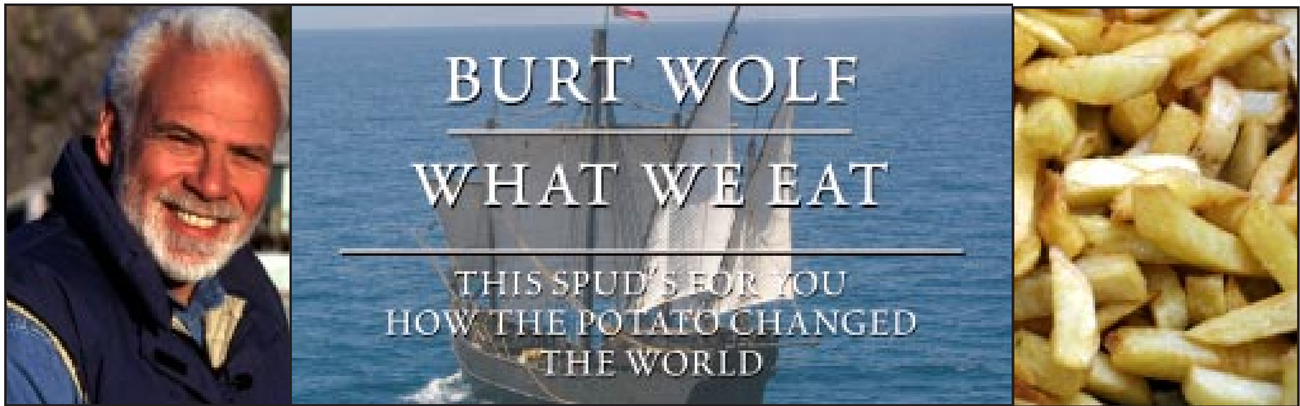
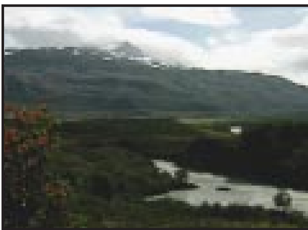


On two occasions the potato changed the course of world history. The first time was when, in the challenging agricultural environment of the Andes, it fed the army of workers who built the Inca Empire. And then it let the Spanish colonists who conquered them feed the workforce that extracted the mineral wealth of South America. The second time was when potatoes helped fuel the expanding population of Northern Europe as a handful of European nations began to dominate most of the world—which they did for over 200 years.

Even the potato's greatest failure in Europe—the Irish potato famine of the 1840s—did its part to change history. It sparked a massive exodus of Irish, many of whom headed west, where they went on to shape, both physically and politically, the quickly growing United States.

It looks like the potato was first cultivated in the Andes Mountains of South America some 7,000 years ago. The great centers of pre-Inca culture were high up, as high as 12,500 feet above sea level where each night the temperature would drop below freezing. Edible crops were in short supply in this environment. But the potato was one of the few crops that could be grown at high altitudes. The Andean farmers came to rely heavily on the potato. They also found an ingenious method of preserving their staple crop.



Raw potatoes don't keep well, but by exposing their potatoes to the night air and then squeezing the water from them Andean farmers were able to produce freeze-dried potatoes, called *chuño*, and they were able to store them in sealed underground warehouses. The nutritional value of the potato is so high that you can live on them almost exclusively for a considerable length of time. They provide nearly everything a person needs, except calcium and vitamins A and D. And freeze-dried potatoes can hold their nutritional value for many years—they are an excellent hedge against crop failure and famine.

The Inca government collected the freeze-dried potatoes as tribute, kept them in imperial warehouses and distributed them to workers who were employed on official projects. The potatoes ensured a stable food supply and made it possible for the Inca to maintain a civilized society, to wage wars and conquer territory, and to build their network of roads and cities. The conquering Spanish adopted the Inca system, and used the freeze-dried potatoes to feed the thousands of laborers they used to mine the mineral wealth of the Andes.

