

## BEE-KEEPING\*

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**B**EE-KEEPING is not a new fad. It is an ancient and (even to-day) a widespread craft; and where it has been well-established, has proved a profitable industry, both on the commercial scale and for the cottager. For instance, the bee was the symbol of kingship in ancient Egypt; and even the story of Samson in the Bible has reference to the bee in his famous riddle when he went a-wooing the faithless Delilah—"Out of the eater came forth meat, out of the strong came forth sweetness." St. Paul found a cult of bee-worship at Ephesus where there was a temple to the Bee-goddess, whose ritual strangely foreshadowed the revelations of modern research in the craft. Vergil was an enthusiastic bee-master (like Maeterlinck to-day), and has left us in the fourth book of the "Georgics" an invaluable summary of all that was known of the craft from early classical times to his own day.

In Ceylon, bee-keeping harks back to that ancient man, the veddah, and truth to tell, Ceylon honey is still largely "jungle honey", collected veddah-wise even to-day, by raiding the hives of wild bees, and extracting the honey by primitive methods, with great loss of bee life.

My own mind goes back to a glass case in the Colombo Museum, where even as a child I gazed with awe on the lifelike effigies of a veddah and his wife, fresh from the chase, the man carrying his bow and axe-head, the woman a hare in one hand, and in the other a newly-broken and still-dripping honey-comb.

No dog comes into the picture—and this is significant. Man and dog are very old friends, but anthropologists believe that man's oldest animal "friend" is the bee.

Nor is the craft neglected outside Ceylon. Modern bee-keeping is already widespread, from Australia and New Zealand and Japan in the Far East, to Egypt and Cyprus, and thence through Italy and France and Germany and Great Britain and Ireland, right across America from Canada to the south. For example, Canada produces and consumes the highest average of honey per head of population in the world; the large import firms in Ceylon receive regular supplies of Californian, New Zealand, Australian, English, and French Honey. Italian

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bees have as great a reputation for honey-gathering as White Leghorn hens for egg-laying. One commercial apiary in Western Australia produced 56,000 lb. of honey last year; and the Travancore Government sent an expert there to study methods and bring with him colonies for South India.

So much by way of introduction. I propose to divide what I have yet to say under three heads :

The Bee,  
Modern Bee-keeping,  
How to start.

The honey-bee is a social insect and lives in colonies of from 30,000 to 50,000 and more—the population of a fair-sized town like Kandy. In each colony there is but one queen, or more properly, mother bee, whose sole business is egg-laying; and an amazing performance is hers. At the height of the honey-flow, she will lay as many as 3,000 eggs in 24 hours, an average of two each minute. More wonderful still, she will lay at will eggs that will hatch out queens or workers or drones. She leaves the hive but once normally, to meet the drone in her nuptial flight, when she is bride and widow in one moment; thereafter for four or five years she is as much the servant of the hive as any worker, as she is also the longest-lived member of the colony—the others surviving for one season only.

Next, there are a few hundred drones, produced normally just before swarming time once a year—and a useful index therefore of a coming swarm, which the bee-master may prevent or use as he desires. These drones are the male bees; they gather no stores and fight no battles for the hive merely because nature has not fitted them with pollen baskets or stings. Their idleness is not self-chosen: theirs also is the sacrifice of life to duty.

The remaining thousands are the worker-bees, the great majority in the hive, whose devotion to duty, unselfishness, fearlessness, industry, and self-sacrifice have rightly become proverbial. As soon as they emerge from the pupal case, a life of unremitting toil begins: they feed the queen and young, secrete the wax and build new comb, tend the stores of honey and pollen as they arrive, keep the hive sweet and clean and well-ventilated, maintain its even temperature, and lastly go foraging, as "field bees", till they drop with the last load, exhausted.

The activities of the hive vary from month to month closely following the changing seasons. In temperate regions, breeding begins in spring, honey is gathered in the summer, and

autumn is a preparation for the winter when colonies dwindle to a cluster which only preserves the queen. In the Tropics, especially so in Ceylon, there are two seasons when honey is gathered, between February and September, when, after each monsoon, bright weather and plentiful flowers occur. The late Mr. A. P. Goonetilleke worked out a bee calendar for the low-country districts after twenty years of observation, which may be summarized as follows :—

January, breeding begins, February, first honey flow begins, March, ripe honey available, April remove supers, May, colonies dwindle, June, breeding begins as rains decrease, July, second honey-flow, August, ripe honey available, September, colonies dwindle, October, look out for bee-moth, November, contract hive, December, feed bees if famine occurs, to secure a good start in January.

