

The Impact of the Potato

Jeff Chapman relates the story of history's most important vegetable.

DURING HIS SCIENTIFIC expedition to Patagonia aboard *HMS Beagle*, British naturalist Charles Darwin became fascinated by a surprisingly adaptable South American plant. In his log, Darwin wrote: "It is remarkable that the same plant should be found on the sterile mountains of Central Chile, where a drop of rain does not fall for more than six months, and within the damp forests of the southern islands."

The plant Darwin observed was the potato. The tuber was remarkable for both its adaptability and its nutritional value. As well as providing starch, an essential component of the diet, potatoes are rich in vitamin C, high in potassium and an excellent source of fiber. In fact, potatoes alone supply every vital nutrient except calcium, vitamin A and vitamin D. The easily-grown plant has the ability to provide more nutritious food faster on less land than any other food crop, and in almost any habitat.

The Origin of the Potato

The potato was first cultivated in South America between three and seven thousand years ago, though scientists believe they may have grown wild in the region as long as 13,000 years ago. The genetic patterns of potato distribution indicate that the potato probably originated in the mountainous west-central region of the continent. According to Dr. Hector Flores, "the most probable place of origin of potatoes is located between the south of Peru and the northeast of Bolivia. The archaeological remains date from 400bc and have been found on the shores of Lake Titicaca.... There are many expressions of the extended use of the potato in the pre-Inca cultures from the Peruvian Andes, as you can see in the Nazca and Chimu pottery." The crop diffused from Peru to the rest of the Andes and beyond.

Early Spanish chroniclers — who misused the Indian word *batata* (sweet potato) as the name for the potato — noted the importance of the tuber to the Incan Empire. The Incas had learned to preserve the potato for storage by dehydrating and mashing potatoes into a substance called *chuñu*. *Chuñu* could be stored in a room for up to 10 years, providing excellent insurance against possible crop failures. As well as using the food as a staple crop, the Incas thought potatoes made childbirth easier and used it to treat injuries.

The Potato's Introduction

The Spanish conquistadors first encountered the potato when they arrived in Peru in 1532 in search of gold, and noted Inca miners eating *chuñu*. At the time the Spaniards

failed to realize that the potato represented a far more important treasure than either silver or gold, but they did gradually begin to use potatoes as basic rations aboard their ships. After the arrival of the potato in Spain in 1570, a few Spanish farmers began to cultivate them on a small scale, mostly as food for livestock.

From Spain, potatoes slowly spread to Italy and other European countries during the late 1500s. By 1600, the potato had entered Spain, Italy, Austria, Belgium, Holland, France, Switzerland, England, Germany, Portugal and Ireland. But it did not receive a warm welcome.

Throughout Europe, potatoes were regarded with suspicion, distaste and fear. Generally considered to be unfit for human consumption, they were used only as animal fodder and sustenance for the starving. In northern Europe, potatoes were primarily grown in botanical gardens as an exotic novelty. Even peasants refused to eat from a plant that produced ugly, misshapen tubers and that had come from a heathen civilization. Some felt that the potato plant's resemblance to plants in the nightshade family hinted that it was the creation of witches or devils.

Let Them Eat Potatoes

In most of Europe, the upper classes saw the potato's potential before the more superstitious lower classes, and the encouragement to begin growing potatoes had to come from above.

In meat-loving England, farmers and urban workers regarded potatoes with extreme distaste. In 1662, the Royal Society recommended the cultivation of the tuber to the English government and the nation, but this recommendation had little impact. Potatoes did not become a staple until, during the food shortages associated with the Revolutionary Wars, the English government began to officially encourage potato cultivation. In 1795, the Board of Agriculture issued a pamphlet entitled "Hints Respecting the Culture and Use of Potatoes"; this was followed shortly by pro-potato editorials and potato recipes in *The Times*. Gradually, the lower classes began to follow the lead of the upper classes.

A similar pattern emerged across the English Channel in the Netherlands, Belgium and France. While the potato slowly gained ground in eastern France (where it was often the only crop remaining after marauding soldiers plundered wheat fields and vineyards), it did not achieve widespread acceptance until the late 1700s. The peasants remained suspicious, in spite of a 1771 paper from the Faculté de Paris testifying that the potato was not harmful but beneficial. The people began to overcome their distaste when the plant received the royal seal of approval: Louis XVI began to sport a potato

flower in his buttonhole, and Marie-Antoinette wore the purple potato blossom in her hair.

Frederick the Great of Prussia saw the potato's potential to help feed his nation and lower the price of bread, but faced the challenge of overcoming the people's prejudice against the plant. When he issued a 1774 order for his subjects to grow potatoes as protection against famine, the town of Kolberg replied: "The things have neither smell nor taste, not even the dogs will eat them, so what use are they to us?" Trying a less direct approach to encourage his subjects to begin planting potatoes, Frederick used a bit of reverse psychology: he planted a royal field of potato plants and stationed a heavy guard to protect this field from thieves. Nearby peasants naturally assumed that anything worth guarding was worth stealing, and so snuck into the field and snatched the plants for their home gardens. Of course, this was entirely in line with Frederick's wishes.