In 1545, Spanish colonists discovered silver in Potosí Mountain in what is now southern Bolivia. Thousands of forced laborers were brought in to work the mines, and thousands of middlemen settled there to, as one historian put it, "mine the miners." By 1575, the mining town of Potosí was the largest—and richest—city in the Americas, with over 120,000 inhabitants, and it continued to grow as more fortune hunters arrived each day. An inexpensive food was needed to keep the workers alive—and freeze-dried potatoes did the job.

The silver taken out of the mines of South America flooded the rest of the world. In Europe, it allowed King Philip II and his successors to pay for Spain's imperial fleets and the armies that sailed with them. The windfall lasted for about a century; then the ore ran out and Spain's political and military power began to decline. The massive influx of silver from the Americas led to an unprecedented monetary inflation. With no Alan Greenspan to control the situation, constantly rising prices upset the traditional social patterns, altered economic relations and strained morals. Some people who were rich lost everything and some people who were poor became fabulously rich. But in the end, it wasn't the silver that would prove most valuable to Europeans—it was the potato.

THE POTATO TAKES ROOT IN EUROPE

When the first Spanish ships arrived in the Western Hemisphere, they found that familiar staple foods like rice, wheat, barley, rye and oats were entirely absent from the Americas. While Spanish settlers, who looked down on potatoes as fit only for Native American laborers, relied on corn as a substitute for European grains, the potato did catch on among sailors, who may have recognized that the vitamin C-rich tubers were effective against scurvy. The first potatoes to reach Europe traveled on Spanish

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ships returning from South America. Leftover potatoes came ashore with the sailors, and a few of the men tried to grow them at home.

The dry Spanish plains did not welcome the potato but it did do well in the wet, mountainous Pyrenees along the French border. By the end of the 16th century, potatoes were being grown by the Basques in Northern Spain. Even before Columbus's expeditions, Basque fishing fleets had been sailing across the North Atlantic and harvesting cod on the Grand Banks of Canada. As the cod fleets headed home from Canada, they would stop on the west coast of Ireland and dry their catch. Sometime in the late 1500s or early 1600s, some of those fishermen, who had become acquainted with potatoes at home, brought them to Ireland.

In addition to introducing the potato to Ireland, Spain introduced it to the rest of Europe. During the 1500s, Spain was in control of parts of Italy, where farmers in the Po valley just north of Milan began to adopt the potato. For most of the 16th century, the Netherlands were also under Spanish rule.

When the Dutch started fighting for their independence during the second half of the 1500s, they cut off Spain's northern shipping lanes, forcing the Spanish to reroute their supplies through the Mediterranean to Italy. From there troops crossed the Alps on foot, making their way up through Alsace and into the Low Countries. This route connected Spain's imperial provinces and became known as the "Spanish Road." Potatoes took root in peasant gardens all along its path.

HIDDEN LUNCH

In those days armies were expected to supply themselves with food from the countryside in which they were operating. Stores of grain in barns were easy pickings. As a result, wherever the local population depended on stored grain for their survival, starvation was the usual and expected result of major military campaigns.

One reason the potato became so popular was that the villagers who lived along the "Spanish Road" realized that potatoes could help them survive the brutal requisitioning that took place as the troops passed through. The soldiers of the 16th and 17th centuries loved pillaging—it was in keeping with their self-esteem—but digging potatoes out of the ground was just embarrassing. I mean, after all, there's the image of the uniform to uphold.

THE GREAT ESCAPE

Despite their suspicion of new foods, hard-pressed peasants appreciated the potato as it spread through western France and southern Germany. Farmers cultivated potatoes on a small but significant scale, primarily as a safeguard against marauding armies and failure of their grain crops. But the 17th century was not to be the potato's day in the sun, at least not in northern Europe. Agriculture was dominated by grain. Potatoes found some acceptance as animal fodder, but they were barred from large-scale cultivation because grain—and only grain—was allowed in the open fields: the established routine was not to be disrupted, since change was risky and could mean starvation.