The chief product of the hive is honey, and the worker-bee produces this from the nectar of flowers by a chemical process initiated in its first stomach while flying back from flower to hive. Thereafter the honey ripens in the comb, being sealed over cell by cell when ripe, so that sealing is the sign of ripeness.

When the worker-bees have stored round the brood-comb as much honey and pollen as is needed for raising the next generation, they will store surplus honey above the brood comb. This honey alone may be taken without harm to the colony, and the modern bee-keeper induces the bee to store this honey, free from brood, in a separate box placed on top and called the super for this reason. So that the honey marked by the modern bee-man may shortly be described as sealed super honey.

It is the sting of the worker-bee that frightens the beginner, but actually the average bee-keeper pays no more attention to occasional stings than the mechanic who bruises his knuckles when a wrench slips. When it is remembered further that the effect of the sting is local and trifling, that practice gives confidence, that one gradually acquires the art of handling bees deftly, that this reduces the liability of being stung, and that one soon acquires an immunity to stings, this unreasonable fear disappears.

Under natural conditions, the honey-bee is found to build small parallel combs, and ten small frames will allow all the space needed for a full colony with reserve food stores. The bee-keeper gives his bees a lower or brood box containing ten such frames, and a box on top, the super, with shallower frames for honey alone.

This is the modern hive and can be made by the bee-keeper out of an old packing case, and this hive will hold a colony of bees indefinitely, in full strength, and yield under favourable conditions, a harvest of 5 or 6 pounds of honey twice a year.

For bees, we must in Ceylon still capture a wild swarm. This is in practice a fairly simple matter and is not fraught with any serious risk. In Europe and elsewhere, however, one goes to a recognized bee-man for the initial stock and queen.

The milestones in the progress from primitive to modern bee-keeping are briefly,—

First, Huber's leaf hive (1789), in which frames were first used, hinged together at one end, so as to open like the leaves of a book. Before then, the inner life of the hive was a sealed mystery, and gave rise to the fantastic theories and legends that constitute ancient and mediaeval bee lore. The amazing fact is that Huber was blind, and did his extraordinary work by using the eyes of a trained servant. This hive was perfected by Langstroth, the American divine, in 1852; and all hives since his day are based on his principle of the movable frame, with one or more supers for pure honey. A more recent development is the placing of white-wood frames about 4 inches square in the supers. These sections as they are called, when filled with honey-comb and sealed by the bees, are marketed with comb intact; and this *section honey* is the purest form of honey on the market, literally coming straight from the bee to the consumer untouched.

The second milestone was the use of comb foundation devised by Mehring in 1857. This consists of thin sheets of wax, milled with the impression of the cell-bases, and fixed in the centre of frames. The use of foundation ensures even combs and saves the bees both time and labour.

In 1865, Major Hruschka devised the centrifugal extractor, which resembles the ordinary ice-cream freezer in construction. By its use, the honey is extracted quickly and cleanly, and the undamaged comb returned immediately to the hive to be refilled by the bees. For made comb is the most expensive product of the hive; bees consume 15 to 20 lb. of honey in order to secrete one pound of wax, and then build it cell by cell into comb; and it does not pay the bee-keeper to damage comb or remove wax.

The fourth milestone was passed when swarming, the periodical loss of part of the colony at the critical honey-gathering season, was brought under control.

From the dates I have cited, it will appear that modern bee-keeping is a quite recent development, barely a hundred years old ; but the progress in the last fifty years has been phenomenal.

And how shall you start keeping bees ?

First, read up the subject. The bee has, devoted to itself, a larger library of fascinating books than any other single creature.

Then, buy or build a hive ; and gain some practical experience by helping another bee-keeper.

If you still lack confidence in capturing a swarm, you will soon find someone who will do this for you for a small consideration. That and a few simple and inexpensive appliances constitute your whole outlay.

All you need more is a few minutes each day in the early mornings and late afternoons, for routine attention ; and as each day succeeds the next, your delight in your new hobby will deepen. As in everything else, it is the failures that will teach you most : let them not dishearten you.

