

## CHAPTER 4

### THE EXPANSION OF THE COCHINEAL INDUSTRY

#### Cochineal In French Haiti

In spite of the efforts of the Spanish to preserve their long-held monopoly, cactus pads covered with live cochineal insects were smuggled out of Mexico. The success of the French botanist, Nicholas Joseph Thiery de Menonville, led to the establishment of the domestic species of the cochineal insect in French Haiti (the wild variety already lived on Haiti). The results of the thievery became more valuable to the French government than ten ships laden with silver and gold. As a result of the thriving Haitian cochineal industry, cochineal became a lucrative trade item for the Paris markets (Edelstein 1958, p. 1; Ross 1986, p. 69).

#### The Spread of the Cochineal Industry by the Spanish

With rumbles of political unrest and the threat of separation from Mexico in 1820, as well as increasing competition for labor from the coffee plantations of Central America, Spanish officials actively encouraged the spread of the cochineal industry. In this way the production of cochineal was established in Guatemala, Nicaragua, Spain, and the Canary Islands (Fleming 1983, p. 79).

The Canary Islands were a Spanish territory. In 1826 a successful attempt was made to expand the cochineal industry to this territory by the energetic St. Yago de la Cruz (a military official), who persevered against the will of the people. Climatic and soil conditions in the Canary Islands made it an ideal place to grow both the insect and the cacti (Born 1938, p. 222).

A Spanish official from Veracruz, D. Pedro José Carazo, sent the domestic cochineal-producing insects along with the cactus host to Spain. There they were planted near Cadiz, and plantations grew up along the coasts of Malaga. The attempt was successful, but the product could not compete on the world market (Born 1938, p. 222).

The Spanish attempted to introduce cochineal to the Mediterranean islands and the Near East. Earlier attempts had been made by the Spanish in India (West and Augelli 1976, p. 275). The cultivation of cochineal was also spread to Colombia, Ecuador, Peru, and Brazil (Vietmeyer 1987, p. 44). Still other countries acquired the live insect and its host cacti. Raising cochineal was attempted in Belize (British Honduras), El Salvador, Honduras, Italy, Portugal, and Australia ( see Figure 5; Ciesla 1991, p. 18).

#### Cochineal in Guatemala

In pre-historic Guatemala, the use of cochineal has not been established, but red and yellow, as well as black and white, were the predominant colors in use. No one knows why these colors were chosen, but it might be speculated that they were the available natural dyestuffs. There were regional preferences for color and for particular garments. The Indians of the Sierra villages such as Cotzal, Nebaj, and Chajul preferred textiles of a very vivid red (Osborne 1965, p. 44). When the Spanish arrived, the people of Guatemala were using dyes called "chuchumites." The name "chuchumite" applied to the numerous varieties of the American indigo plant, and perhaps to cochineal (Osborne 1965, p. 34-35).

In the early nineteenth century, Guatemala's economy was dominated by the export of indigo, but competition around 1830 by the British East Indies caused Guatemala to convert to the production of cochineal. Cochineal had been introduced to Guatemala from Oaxaca around 1811, by Don José de Bustamente. The industry stayed concentrated around two locations with favorable climates, Antigua and Amatitlán (Born 1938, p. 222).