Yet, in spite of its slow start, the potato eventually made its way from the family garden to the open fields. And as it entered the gardens and kitchens of Europe, it once again changed the course of world history—but this time the process required some official intervention. Around 1750, governments throughout Europe joined with landowners and pressed for the planting of potatoes. At the urging of a few dedicated botanists, they came to understand that, in spite of famine or war, potatoes could keep the peasants alive. And what's the point of being King if you don't have peasants?

THE POTATO IN IRELAND

In contrast, a grassroots movement was responsible for the early expansion of the potato in Ireland. The landless workers who rented tiny plots from commercial farmers realized early on—as had the villagers along the Spanish Road—that unlike any other crop, the potato could sustain a poor family through times of hardship. And Irish peasants lived with terrible hardship.

In 1650, Oliver Cromwell, intent on subduing the rebellious Irish, resorted to a scorched earth policy. Storehouses, mills, and fields were burned. Cromwell's troops even killed livestock in their determination to starve out rebel areas. It was in this setting that the value of the potato stood out. Potatoes grew underground, in small wet plots where they were difficult to burn. They stored safely and in concealed places within a farmer's cottage; they didn't need to be milled or processed. Planting didn't even require a plough—a family could plant an adequate crop using nothing more than a spade.

Following his campaign, Cromwell planned to replace the Catholic population of Ireland with Protestant veterans from his army. Irish landowners—who were Roman Catholics—were forced to exchange land owned in the East for poorer land in the West. The defeated Irish, who had grown a mixed crop of oats and potatoes, supplementing their income and diets with

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cattle grazing, came to rely more and more heavily on the potato.

As the 17th century wore on, speculators—interested only in profit—bought out almost all of the land that had been occupied by Cromwell's veterans and their heirs. Raising cattle had long been the traditional safety net for Irish farmers, and many of these new landlords found that the best way to make money on Irish soil was commercial cattle grazing. They raised cattle, sent them to the ports of Dublin and Cork for slaughter, and shipped them abroad. By the beginning of the 18th century, Ireland had become Europe's leading exporter of beef.

At the same time, English commercial farmers were expanding their Irish operations, making Ireland an exporter of grains, but as commercial farming expanded, it left less and less arable land available for the native Irish. Under punitive English laws, Catholics weren't allowed to buy land, or hold onto a plot of land if Protestant landlords could make a claim to it. They were forced to rent whatever leftover land they could find.

Commercial farmers and cattle grazers soon realized that English laborers lived on bread and cheese and were much more expensive to feed than the native Irish, who had learned to make do with a far cheaper diet of potatoes and milk. Though a potato diet may have been monotonous, along with milk to make up for the calcium and vitamins lacking in the potato itself, it was nutritionally adequate. Since even a small potato crop could produce so many calories, it meant that a single acre of potatoes and a single cow could feed an entire Irish family. And given the shrinking amount of land available for rent, it wasn't uncommon for an Irish family to find itself with only a single acre.

To a great extent, the Irish reoccupation of the southern part of the island took place because Protestant English landowners found the Irish work force irresistible—they could be kept alive on almost nothing. Knowing this, landlords were able to keep wages low; in many areas, a system known as "conacre" was used: in place of wages, tenant laborers on commercial farms were granted short-term leases to small plots of land where they could grow potatoes. Accordingly, the Catholic Irish labor force eased back into the counties from which their ancestors had been forcibly removed—but they did so on far worse terms, squeezed onto tiny plots of rented land and completely dependent on their potato crops for survival.

The potato kept the poor of Ireland healthy, and the Catholic population increased rapidly over the course of the 18th century. The expanding population was highly susceptible to shifts in the economy—a growing pool of laborers sought to supplement shrinking wages by raising a few pigs, or by growing and selling exportable grain crops on plots of land, while they lived on potatoes. The demand for land drove rents up, and the demand kept growing as the population kept growing and competition increased for ever-smaller plots. To make matters worse, English trade practices and a slackening of demand in Europe nearly destroyed the traditional Irish textile industry, leaving thousands unemployed. By the middle of the 19th century, the Irish—nearly eight million of them—were desperately poor, and becoming poorer.

