

# Endangered Foods

Apples, the fruit of paradise.

STORY BY *Pria Graves*

**WHEN YOU THINK OF AN APPLE**, the image that springs to mind is probably the classic lunch-box fruit: symmetrical, perfect, shiny, and brilliantly red. That is *the* apple, the Red Delicious. But beneath the iconic image, there is much more to the story.

The apple is believed to have originated in the Central Asian region of Kazakhstan, the result of a chance crossing between a primitive plum and meadowsweet, a type of *Spirea*. The original “fruit” were most likely tiny, bitter, and even toxic. But their 34 chromosomes contained the genetic material that allowed the apple to evolve into the most diverse fruit on earth. Over the millennia, the largest, sweetest fruit was most “successful” – chosen by humans and animals as food – and carried outward into Europe. As early as the 3rd millennium BC farmers had discovered how to clone desirable varieties by grafting and by the time of the Roman Empire, Pliny tells us that 23 varieties were in cultivation. The Romans spread apples throughout their Empire including regions of Spain and England. And everywhere apples went, their genetic complexity allowed them to adapt to various climactic and soil conditions and to the tastes of the local communities.

Today most apple trees are varietal clones, selected cuttings grafted onto a rootstock. Only rarely are new trees grown from seed. So how did this tremendous wealth of different apples come to be? To understand, one must realize that until the last century the major use of apples was in the making of cider (the hard, fermented version). Water wasn't safe to drink and wine grapes required a warm climate to ripen but anyone could easily make cider. And since cider is often made from apples that are otherwise inedible (‘spitters’), cider orchards were generally planted from seed.

In the early days of European settlement across North America, government policy also contributed to the apple's spread: an orchard was a requirement of homesteading, indicating one's intent to remain on the land. John Chapman (‘Johnny Appleseed’) planted nurseries of young seedlings for sale to settlers. By planting so many apples from seed, millions of new genetic combinations were given life and the apple adapted to the new environment.

The vast majority of them were bitter, tart, and inedible but every so often, perhaps once out of ten thousand seedlings, one would be discovered that produced delicious, unique fruit. Apples with grand names like Esopus Spitzenberg, Hawkeye and King of Tompkins County were mostly discovered in cider orchards, bringing the farmers who found them a chance of riches. The characteristics of

these apples were many: spicy, tart and rich; large or tiny; yellow, green, purple and, of course, red; striped and spotted; shiny, russeted or with a bloom; smooth and symmetrical or knobby. Some were best eaten within days of picking but others would last for months if kept cool – a real boon before refrigeration!

By the end of the 1800's, more than 1000 named varieties were available to the American market! Then the number started dropping. By the 1940's, half had disappeared. Prohibition outlawed cider and by its end, the cider habit had disappeared and with it, seedling orchards. Growers focused on



sweetness and aesthetic perfection alone. The perfect red apple became king.

By the 1950's, the only apples in markets were Red and Golden Delicious, Pippins, and occasionally (to my father's delight), Macintosh. Today we once again have more choice, but the majority of “new” varieties have been bred from the same five parents: Red Delicious, Golden Delicious, Jonathan, Macintosh and Cox's Orange Pippin. Breeders keep returning to the same well and that well keeps getting shallower.

Why does this matter?

Unfortunately, when large areas are planted with identical plants, pests and diseases have a field day, quickly evolving to bypass the plants' natural defenses. As a result, the commercial apple now requires a huge amount of pesticide. Clones cannot adapt to cope with the challenges of the world unaided. What will happen when one of the diseases gets ahead of our chemicals? Think of Dutch Elm disease. Think of a world without apples!

Fortunately many “heirloom” or “heritage” apples still exist in a few special places. Filoli has a fabulous collection. And there are farmers devoted to preserving and growing these special beauties, too.

As with endangered species, let's use our art to help raise awareness of these fascinating and important old fruits. Even if you don't care about having something more flavorful than a Red Delicious, remember that someday one of the surviving relics may just hold the key to avoiding an apple-less future. ☒

**LEFT.** *Malus domestica* ‘King of Tompkins County’, watercolor, 10”x7.5”, ©Sally Petru.

**ABOVE.** *Malus domestica* ‘Autumn Pearmain’, watercolor, 12”x9”, ©Andrea Wolf. Both apples are from the orchards at Filoli.