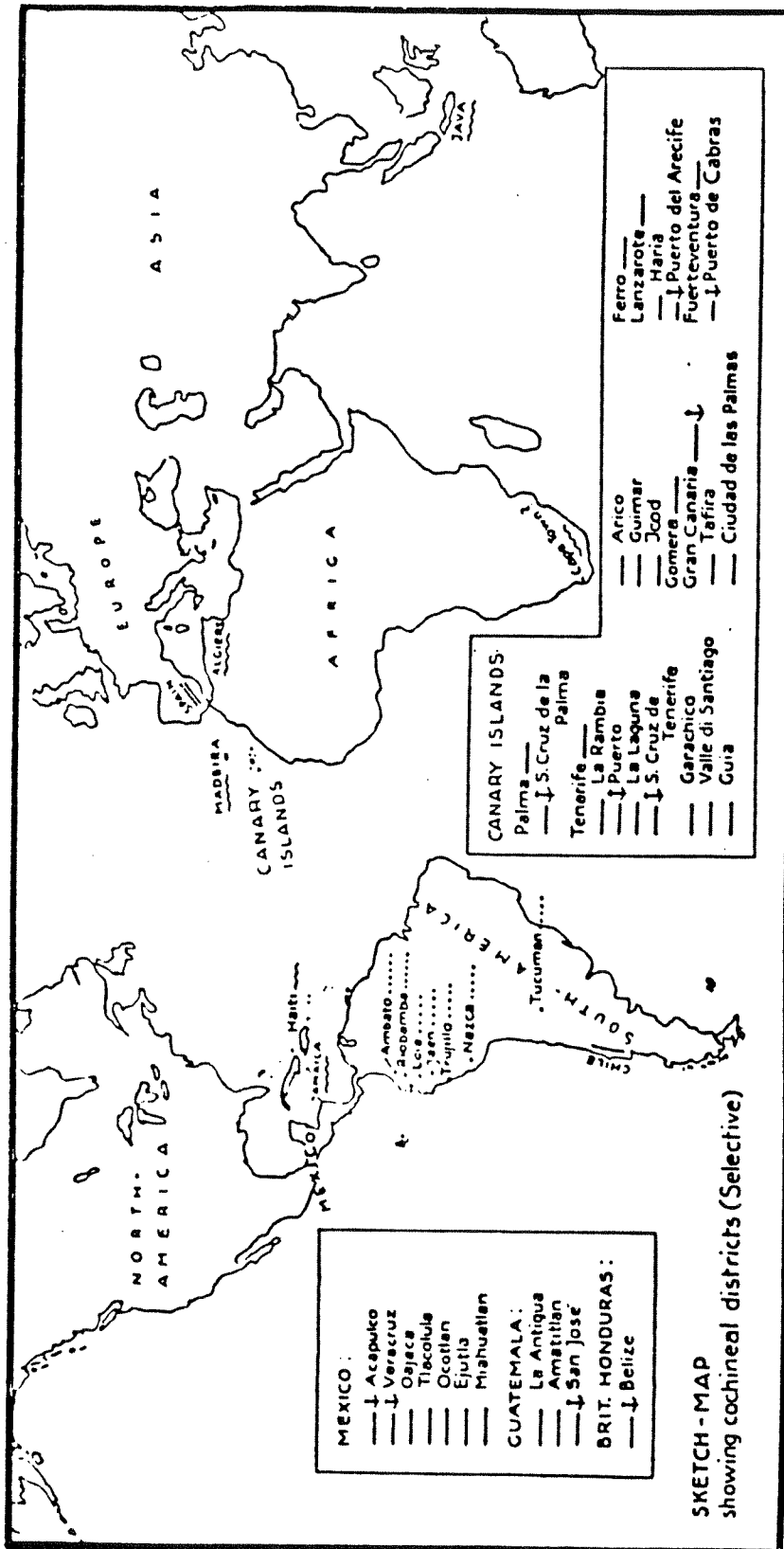


Figure 5. Map displaying both successful and unsuccessful districts for cochineal production and also ports used for the exportation of cochineal. Source: Born 1938, p. 226; after Wiepen 1890.

The conversion from indigo to cochineal in the 1830s established cochineal as Guatemala's main export. In 1840, the equivalent of \$500,000 worth of cochineal was exported, and in 1850 that figure increased to \$600,000. By the 1850s the export of cochineal amounted to more than eighty percent of the total Guatemalan exports. Six years later, the largest harvest on record brought a valuation of \$1,757,300 in revenue to the Guatemalan government. Collapse of the industry came after insect plagues damaged the nopal cactus in the mid-1840s, as aniline dyes reached the world markets. Income from the sale of cochineal tumbled to a value of \$246,388 in 1876, and to \$9,200 by the year 1883. After this time cochineal production was abandoned and the industry survived only in Quezaltenango, Amatitlán, and Zacapa (Osborne 1965, p. 40). Guatemala converted to a coffee crop with cotton as a transition crop. Primary export items were coffee, indigo, cocoa, sugar, and tobacco (Boyd, 1974, p.176; Woodward, Jr. 1965, p. 87-88).