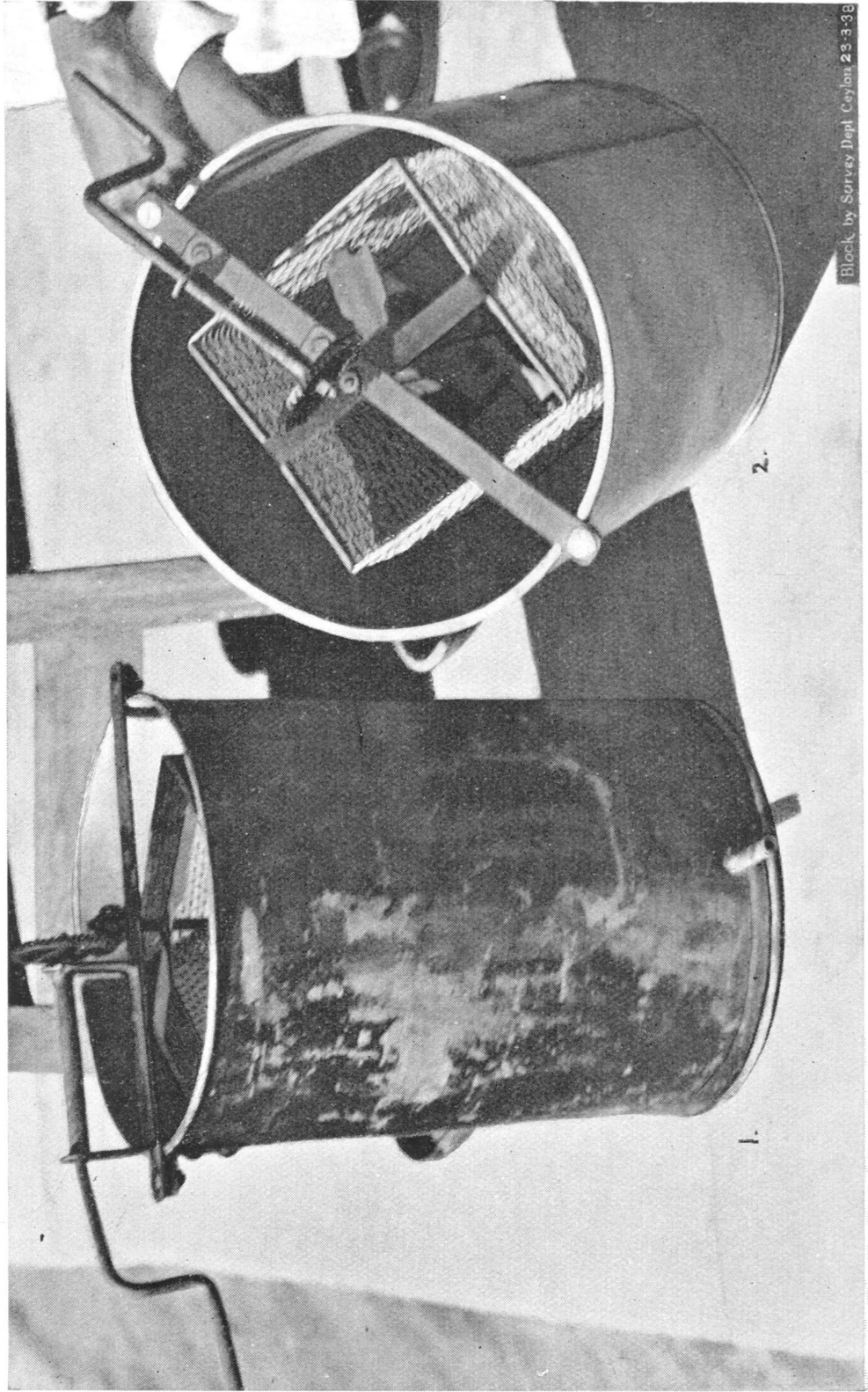
Start in a small way ; you will learn soon how to increase the one stock to two, and so on till you find you can run twenty hives as easily as one.

Honey is valuable food ; unlike sugar and other syrups, it is already in the form that the body assimilates right away without change. It is flavoured with the essences of flowers, and is daintier and more delicious than the jams which have so largely replaced it on our tables, to our loss.

Bees incidentally pollinate flowers, and thus help trees to produce more fruit. Indeed fruits and bees go naturally together ; and the fruit grower can considerably increase his income with little cost by installing hives under his trees. To-day the value of the bee in agriculture is generally recognized.

Lastly, the study of bees is a never-failing source of interest. It is not by chance that poets and divines, as well as scientific men and farmers and humble cottagers, have found bee-keeping a fascinating hobby. It is an intellectual pursuit in itself ; and an aid to health, providing as it does, a moderate amount of exercise, manual skill, and recuperative occupation of mind, with sunshine and fresh air.

May I, in conclusion, suggest that those who are interested, and would like to start bee-keeping, will find all the information they require in Bulletin No. 92, published by the Department of Agriculture, Peradeniya, at 25 cents a copy.



THE HONEY-EXTRACTOR.