board". The roof rests on body wall.

(VI) The frames of Comb:-

The frames are made with any well seasoned wood and their size and thickness depend on the size of the standard hive used.

When artificial frames are used they have to be kept at proper distance from each other and this distance or spacing is secured by the Metal end placed at the top of the frame.

(VII) Wiring frames:- In Order to strengthen the Comb the frames are wired with the copper wire the wire should be embedded in the wax of the Comb.

(VIII) Location of bee-hive:- The hive should be placed in such place where they should not be exposed to high winds and away from places which are much frequent with Cattle and Man. The hives can be placed side by side at a distance of about 6" from each other.

(IX) Honey Knife:-

A special honey knife used in all kinds of bee hive operation should be kept clean and sharp and should not be used for any other purpose

(X) Precaution in manipulation:-

Open the hive slowly with ut any jarring. Take out and replace comb Similarly Avoid quick movement of hand body and appliances used and crushing of bees.

Step 3: To drive surplus honey :-

During honey flow season the combs are taken out and placed in honey extractor and rapidly removed in such a way that the honey is thrown out. The honey comes out from the comb through the centrifugal force without disturbing the developing young. The same comb can be used over and over again.

IMPORTANCE OF HONEY BEE :-

Honey as derived from the bee hive is not the actual nectar or sugar bearing secretion of plants collected by bees from the flowers and stored in the minute wax bottles in the hive. They carry the nectar after swallowing in the honey sac (crop) until they reach their hive. In the sac nectar after some chemical changes due to mixing with saliva (sucrose hydrolyzed to glucose etc) is regurgitated. The honey thus produced by ripening of nectar are capped over with wax plugs to be used during need as it is the principle food of adults and larval bees. A rough estimated places the total output of honey in India at 5 Million kg per annum.

Honey bee produces wax. Bee wax is used in several art and trades. Bee wax are used in the manufacture of cold creames polishes cosmetics, carbon paper, electrical and lithographical papers. Bee wax is used for medicinal purpose also.

Honey bee is of great importance in the pollination of plants. They are the only pollinating insects which can be controlled by man.

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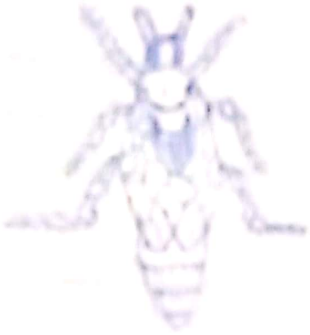
Lastly at is interesting to mention that to some extent they can annoy even by their sting.



Life history of honey bee.