

## The Business of Bees

If, on a warm summer day, one idly watches a honeybee light on a flower, linger briefly, and then wing its way into the hazy distance, it is difficult to realize that this little insect is a unit of production. Yet, according to F. B. Paddock, Iowa State Apiarist, shipments of honey from Iowa are annually worth about \$1,000,000. This is in addition to the honey consumed by Iowans. This million-dollar industry had its origin in the very beginning of this Commonwealth.

But the story of honey goes far back of the history of Iowa. In ancient times it was man's only sweet, indicating luxury; in parts of Asia people still place a bit of honey in the mouth of a newborn male child. Among the Hebrews "milk and honey" were symbols of plenty. As man advanced in his control of natural products, he was not satisfied with an occasional feast; beekeeping came to be an industry.

Honeybees were, apparently, not native to America, for colonists brought bees to New England in 1638. Now there are thousands of species of bees and numerous "races" of honeybees, many of them patented. From New England the



bees spread westward even more rapidly than the white settlers. The earliest explorers in the Iowa region noted the presence of honeybees. The Indians called these bees "the white man's flies", indicating that their coming was associated with that of the white man. No doubt the Indians in this area, although they liked honey, felt much like their fellow red men farther east. After watching the settlers take the honey from the bees one of these Indians exclaimed, "Huh! white man work, make horse work, make ox work, now MAKE FLY WORK! this Indian go away!"

At first the honeybees along the frontier were swarms which had "gone wild". Such bees found good hunting in the woods and prairies and prospective settlers were confident that wherever bees and "bee trees" were found there would be vines and flowers, fertile fields and prolific crops. Honey was a real luxury on the frontier where sugar was unrationed but usually unobtainable. A. R. Fulton, a pioneer publicity man in Iowa, recorded that the timber lands along the Skunk River "were especially noted as the paradise of the bee-hunters". Swarms of bees found trees with natural hollows in them and filled the interior space with wax comb and wild honey. These were generally known as "bee trees". Bee trees might be found by accident or by deliberate hunt-



ing. An early settler would sometimes set a container filled with diluted honey as a "bait" near the edge of a wooded area and lure the bees to it, then by following the direction of their flight he could soon locate the bee tree. In most neighborhoods some man was adept in capturing swarms of wild honeybees and, even more important, he was able to take their honey from them. Instances have been reported where "barrelful" and "tubful" were taken by these early Iowa honey hunters.

Sometimes the process of securing the honey from these bee trees in early Iowa required the aid of several of the neighborhood men and boys who resorted to various means of "smoking out the bees", even to felling some of the trees, usually old and large. Cases are on record where a local justice of the peace had to decide whether the bees and their honey belonged to the finder of the "lost swarm" or to the owner of the land in whose trees the busy honey-makers were storing their honey. Often the finder of the bee tree arranged to share the contents of the stored honey with the owner of the land where the bee tree stood.

When thousands of bees chose some big trees along the boundary line between the State of Missouri and the Territory of Iowa in which to store



their honey they had no possible inkling of their part in a boundary dispute. These trees stood in the area claimed by both Iowa and Missouri, a strip of land some nine miles wide at the eastern end and thirteen miles wide at the western end. The bees paid no attention to either side; they continued to improve each shining hour and great stores of golden honey were collected. But, alas, humans coveted the honey stored by the industrious insects, and in the autumn of 1839 "miscreants" from Missouri cut down three of the bee trees and escaped with what honey they could carry. This "act of vandalism", as well as the dispute over taxes, resulted in the burlesque "war" between the State of Missouri and the Territory of Iowa which came to be called the Honey War. Local settlers rushed to arms, carrying pitch forks, scythes, knives, or muskets. A Missouri paper published some verses on the subject which ended with this stanza:

Now, if the Governors want to fight,  
Just let them meet in person.  
And when noble Boggs old Lucas flogs,  
'Twill teach the scamp a lesson.  
Then let the victor cut the trees,  
And have three-bits in money,  
And wear a crown from town to town,  
Anointed with pure honey.



But calmer heads prevailed. The disputed boundary line was finally settled in favor of Iowa by a ruling of the United States Supreme Court. The bee trees, however, could not be restored, even by the Supreme Court.

The swarms of wild bees taken from the "bee trees" in earliest Iowa were usually kept somewhere near the owner's home in "bee gums". The common forms of these bee gums were broad, hollow logs, any diameter, and from one to two feet in length. About midway in this bee gum two cross sticks were placed as a support for the honey comb. The log was often placed in an upright position, and a broad board was fastened over the top for a roof with an opening left at the base as an entryway for the bees.