To recapture the scene from Guatemala's once-prominent means of subsistence, a description of a couple traveling to Antigua is given below:

[In Antigua] the preparation of cochineal was the chief industry, and where coffee trees are now growing there formerly stood rows of nopal cactus on which the cochineal insect lived. This white fluffy-looking creature, which exudes a drop of crimson fluid when crushed, could not survive the wet season without protection, so a framework of rough sticks, divided into many compartments like a plate-rack, was arranged under shelter all along the garden walls, and in each of these compartments one of the flat branches of the nopal cactus was lodged before the rains began, bearing a number of cochineal insects sufficient to repopulate the whole plant as soon as the dry weather came round again. (personal account by Maudslay and Maudslay; Osborne 1965, p. 40)

#### Cochineal Industry in Australia

In 1787 a Governor of Australia, Captain Arthur Philip, saw the cochineal industry in the Canary Islands and decided to introduce it to Australia. He was of the opinion that the cochineal industry would be suitable for the Australian economy. A specimen of the prickly pear cactus and the associated cochineal insects were transported to Australian soil in hopes of establishing a new industry for that country (Baker 1970). This attempt failed

badly when the insects did not survive in the harsh Australian environment. However, the prickly pear cacti not only flourished, but went on to become one of the worst pests of the Australian grazing land. By the year 1925, vast areas of range land were invaded by the cactus and rendered useless. Still another import from Mexico, the pyralid moth (Cactoblastis cactorum), brought control of the cacti in Australia. The larvae of this moth feed on the prickly pear, clearing huge areas of the cactus pest in rapid time (Baker 1970, p. 168–169).

Cochineal did not survive in many of the areas where it was introduced, but the cactus thrived in India, Ceylon, and South Africa. As in Australia, it created economic hardships which were alleviated by the introduction of the pyralid moth. This moth burrows into the prickly pear in the larvae stage and eats the interior of the plant. In countries like Algeria and the Canary Islands where cochineal was successful, the introduction of cochineal led to an economic boom (Lizotte 1992, p. 11).

#### Cochineal in Dutch Java

The Dutch government sent a spy to Cadiz in 1828, who remained until he had acquired knowledge of the process of breeding cochineal. He persuaded the head gardener, by way of a six-year contract, to travel with him in the Dutch sloop of war "Lilie." During the night, the valuable cargo of insect and cacti were taken aboard along with the gardener. The ship sailed to the Dutch East Indies, and thus the cochineal industry was established in Java (Born 1938, p. 222).

#### Cochineal Attempted in Algiers

Another attempt to confiscate the insect and cacti from Spain was carried out by a French chemist from Algiers. The chemist failed to establish cochineal in Algiers, but a ship's surgeon, Dr. Loze, became successful. When he left Algiers, after three years, the cochineal plantation declined (Born 1938, p. 222, 223).

### Cochineal In the Canary Islands

Spain was responsible for introducing cochineal and the cacti to the Canary Islands in the 1770s. Pressure increased in the Canary Islands to produce cochineal as the Oaxaca and Guatemala supply dwindled. Sometime between 1831 and 1874, whole vineyards were ripped out and converted to cactus plantation (Fleming 1983, p. 79; West and Augelli 1976, p. 275). Between Gran Canarian Tenerife and several smaller islands, a great deal of slope land was terraced to provide space for the xerophytic cactus which did not require scarce irrigation water. Fertilization increased production after 1852, when guano was imported to fertilize the cactus (Gade 1979, p. 353). Cochineal production became the most important economic activity of the Canary Islands between 1855 and 1880 (Gade 1979, p. 353). The Islands success could be measured by the yearly export of cochineal, which from 1868 amounted to six million pounds (Vietmeyer 1987, p. 45).

A traveler to the Canary Islands, Piazzini Smith, gave an interesting account of cochineal production in the Canary Islands, explaining why it became their chief industry. It appeared in "Tomlinson's Cyclopaedia of the Useful Arts," published in 1866 (Ponting 1980, p. 44). The account reads:

A native gentleman brought cochineal from Honduras in 1836 at a time when the vines were flourishing as they had done for three hundred years and no other crop was to be thought of. His friends thought him a simpleton and the country people destroyed his plantations by night. The government, however, supported him and in spite of occasional disturbances, cacti and cochineal were preserved in out-of-the way places. Then in 1853, the vine disease began and spread over the island. The fruits withered, the plants died and starvation faced the inhabitants. They turned their attention to the despised cochineal and tried the experiment of cultivating it in the old vineyards. It succeeded perfectly, the insects propagated rapidly and soon became a prolific crop. A great enthusiasm now succeeded the old contempt, spare land, fields and gardens, were all turned to account.