In the Russian Empire, Catherine the Great ordered her subjects to begin cultivating the tuber, but many ignored this order. They were supported in this dissension by the Orthodox Church, which argued that potatoes were suspect because they were not mentioned in the Bible. Potatoes were not widely cultivated in Russia until 1850, when Czar Nicholas I began to enforce Catherine's order.

Across the Atlantic, the tuber was first introduced to the colonies in the 1620s when the British governor of the Bahamas sent a gift box of *Solanum tuberosum* to the governor of the colony of Virginia. While they spread throughout the northern colonies in limited quantities, potatoes did not become widely accepted until they received an aristocratic seal of approval from Thomas Jefferson, who served them to guests at the White House. Thereafter, the potato steadily gained in popularity, this popularity being strengthened by a steady stream of Irish immigrants to the new nation.

Potato Population Boom

When the European diet expanded to include potatoes, not only were farmers able to produce much more food, they also gained protection against the catastrophe of a grain crop failure and periodic population checks caused by famine. Highly nutritious potatoes also helped mitigate the effects of such diseases as scurvy, tuberculosis, measles and dysentery. The higher birth rates and lower mortality rates potatoes encouraged led to a tremendous population explosion wherever the potato traveled, particularly in Europe, the US and the British Empire.

Historians debate whether the potato was primarily a cause or an effect of the huge population boom in industrial-era England and Wales. Prior to 1800, the English diet had consisted primarily of meat, supplemented by bread, butter and cheese. Few

vegetables were consumed, most vegetables being regarded as nutritionally worthless and potentially harmful. This view began to change gradually in the late 1700s. At the same time as the populations of London, Liverpool and Manchester were rapidly increasing, the potato was enjoying unprecedented popularity among farmers and urban workers. The Industrial Revolution was drawing an ever increasing percentage of the populace into crowded cities, where only the richest could afford homes with ovens or coal storage rooms, and people were working 12-16 hour days which left them with little time or energy to prepare food. High yielding, easily prepared potato crops were the obvious solution to England's food problems. Not insignificantly, the English were also rapidly acquiring a taste for potatoes, as is evidenced by the tuber's increasing popularity in recipe books from the time. Hot potato vendors and merchants selling fish and chips wrapped in paper horns became ubiquitous features of city life. Between 1801 and 1851, England and Wales experienced an unprecedented population explosion, their combined population doubling to almost 18 million.

Before the widespread adoption of the potato, France managed to produce just enough grain to feed itself each year, provided nothing went wrong, but something usually did. The precariousness of the food supply discouraged French farmers from experimenting with new crops or new farming techniques, as they couldn't afford any failures. On top of hundreds of local famines, there were at least 40 outbreaks of serious, nationwide famine between 1500 and 1800. The benefits of the potato, which yielded more food per acre than wheat and allowed farmers to cultivate a greater variety of crops for greater insurance against crop failure, were obvious wherever it was adopted. The potato insinuated itself into the French diet in the form of soups, boiled potatoes and pommes-frites. The fairly sudden shift towards potato cultivation in the early years of the French Revolution allowed a nation that had traditionally hovered on the brink of starvation in times of stability and peace to expand its population during a decades-long period of constant political upheaval and warfare. The uncertainty of food supply during the Revolutionary and Napoleonic Wars, combined with the tendency of above-ground crops to be destroyed by soldiers, encouraged France's allies and enemies to embrace the tuber as well; by the end of the Napoleonic Wars in 1815, the potato had become a staple food in the diets of most Europeans.

The most dramatic example of the potato's potential to alter population patterns occurred in Ireland, where the potato had become a staple by 1800. The Irish population doubled to eight million between 1780 and 1841 — this, without any significant expansion of industry or reform of agricultural techniques beyond the widespread cultivation of the potato. Though Irish landholding practices were

primitive in comparison with those of England, the potato's high yields allowed even the poorest farmers to produce more healthy food than they needed with scarcely any investment or hard labor. Even children could easily plant, harvest and cook potatoes, which of course required no threshing, curing or grinding. The abundance provided by potatoes greatly decreased infant mortality and encouraged early marriage. Accounts of Irish society recorded by contemporary visitors paint the picture of a people as remarkable for their health as for their lack of sophistication at the dinner table, where potatoes typically supplied appetizer, dinner and dessert.

The Irish Potato Famine

Whereas most of their neighbors regarded the potato with suspicion and had to be persuaded to use it by the upper classes, the Irish peasantry embraced the tuber more passionately than anyone since the Incas. The potato was well suited to the Irish soil and climate, and its high yield suited the most important concern of most Irish farmers: to feed their families.

While the potato was rapidly becoming an important food across Europe, in Ireland it was frequently the only food. Many Irish survived on milk and potatoes alone — the two together provide all essential nutrients — while others subsisted on potatoes and water. By the early 1840s, almost one-half of the Irish population had become entirely dependent upon the potato, specifically on just one or two high-yielding varieties.