

*Yes, we have*  
*Cochineal!*

*Imported from New Spain!*

*The finest red dye in the world!*

*The color of Kings!*

*Dress like a Cardinal!*

*Guaranteed pure!\**

*\*well, maybe*

## What is Cochineal?

Red has been a color of power, wealth and luxury since ancient times. Red dye was expensive and hard to get. Kings and cardinals wore red. The shah of Persia wore red. In classical Rome, red was second only to the purple worn by Emperors; the city's most powerful men were called *coccinati*, the ones who wear red.<sup>[1]</sup>

Spanish conquistadors found the Aztecs selling an amazing red dye in the markets of Mexico in 1519, which they called *grana cochinilla*, or cochineal. Cochineal produced the brightest, strongest red the Old World had ever seen.<sup>[1]</sup> In 1523, Emperor Charles V asked Hernando Cortéz to send a specimen to Spain. Cochineal was introduced to Florence in 1542, and Venice in 1543, where it was used to dye silk.<sup>[2]</sup> By the second half of the century, Venice had become one of the greatest consumers of the dye - along with Florence, Antwerp and Rouen.<sup>[4]</sup>

The Spanish made a fortune shipping cochineal back to Europe, and it soon became one of the most lucrative products exported from the colonies, second only to silver.<sup>[2]</sup>

Such fabulous wealth inevitably led to opportunities for fraud and chicanery.

## Fraud and chicanery!

Tricksters and con artists were attracted to cochineal because it was such a lucrative commodity. Since tiny quantities of the dyestuff could produce a considerable profit, even small-scale frauds could be worthwhile. Consequently, fraud was common at every level of the trade and at every point of interchange: Indian producers cheated Indian dealers, who cheated Spanish merchants, who cheated European buyers, who cheated European consumers.<sup>[3]</sup>

Common cheats were to mix the grains of cochineal with bean meal, chalk, powdered clay, flour, pitch, or sand. This practice was so common that it led to Europeans complaining about the quality of the cochineal they received. In 1552, a Master Rocco, the assayer of a dyer's guild, complained to the Venetian senate that 'the new Indian kermis' was often adulterated; as a result, he claimed, 'the colors fade in a short time, and become bad and horrible to be seen.'<sup>[3,4]</sup>

Master Rocco used the term *panuchi* to define the materials added to the dye, calling the adulterated colorant "*panucho* of false kermes" (*panucho def also cremes*). This may refer to bean meal kneaded into the cochineal; the word "panucho" is still used today to describe a tortilla stuffed with beans.<sup>[4]</sup>

## Stop, in the name of the law!

In 1554, four Spanish merchants asked the Mexico City authorities to investigate the phenomenon of cochineal adulteration and to find ways to stop it. The following year, after hearing extensive testimony on the subject, the chief investigator recommended that all cochineal be inspected and sealed by Crown officials, that adulterated cochineal be confiscated, and that both buyers and sellers of false cochineal be fined. If the buyers or sellers happened to be mestizo, black or Indian, the investigator further recommended that they be punished with a public whipping of one hundred lashes.<sup>[3]</sup>

These regulations were not very strongly enforced at first. But as cochineal became more important to Spanish finances, the Crown officials became more aggressive. In 1572, the viceroy of Mexico created a new Crown position, the *Juez de Grana Cochinilla*, “judge of cochineal”. Charged with enforcing a new and more rigorous system of inspection, the judge was based in Puebla de los Angeles, which was the most important cochineal center in New Spain at the time, and charged with examining the dye for quality and purity.<sup>[3,4]</sup>

Merchants were unhappy with the stricter inspection regime and wrangled exceptions (which led to more fraud) but by 1580 the viceroy had appointed even more judges, leading to an improvement in the quality of cochineal exports.<sup>[3]</sup>

## Experimentation

I decided to try my hand at cochineal counterfeiting. I started with “Jacquard Cochineal Natural Dye”. This is a commercial product, but it consists of dried whole beetles and is organically farmed, so I believe it is a good representation of what cochineal might’ve been like in period.

I used a mortar and pestle to grind up the cochineal.