In pioneer times the common method for "settling" a swarm when it took to the air was to make a din by beating tin pans, metal scoop-shovels, steel plowshares, or any other portable noise-making equipment at hand that could be carried on the run in the chase after the bees. The noise thus produced was supposed to induce the bees to settle down as quickly as possible. Probably a more efficient method was to throw by hand or shovel a spray of fine earth (sand or loam) up through the swarmers. Bombardments of this miniature flak sometimes brought the desired re-



sults, or, perhaps, the bees were ready to settle down anyhow.

The early dark bees of Iowa had excitable temperaments, and at times had strong impulses for fight! An amusing account of early Iowa bee culture gives this description:

"The methods pursued by the bee-keepers of former years were very primitive. . . . To get at the honey, the bee-man took the family ax, and with its edge pried up the cover sufficiently to blow smoke into the hive. As soon as the smoke reaches a bee it capitulates, but before this stage of the attack, the farmer expected to get stung a half-dozen times at least, for the slightest jarring of the hive will bring a horde of intrepid warriors from out the hive. He did not seriously object to their stinging him if they did it in a satisfactory way, but they would never do that; — they would invariably crawl up his pant-legs, and, before getting in their work, strike terror into the heart of the farmer by a premonitory humming. The agony of this suspense was further increased by the sensation produced by the bee climbing slowly up his bare leg. A man with a strong heart and iron nerve could sometimes stand this; but when a bee got into his whiskers, he grew panicky and his iron nerve ran riot. . . . until with a wild yell he broke for some neighboring shrubbery, fol-



lowed by a train of winged pursuers. Sometimes he never ventured back to replace the cover on the 'gum.' "

If he did succeed in subduing the bees, "he spoiled the honey in digging it out of the hive with a knife and spoon, and usually drowned half the bees in the torrents of honey flowing from the lacerated comb. Honey in this condition was, of course, unfit for market; and he only aimed to produce enough for home consumption."

These so-called "black" bees had little competition from other races of bees in Iowa until after Civil War days. Italian bees were first brought into this country in 1860.

Few early county histories of Iowa relate much of the beekeeping industry in this State, but Frank Hickenlooper, historian of Monroe County, records a progressive pioneer beekeeper who began his large apiary in the year of 1872 when the State of Iowa was only twenty-six years old. This account says of beekeeping in Monroe County:

"C. H. Clark, a son of the late Wareham G. Clark, and who resides five or six miles southwest of Albia, has no doubt pursued the [beekeeping] industry with the most conspicuous success of any bee-keepers in the county. He has at present [1898] from 40 to 60 colonies, but intends to increase the number to at least 100. He has his api-



ary on 88 acres of land, and estimates that on an area of 6 square miles 100 colonies of bees could be successfully maintained. He uses a nine-frame hive, and his experience has evolved some very important facts. He uses a square frame instead of one rectilinear in form. His reasons for adopting this form of frame are: the queen bee invariably builds her cell in the center, and for some reason, best known to the bee itself, bees build their supply of honey above the queen's apartment, and leave the lower portion for brood-cells and bee-bread. When Mr. Clark finds the upper half of the frame filled with honey, he removes the frame and turns it upside down, and by thus shifting the position of the frame until all four sides have been in their turn changed, the bees are forced to build in the boxes above, when they would otherwise have selected the frames.

"From Mr. Clark's experience, he has determined that 100 colonies will produce 6,000 pounds of honey in a season. . . .

"Mr. Clark has two varieties of bees, the Italian and Carinolia. He thinks the Italian is the best, because it can reach the honey cavity in a large proportion of the red field clover bloom. The Carinolia is a bee imported from Austria, and he considers this variety next best, having in his apiary about 20 colonies."



During his fifty years of beekeeping in Iowa this pioneer in bee culture developed in his own apiary many of the scientific practices later endorsed by the best of Iowa's scientific research workers. He operated his own shop and produced all of his own supplies of hives and equipment and the wax combs.

"Know your bees!" was one of his mottoes. During the warm weather when it was safe to open the hive to the elements he would visit his many colonies weekly. With his small scalpel in hand with which to loosen the parts sealed by the bees' propolis (glue), he would kneel quietly beside each hive on clear, warm, middays and open each hive to study the condition and temperament of the workers.