The disease mentioned was the dreaded phylloxera which did a great deal of damage in the vineyards of Europe (Ponting 1980, p. 44). In another account, Smith recounts a meeting with some of the cochineal producers in an 8,000-foot mountain pass:

Being curious to see what sort of produce could repay this toilsome mode of carriage, I applied to one of the men who was resting himself. Most good humorously and smilingly he took me to his pack lying on a hillock hard by, and consisting in a flat bound box about two feet square and six inches thick; throwing open the lid he displayed the interior divided into a dozen partitions, each fitted with little gray particles like the ashes of a gem. These were the cochineal insects as picked off their cactus plants prepared for the European dye market, an admirable article of commerce for mountaineers without roads for it is light, compact and high priced for the market has never been overstocked or is likely to be. (Ponting 1980, p. 44)

As within many of the other cochineal-producing countries, the advent of aniline dyes had a drastic effect on the economy of the Canary Islands. Yet aniline dyes did not completely destroy the cochineal industry in the Canary Islands. Today it survives primarily in the tiny towns of Guatiza and Mala and on the outer island of Lanzote. Here the cacti are carefully cultivated in volcanic ash soil, with the fields divided by walls of lava rock (Gade 1979, p. 353–354).

Cochineal production also survived in Peru and Java (Leggett 1944, p. 88; Ross 1986, p. 69). In 1977 Peru and the Canary Islands produced 300,000 to 400,000 pounds of dried cochineal annually. That figure has been rising in recent times, but an accurate figure has not been found for the 1991 production. Canary Island cochineal is exported from the port of Las Palmas and goes primarily to the European market. The production fluctuates between 35 and 40 metric tons annually. Peru produces the greatest amount of cochineal, but the quality of the Canary Island cochineal is considered to be superior (Gade 1979, p. 353-354). There has been a shift in recent times away from the labor-intensive production of cochineal to tourism (Vietmeyer 1987, p. 45).

### Cochineal Industry In Peru

Whether cochineal was grown in Peru before the arrival of the Spanish has still not been determined. The prickly pear cactus is indigenous to Mexico, and records indicate that it was not in the Andean region until after the conquest (Gade 1972, p. 60). It is known that the Spanish established the industry for profit during the colonial years, and that the industry was drastically affected by the advent of aniline dyes. But unlike Oaxaca, the aniline dyes did not completely destroy the cochineal industry in Peru. Production was reduced to a trickle until 1818, when renewed interest in natural dyestuff prompted foreign importers to turn to the Peruvians for a supply. The Queche-speaking Indians, living in the Ayacucho region of Peru where the cochineal and their cacti hosts still remained (called "bug districts"), resumed the picking of the scale insect to meet the market demand (Gade 1972, p. 59-60).

Wild-growing opuntia cactus, taller than a man, is the most prolific plant found on the hot dry slopes of the Andean mountains in the cochineal-growing "bug district." Some of the host cacti are planted in hedgerows around settlements, but the greatest majority grow wild. Eighty percent of the Peruvian cochineal grows below 3,000 feet of elevation in the Ayacucho region. The remainder comes from the neighboring mountain areas of Ancash, Cuzco, Apurimac, Cajamarca, and Huánuco (Gade 1979, p. 60).

After collection and drying, cochineal is placed in large cloth sacks and trucked to Lima-Callao, where it is resold to a middleman or exported (Gade 1979, p. 354). But not all cochineal leaves Peru. A very small quantity is used by the Peruvians who wish to return to the old tradition of using natural dye. It is important to note that the gathering of wild cochineal from cacti and converting the product into a cash crop transforms an otherwise useless commodity into a profitable product (Gade 1972, p. 62).

