



Eva Crane Trust

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Part II: Mexico, Cuernavaca and conclusion
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MEXICO : CUERNAVACA

Uxmal was almost my last sight of Yucatán, and the same afternoon I flew west to Mexico City. We crossed the Bay of Campeche, reaching the mainland just north of Vera Cruz, where the Spanish built their first settlement in 1519, and where the Emperor Maximilian landed in 1864. As we approached Mexico City the country became more and more mountainous, and the ground more and more dry and parched. Dr. and Mrs. Speck met me, and over dinner and our drive to Cuernavaca I began to piece together the extraordinary story of Miel Carlota.

Miel is the Spanish word for honey, and *Carlota* was the Spanish name used by the Belgian Princess Charlotte, wife of the Emperor Maximilian. Mr. Wulfrath had lived in Mexico City since the 1920s, running an importing and exporting business. During the last war this kind of trade came to a stop, so Mr. and Mrs. Wulfrath moved out to Cuernavaca and set up a nursery garden business. They were both German, and so was Dr. Speck, ship's doctor in a German ship, most of whose crew were interned in Vera Cruz. Dr. Speck was not interned because his wife was Mexican; they too settled down in Cuernavaca. These German neighbours got to know each other and, not having much to do, started to keep bees in 1942. They knew no beekeeping, and had no one to teach them (see page 307); the district was not considered one in which bees could be kept very profitably. They learned from books about bees and equipment, but books could help them but little about colony management, for they were written for temperate zones, with a summer-winter cycle, whereas in Mexico the seasons are wet and dry (see page 301). The calibre of these men is indicated by the facts that their colony average increased year by year: 37, 92, 125 . . . pounds, and that by 1948 they were running twenty-two out-apiaries, with a thousand colonies, and getting an annual average of 180 pounds a colony. After a further six years the thousand had grown to twelve thousand, and the annual average to 220 pounds a colony [A.A.69/56].

This much, and more, I learned as we drove the fifty miles to Cuernavaca. Mexico City is at 7700 ft.; we climbed to 10 000 ft. and dropped down to 4000-5000 ft. in Cuernavaca itself. I went straight to the Wulfraths, where I was to stay, and I felt at home at once, although the switch from Spanish to German seemed to make me incapable of speaking either. However a bottle of good Rhine wine soon put that right.

Next morning I woke to the sound of birds and bees outside my window. When I looked out, there were brightly coloured mating hives as far as I could see; later, when we walked through the garden, I learned that there were 5000 of them. They were set in a profusion of flowers and trees, whose colours were even brighter than the hives themselves. And colour has a quality of brilliance in Mexico I have never seen elsewhere. The house forms a half-circle round a covered terrace, where one sits, and eats, and looks on to a garden with a goldfish pond and fountain and a mass

of flowering plants and trees — roses, begonias, bougainvilleas and a host more. It was as near paradise as anywhere I have been.

Miel Carlota has about 150 Mexican employees ; most of them can neither read nor write, so they are taught to do operations by the days of the week. For instance the queen-rearing timetable is something like this:

	Week 1	Week 2	Week 3	Week 4
Monday	graft			
Tuesday			inspect for virgins	
Wednesday		put ripe cells in cages		inspect for eggs
Thursday		remove ripe queen cells		
Friday		} queens emerge		
Saturday				remove queens

For clarity the entries are made for only one batch of queens ; others start on the other three Mondays. Each queen-rearing apiary has 90 hives (4 times 20 for a 4-week cycle, plus 10 spare) ; the colonies are used for one week and then given three weeks' rest before they are used again. Two frames of sealed brood are given (over a queen excluder) to each hive, a week before it is used for queen rearing.

Tuesday was 'looking for virgins' day in the Miel Carlota calendar, and I watched one of the crews working on the mating hives in the gardens. There was a leader, the 'brain' of the party (in this instance a German boy), and two teams of four Mexicans, each with one 'smoker' and three 'searchers'. Smoking is the job the boys are taught first. The leader was continually looking along the line, pointing out what should be noticed, and teaching better ways of operation. I was amazed how quickly and efficiently they got through the hives.

On Monday, which was 'grafting day', I had been out in the queen-rearing apiaries, but these had little in common with any other queen-rearing apiaries I have seen. The apiary would be near a group of cacti for a little shade — usually the great organ-pipe cactus (*Cereus*) or the prickly fig cactus (*Opuntia*). Near it was a truck which had taken the team there. Squatting in its shade on the parched earth (it was near the end of the dry season) were the Mexican boys doing their grafting ; there were also a few individualists, each separately under his own cactus. The cell cups (wax for queen production, plastic for royal jelly) were mounted in the usual way on three bars fixed across a frame. Each boy used his own favourite grafting tool, few of which can ever have been seen in a trade catalogue. He fetched a new frame of larvae from the specified hive when he needed it, and returned to his own little space in the shade. The speed and quality of the work is maintained by a prize which is given each week to the boy who gets the greatest percentage of successful grafts.