He could in this way quickly diagnose the condition of each colony, and learn whether its workers were busy or sulky; whether honey production was up to standard or if the bees were dawdling while "ideal honey-making weather" was swiftly passing. Room for rearing broods was provided and carefully controlled. "The swarming problem can cut honey production in half!" he would say. So the chance to swarm was cut to a minimum by his diligent watch of every colony in his three apiaries, to eliminate hatching unnecessary queens.



His hives were placed in the most desirable locations, amid fruit trees and near clover fields, on a south slope, with protection from wind and sun, and with plenty of water nearby. His home apiary, established in 1872, was officially named and later recorded as the Plum Grove Apiary Farm, for the large native plum grove that bordered a basswood acreage. Both were havens for his bees. His apiary was later enlarged to three widely separated locations. An all-glass beehive was located in the office room of his home. Three sides of this hive were visible from the interior of the room. The fourth side of the hive was set against the outside wall where a small entrance permitted its winged occupants to go and come at will. Visitors were always interested in the well organized "household" characteristic of all colonies of bees. The long-bodied queen could be seen occasionally; the fat-bodied drones were easier to locate through the glass sides of the unique beehive. But most interesting of all were the literally thousands of active "workers".

It is said that no bee ever tries to assume the rights and duties of another, and apparently none of these energetic workers ever went on a strike. Their duties included making the honey comb, care of the young, developing new queens, gathering honey, and making beebread and propolis. In



addition there were "house cleaners", "door men" or guards that stood by the hive entrance and admitted no bees except those with the home-hive odor, and the interesting "air-conditioners", the squad stationed near the entrance of the hive to fan their wings rapidly in order to keep the air in motion inside the hive to produce ventilation and to promote the desired evaporation of the flower nectar in the wax cells. When the first cool days of autumn came, their "vigilance committee" could be seen killing and dragging the extra drones out of the hive in order to preserve their food supply for better uses during the approaching winter.

This pioneer Iowa beekeeper sold queens from his "Choice Italian and Carinolia Bees" at prices that ranged from seventy-five cents to three dollars each. He stressed the use of the "best of queens" and the replacement of a queen whenever production fell below the average for the apiary. In this way he avoided the annual loss of ungathered honey that poor queens usually incurred. His "rule of four" for obtaining best results in bee culture was: (1) secure improved stock; (2) avoid winter losses; (3) reduce swarming; (4) cleanliness to avoid waste and disease. This fourfold formula has been approved and used largely by all successful Iowa beekeepers. Honey from the Clark apiary was sold in the leading stores of the



county where it was displayed in large glass showcases displaying the name "PLUM GROVE APIARY, C. H. CLARK, PROPRIETOR".

In addition to the stores in the county seat, Albia, showcases were kept filled in the flourishing mining towns of Buxton, Hocking Valley, and other places. They attracted much attention. On one occasion two half-grown girls in Buxton were heard spelling out the names as they pointed to the glass with the beautiful translucent honey behind it. A pudgy finger traced the letters, "A-p-i-a-r-y, what am dat?" "Dat say, let me see, dat say 'Apery'!" explained the older of the two. Puzzled, the inquiring companion repeated, "Apery! What am dat?" "Doan you all know nuffin?" scornfully replied the older one, "An 'Apery' is where dey raises apes, dat's what an 'Apery' is!"

For many years Iowa has had as many bees as any other State of equal area and produces more honey than many States of larger area. The production of honey is not a matter of chance, though the unit of work is very small. It is estimated that it would take 1000 bees working their full lifetime to gather the five pounds of nectar required to make a pound of honey and that the bees must visit and revisit from 50,000 to 75,000 blossoms to gather this nectar. When the work is done, one may step into a grocery store and purchase a



pound of amber-colored sweetness, one of Mother Nature's most delectable contributions to the food of man, for a few cents — and the bees get nothing for their work, except the twenty-five or thirty pounds of honey usually left for their use during the winter.

Iowans have not neglected the study and nurture of the bee, the only insect which makes any direct contribution to the food of man. Scientific apiarists of Iowa have diligently searched for ways and means to develop Iowa's industry of beekeeping. The Iowa Academy of Sciences, formed in 1875 for the purpose of making scientific research for the development of the State, made its contribution to better beekeeping. The present Iowa Beekeepers' Association formed in 1911-12 (an earlier one had been formed in 1875) has done much in promoting this industry. Some of its many important accomplishments have been the development of improved beekeeping methods, increased production, and breeding bee strains that are resistant to foulbrood and other diseases. The ninth annual meeting of the Iowa Academy of Science, held in Des Moines in December, 1894, reported, among other things, on a chemical study of honey, "With Some Interesting, Illuminating Facts Concerning the Food Elements of Honey Made From Various Iowa Trees and Plants".