### Cochineal Again in Mexico

A 1962 article written by N. Pelham Wright reported that the lost tradition of growing cochineal was back in Mexico. He stated, "Natural cochineal is once more being produced in Mexico's deep south and there is reason to believe that before very long the country will once again be able to export this natural product - sparingly, no doubt, at first, but perhaps one day in sufficient quantities to meet the demand." Wright made an expedition, sponsored by the Mexican Instituto Indigenista, to Oaxaca to look for cochineal being cultivated in this area. After many inquiries, it was learned that there was a cochineal industry in the Indian village of San Agustin Amatengo, midway between Oaxaca City and the Pacific coast (Wright 1962, p. 25-27).

#### The Father of Cochineal

In the small village of San Agustin Amatengo, the expedition found a Zapotec man named Lauro Ramirez who had quit growing cochineal two years earlier. Mr. Ramirez stated that his father had always raised cochineal (Wright 1986, p. 27). No doubt this was the famous cochineal man, Reuro Lauro Ramirez, that I heard about in Oaxaca, who was called "father of the cochineal." This man learned from his parents and grandparents, and is famous for the high quality of cochineal he obtained from the wild. He was able to distinguish the domestic species from the wild variety and gather only high-quality cochineal (Ernesto Castaneda Hidalgo 1989, personal communication).

#### Small Scale Production in Tequisistlan

Nopal were not cultivated in the village of San Agustin Amatengo, but the domestic species of the insects had persisted on some wild prickly pear in the area (Wright 1962, p. 27-28). This same stock of prickly pear and insects was used by Ramirez to form the nucleus of the present-day cochineal-growing area, which was further east, at Tequisistlan,

about 30 miles from Tehuantepec. Here the industry has increased slowly and more people are becoming familiar with the process of growing cochineal.

In 1962 several people were employed in growing cochineal in Tequisistlan. The production was overseen by a Zapotec Indian named Francisco Garcia, who was taught the process by a younger assistant who had learned from Ramirez. Tequisistlan production of cochineal in 1962 was 275 pounds. The greatest proportion of the crop is retained for breeding, and the rest is scalded and sent to the Huave and Zapotec Indian weavers in Oaxaca (Wright 1962, p. 27-28).

#### Ancient Recipe for Dyeing with Cochineal

A personal account by Gary Ross, written in 1986, tells of the use of cochineal dye by one of the weavers in the small village of Teotitlan del Valle. This Zapotec weaver is still dyeing with cochineal in the age-old tradition passed down from his ancestors. While he is only one of the few remaining weavers who use this dye in the traditional manner, other weavers from the area use cochineal for dyeing the yarn used in their weaving. Most of the cochineal used in this village is purchased from Peru for about thirty dollars a pound (Ross 1986, p. 67-74; see Appendix III).

#### Government Revival of the Cochineal Industry

In 1976, the government of Mexico sponsored a cochineal-revival program which died because of corruption and the unwillingness of the people to give up growing corn. The program was dead for ten years and restarted in 1987. The Instituto Tecnológico Agropecuario de Oaxaca has made efforts to revive and improve the production of cochineal in Oaxaca. A booklet titled, "Avances en la Investigación Productiva de Grana - Cochinilla" was published by the Institution. A specialist in the field of growing cochineal, Ernesto Castaneda Hidalgo, was employed by the Institute to assist in reestablishing this

means of production (Ernesto Castaneda Hidalgo 1989, personal communication; see Appendix IV).

#### Cochineal Greenhouse in San Pedro Martir

In the tiny village of San Pedro Martir, the Institute has constructed three small greenhouses (20 sq. meters), in the backyards of three homes, designed for the compact and modernized growing of cochineal. In these greenhouses, female cochineal insects wrapped in gauze are attached with toothpicks to rows of cactus pads. In this compact setting a large quantity of cochineal can be grown. The insects are supplied by the Instituto Tecnológico Agropecuario. If the greenhouse experiment is successful, the problems of sun, wind, and rain will be eliminated, and at least four crops of cochineal can be harvested each year. The cactus pads are changed after every third harvest. In a three-month period, one greenhouse produces 8.8 pounds of cochineal (see Figures 6, 7; Ernesto Castaneda Hidalgo 1989, personal communication).



Figure 6. Photographs taken of the cochineal greenhouses in San Pedro Martir (top) and of Ernesto Castaneda Hidaiga pointing out the mother cochineal (bottom).





Figure 7. Photograph of an Indian woman holding two sacks of cochineal which she harvested from the greenhouse (top). A photograph of a pan of newly harvested cochineal (bottom).