Since the twenty thousand honey-producing colonies never stop breeding, it is necessary to requeen them all every year ; in addition some ten thousand queens are reared and sold. Queen rearing goes on the whole year round, but Dr. Speck told me that they have difficulty in getting the colonies to rear sufficient drones in January and February.

One day I was taken for a tour of some of the 410 honey-producing apiaries. They are all in the State of Morelos, and I calculated that the

average colony density there is well over ten per square mile. Even so, the great map on the wall in the office which gives the locations of the apiaries shows that they are only along roads ; any new road would open up many more apiary sites. The overwhelming impression of the countryside was dryness. The grass was yellow, and most of the trees were as leafless as in an English winter—except of course the cacti, which dominated the scene almost everywhere. The soil was parched, and so was I, continuously, for the relative humidity was only about 12% and the temperature around 90°F.

Morelos is mountainous, and the apiaries are at all altitudes from 600 to 10 000 feet. Because of the different forage available at different altitudes, there is much moving of apiaries from one site to another in order to get the maximum harvest. There are no soft rolling hills, but level plains with deep valleys and abrupt rocky mountains ; many of these are volcanic, and look as if they have not yet settled down. In the distance is Popocatépetl, a remote white conical peak 18 000 feet high ; I could well understand why he was the ruling deity of the region. He seems to be universally known as Popo ; on his left is a slightly lower mountain, said to be in the shape of a sleeping woman : this is Ixtaccihuatl, his bride.

To picture a Miel Carlota apiary, imagine fifty brightly painted hives, the hives bodies being in about six different colours and the colours used in any sequence. Put these near a dusty unfenced road, with picture-book cacti overshadowing them. Place a few rocks among the parched brown grass and scrub, and perhaps a Mexican in an enormous straw hat, and his *burro* (donkey) with a load piled high on either side. Over all put a sky of intense blue. This was the scene as I saw it, but Mrs. Wulfrath impressed on me that after the rains the whole countryside is covered with flowers. Even now some flowers were in bloom, and both bees and burros were finding forage.

These apiaries, like the queen-rearing apiaries, are worked by a crew of eight men plus a leader. They drive up in a truck and go through the hives as a team, one smoking, one removing roofs, one fetching equipment, and so on. I gathered that twenty minutes are allowed in each apiary, and anything not finished within that time is left until the next visit. Dr. Speck plans all the operations in the 410 apiaries, and his appearance here, there and everywhere in the course of each day ensures that the timetables are kept.

I was interested to learn the details of the swarming problem under these sub-tropical conditions (swarming normally follows the main flow). In the early years a great deal was done to reduce swarming by breeding, but this did not eliminate it, and it became a real trouble when the number of colonies was no longer increased considerably each year. The problem was finally solved by replacing half the combs in every hive with new foundation *every year* ; this reduced the percentage of colonies building queen cells from 23% to 1% (Wulfrath, 1957).

The foundation, like almost all the other equipment, is made by Miel Carlota in a factory in the garden ; it is as well planned and economical in time and labour as anything I have seen. The honey house is the fourth they have built, and is with good reason their pride and joy. They estimate that about four man-hours a year (and mostly illiterate man-hours) are spent on each colony. This includes making equipment, transport, queen rearing and actual manipulations, and extracting and handling the honey.

And these four man-hours give not fifty, but two hundred or more, pounds of honey per hive — around 2000 tons in all. Almost all the honey is exported.

Honey is not the only product; there is also royal jelly, and Miel Carlota is almost certainly the largest producer of this product in the world. Last year the amount was 150 kg., and this year it will be much more. Even 150 kg. must represent several million queen cells. The royal jelly is extracted from the plastic cell cups, with a vacuum pump, three days after grafting if it is to be used for cosmetics. If it is for medical purposes, the royal jelly is removed from the cell cups after only one day, and is afterwards put up into capsules by a pharmaceutical firm in Mexico City. These royal jelly products are most attractively packaged, and there is a rapidly growing market for them. Their producers are enthusiastic about their powers — I was told how royal jelly had cured a great variety of ills, and had made a new man of many an old one. Mr. Wulfrath is proud that it was Miel Carlota royal jelly which was given to the Pope in his recent illness.