This was well before the knowledge of vitamins of which honey is said to contain a goodly number. Honey was then described as a "predigested sweet" and was recommended as the desired sweetening instead of sugar in modifying milk for infants and invalids.

A Women's Auxiliary of the Iowa Beekeepers' Association was formed in 1935 with twenty-two charter members and, according to the *Proceedings* of the twenty-fifth annual convention of the Iowa Beekeepers' Association, one of its major projects has been more and better honey cookery. The aim of these women beekeepers is to interest homemakers and others in the uses of honey by improved exhibits at fairs and by convenient cookery recipes.

The Thirty-seventh General Assembly of Iowa passed a bill in 1917 providing for the appointment of a State Apiarist whose duties were to be primarily educational but who would have responsibilities for the control of bee diseases. This procedure was endorsed by the Iowa Beekeepers' Association which had secured the passage of a bill establishing bee inspection in Iowa as early as 1912, under a State Bee Inspector. The State Apiarist has worked in close connection with the State Agricultural College of Iowa where material assistance has been given in the development



of the bee industry of this State. In the Pellett Honey Plant Gardens at Atlantic hundreds of different plants have been under observation by Frank C. Pellett. Valuable bulletins, books, and pamphlets have been issued. At least two bee journals have made their debut in Iowa. *Bee Pep* made its first appearance about 1915, and the *Beekeepers' Buzz* appeared in 1941.

During Iowa's first century of beekeeping the housing of bees came a long way from the earliest straw skeps of European countries, the mud huts or hutches of Palestine and Egypt, and the native log "bee gums" of early America. Scientifically planned, frame beehives, perfected in 1851, and adaptations of these gained universal usage in Iowa. Each beehive houses an individual "colony" of from about 10,000 to 90,000 bees each with a specific task to perform in making 60 to 80 pounds of honey annually. This is the average production for an Iowa colony, although demonstration apiaries established in Iowa have produced as much as 156 pounds of honey in a year.

Iowa's present honey-makers are mostly the larger yellow-brown Italian and Carniolan bees and the gentle grey Caucasians. These imported "races" and their elaborate hives differ greatly from the small, dark, "wild" bees and their simple abodes of yesteryear.



The honey extractor, a mechanical device for separating the honey from the wax comb, was invented in 1865. It slowly opened the way for more commercial uses of Iowa's honey and beeswax. According to F. B. Paddock, Iowa's State Apiarist, increased uses have been made of beeswax for cosmetics, medicines, and pharmaceuticals, and during World War II greatly increased production was urged for secret military uses.

At the close of its first century Iowa had become one of the leading honey-producing States in the Union. More than 20,000 of Iowa's citizens were directly connected with the care of its bees and the marketing of its honey and wax. Some three hundred of these were commercial beekeepers.

But fine as this record is, Iowa's State Apiarist says that the real value of bees as pollinators of Iowa's field crops, fruit trees, and garden plants is "from 8 to 10 times that of their value as honey makers"! It is estimated that some three million sips of nectar must be taken to make a single pound of honey and in obtaining this the bees help scatter the powdery pollens from one blossom to another, thus fertilizing the plants. Other insects, including the bumble bee, use this method also and are beneficial in varying degrees as pollinizers, but no other bee is as prolific a honey producer as the honeybee, and no other bee therefore works over



the flowers as carefully or scatters the pollen as thoroughly as does the honeybee!

The benefit of bees to fruits and many other plants and the advantage of a food supply close to the bees has resulted in a system of "farming out apiaries". A beekeeper secures permission to place a number of beehives in an orchard or garden or near a field of clover. This system, still in its infancy, has possibilities for the future since the owner of the bees gets more honey and the owner of the orchard, garden, or field gets better fruit and more seed.

"The bee", said Jonathan Swift, "does the whole business of life at once and at the same time feeds, and works, and diverts itself." Whether the bee gets enjoyment out of its work no one can tell, but the business of bees pays double dividends to man. So much for the first century of beekeeping in Iowa. In the second century the industry could, according to one authority, "expand ten times as much in honey production" and be at least eighty times as valuable in the pollination of food crops.

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