I also ground up red kidney beans and chalk, then made adulterated cochineal by placing the whole cochineal in the mortar with bean meal or chalk dust before grinding it all together. I could not find any exact ratios for how much filler was in the adulterated cochineal (although it was clearly enough for people to start to notice) so I experimented with several variations.



The adulterated cochineals were visibly lighter than the pure cochineal, although the 3:1 cochineal:kidney bean blend is pretty close.

I took a very thin silk scarf and mordanted it with alum, then cut the silk into smaller pieces and dyed it using either pure cochineal or adulterated cochineal. For each of my 3 dye attempts I used 1 liter of hot water and 1/4 teaspoon of dye on an approximately 4" x 4" piece of silk, leaving the cloth in the dye for 20 minutes.



After dyeing and rinsing silk with various combinations, I found that the silk dyed with 75% cochineal seems just barely lighter than the silk dyed with 100% cochineal. However, the silk dyed with 50% cochineal seems very noticeably lighter.



Based on these results, I'm thinking that I could get away with pushing the 75% cochineal / 25% kidney bean blend as being the real thing! Profit!

## **Profit!**

So now I know how to adulterate cochineal! How much money can I make from this swindle?

Cochineal was worth a lot in the 16th century. Greenfield<sup>[5]</sup> writes an account of English pirates plundering countless Spanish ships carrying cochineal:

“In the spring of 1589, an English fleet captured a Spanish ship that carried 30,000 pounds of cochineal-probably more than 10% of the entire year's harvest.

Later that year the earl of Cumberland captured a Spanish ship off the coast of Spain, which contained another 600 heavy cases of the dyestuff. The next year the famous captain Sir John Hawkins brought in still more cochineal, as did other English raiders.

For the next decade, the English continued to seize a staggering amount of cochineal from Spanish vessels. In 1591, Robert Flicke reported that he had spied a Spanish ship in the Azores, ‘and somewhat before night obtayned her, named the Conception, Francisco Spinola being Captaine, which was laden with hides, Cochonillio, and certaine raw silke.’ The following year English raiders captured another 50,000 pounds of cochineal, part of an Aladdin's cave of treasures on board the 1600-ton carrack *Madre de Dios*. And in 1597, Essex secured his vast cochineal prize in the Azores: over 55,000 pounds of the dyestuff in all.

Pound for pound, cochineal was one of the most valuable goods a pirate could capture. In the 1580s and 1590s, the dyestuff was worth 26 to 40 shillings a pound in England, depending on quality and market scarcity. Essex's prize was initially valued at more than £80,000, an immense sum at a time when £80 was deemed sufficient to support a Protestant clergyman for a year.”

Spanish ships routinely carried tens of thousands of pounds of cochineal. If I were to replace 1000 pounds of pure cochineal with the same amount of my adulterated 75% cochineal blend, I would steal 250 pounds of cochineal. At 40 shillings per pound of cochineal, this comes to a profit of £500 in 1590s money - over six years' salary for a clergyman, or the equivalent of US\$164,000 in today's currency.<sup>[6]</sup>

A pretty profitable arrangement ... at least until the *Juez de Grana Cochinilla* finds out!

## References

- [1] *A Perfect Red*, by Amy Butler Greenfield (2005), page 3
- [2] *The Silk Industry of Renaissance Venice*, by Luca Molà (2000), pages 120-121
- [3] Greenfield, pages 103-106
- [4] Molà, page 128
- [5] Greenfield, page 116
- [6] *Pounds Sterling to Dollars: Historical Conversion of Currency*, by Eric Nye, University of Wyoming, <https://www.uwyo.edu/numimage/currency.htm>

## Items for display

1. Whole cochineal
2. Ground cochineal
3. Red kidney beans
4. Bean meal (ground red kidney beans)
5. Chalk
6. Ground cochineal adulterated with bean meal (1:1 ratio)
7. Ground cochineal adulterated with bean meal (3:1 ratio)
8. Ground cochineal adulterated with chalk dust (1:1 ratio)
9. Silk cloth dyed with 100% cochineal
10. Silk cloth dyed with 75% cochineal/25% bean meal
11. Silk cloth dyed with 50% cochineal/50% chalk dust
12. Documentation
13. Reference books