The beekeeping achievements of Miel Carlota are certainly outstanding. It could be argued that without cheap labour, and capital, the venture would have been impossible, or that its success depended on the rich and continuous bee forage. Some European beekeepers might complain that a new industry whose purpose is to export honey and other bee products introduces a competition which conditions in their own countries do not allow them to meet. But these arguments do not detract from the achievement; success in any enterprise is attained by exploiting to the full those factors which are advantageous, not in solving problems which would be encountered elsewhere. The problems in Central America are certainly different from those which confront almost any other large-scale beekeepers. The seasonal cycle is different; the labour problems are different; almost all the equipment must be either imported or made on the spot. And no one in Miel Carlota had any experience of beekeeping until they started keeping bees themselves in 1942.

These differences, and the fact that Miel Carlota is so much larger than any other Central American beekeeping concern (it is probably larger than any other in the world), have resulted in a certain isolation. It seemed that I was the first beekeeping visitor who had ever come to them from Europe, and Mr. Wulfrath confessed in turn that he was rather out of touch with beekeeping there, for instance 'I know of only two English beekeepers — Adam and Eva'. Because of the lack of relevant textbooks, Mr. Wulfrath and Dr. Speck have set out to write their own — a monumental *Enciclopedia apícola* in thirty parts, of which only three now remain to be published.

I did not spend all my time in the apiaries and honey houses of Miel Carlota. Mr. and Mrs. Wulfrath took me to Taxco, a sixteenth-century silver-mining town perched on a hillside; even today the shops are full of hand-worked silver, some of exquisite craftsmanship. Taxco has a magnificent early Spanish cathedral, and a market which was a riot of colour. So was the market at Amecameca, another town like something out of a fairy tale, halfway up the slopes of Popocatepetl. We got up to 15 000 feet on the volcanic ash which covers the higher slopes of this mountain; it surprised me to see coarse grass, and even a few trees, growing there in pure ash; at this latitude (19°) the tree line is of course quite high. I saw Aztec

pyramids, and the palace Cortés built in Cuernavaca in 1520. Here were not only reminders of the Spanish conquest itself, but reproductions of paintings of the Aztecs, made by the Spaniards who actually saw their civilization at its height. It gave me the same extraordinary feeling of the *continuity* of American history as the glimpse I had of a Maya congregation in the old Spanish cathedral in Mérida in Yucatán. These were direct and forceful links with older, different, civilizations, which grew up and perished centuries ago, but whose peoples remain, and occupy the country today.

From the balcony of the palace was a superb view of Popo and his bride, their snows pink in the light of the setting sun : Cortés certainly chose his site well. This was almost my last view of Mexico, and one I shall remember a long time. Mexico is such rich fare that I felt almost surfeited with new and exciting things. Yet the friendliness and kindness of my hosts made me feel at home there, and I know I shall not be satisfied until I can return.

CONCLUSION

I did not meet another English traveller in the whole of my journey, and only one other European, a Swiss honey buyer Gustav Ruchti, whom I met in Mérida. I lived with Americans throughout, and came to know personally, and as friends, many of those in North and Central America whose names had only been familiar to me through their work. I learned much, especially of the diversity of problems which face bee research workers and beekeepers in different parts of North and Central America, and of the diversity of conditions in which the honeybee can live and thrive and yield a profitable harvest to the beekeeper. I had constantly to remind myself that the honeybee is not native to this continent, but has been introduced only a few centuries ago. It was constantly brought home to me that the richest bee pasture is not in the Old World, but in the New ; in particular I have learned something of the great beekeeping potential of Central America. In Morelos, which is by no means the best bee country in Mexico, efficient methods can give a colony average of 200–250 pounds, and Mr. Wulfrath told me that he estimated the total honey potential of Mexico to be about 350 thousand tons — more than half my own estimate for the present output of the entire world ! The factor limiting the number of colonies is not saturation of foraging, but lack of access and of capital. I would venture to predict that as and when more capital becomes available, or more roads are built, many more colonies will be put into Central American countries ; I think that even the next few decades may see a great change. Since almost all the honey produced in Central America is exported, such a development would not be without consequence for European beekeepers.

One learns so much, even from a short visit to a new country, that cannot be understood by reading books or even by correspondence with people in it. One also learns, in a tantalizing way, a little of the countries just beyond, and of the new interests and problems they present. Beyond British Columbia is Alaska, and beyond Mexico is Guatemala, and then Costa Rica, and Peru If only one had the time, and the means —

‘ I am a part of all that I have met ;
 Yet all experience is an arch where through
 Gleams the untravell’d world, whose margin fades
 For ever and for ever when I move.’

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Correction to p. 233 : Dr. Haydak's pollen substitute contains also 1 part dried brewer's yeast.