During the first half of the 19th century, tensions started rising: Irish Catholics began to demand their rights. English trade laws governing Ireland led to wild fluctuations in the prices of grain and other exports. That drove wages down even further. The Irish economy suffered under tariffs designed to protect English agriculture and industry. But the terrible, unforeseen climax took place in 1845, when a sudden outbreak of blight—a particularly virulent fungus by the name of *Phytophthora infestans,* which had recently arrived from the United States—nearly destroyed the entire potato crop. For Ireland's poor, trapped by economic and political circumstances and living more or less exclusively on potatoes, the potato famine was disastrous.

The crop failed again in 1846 and 1848. English tariffs prevented the emergency importation of substitute grains. Relief efforts eventually got underway, but they were too little, too late. In the end, in a three year period over a million people died of starvation and disease, out of a population of only eight million. For many others, there was no choice but emigration. By 1850, over a million more had left Ireland, with most immigrating to the U.S. The Irish who arrived in the United States had an extraordinary impact on our history.

"Now, the Irish, of course, have been coming since the Colonial period. But their biggest wave was certainly in the 19th century, and one of their biggest contributions was that they arrived in such huge numbers. It forced America to rethink what it meant to be American, and expanded the definition. America was not particularly pleased with the arrival of the Irish and it took a couple of generations, to accept them as Americans.

"You could look at something like the St. Patrick's Day Parade. It's held all across the country now. Every year on March 17th. It's a celebration of Irish identity. But it's been copied

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and replicated by every immigrant group since. Probably the most evident contribution the Irish made is in the role that they played in building the American economy as laborers.

"They came with very few skills, with almost no money for the most part, but they did arrive with the need to work and the willingness to work, and if you look across America, the great infrastructure that made America the greatest economy in the world by the early 20th century—the railroads, the canals, the great projects like the Brooklyn Bridge—all were built overwhelmingly with Irish labor. Many other groups participated too, but the Irish really were the key contributors to that development."

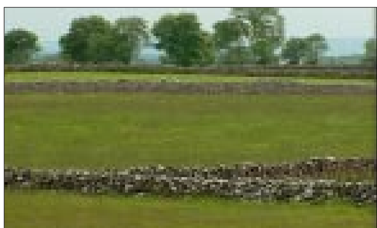
—Edward T. O'Donnell

Potatoes had become a basic part of virtually every meal in the Irish peasant home. When the Irish refugees from the potato famine arrived in North America, they continued that tradition.

THE POWER BEHIND THE INDUSTRIAL REVOLUTION

But the most extraordinary worldwide impact of the potato during the last 250 years was the way it helped a few states in northern Europe build a political, industrial and military base that gave them control over much of the planet.

By the beginning of the 1700s, peasants in northern France, Germany, Poland, and Russia had learned that a potato crop could help keep them alive during times of war. The potato was the best and cheapest famine insurance they could find. During the 1740s, Fredrick the Great of Prussia realized the same thing and ordered his government to have potatoes planted throughout his kingdom. Free potato seeds were distributed with instructions on how the plant was to be cared for. As a result, even when French, Austrian and Russian troops invaded Prussia during the Seven Years' War, Frederick's peasant farmers escaped disaster by eating potatoes. The potato helped ensure the survival of the Prussian state.



The armies that invaded Prussia became aware of the benefits of the potato and brought the plant back to Austria, France and Russia. In France, Antoine Augustin Parmentier, an army doctor who'd lived on potatoes while serving time in a Prussian prisoner-of-war camp, became the potato's leading proponent. At the time, potatoes were considered little better than animal fodder in much of France. The governments of all three countries made sure that potatoes became part of the crop. The peasants quietly began to incorporate the potato into their diets.

Potatoes require a bigger workforce than grain. But potatoes yield two to four times as many calories per acre. As potatoes spread through Europe, a feedback process set in: more potatoes produced more calories, more calories produced a larger population, and a larger population produced more field workers, who produced more potatoes. The population of northern Europe grew as fast as the potato plants. In fact, the rate of population growth in northern Europe far outstripped what was taking place in other parts of the world.

While the European upper classes never gave up grain in favor of the potato, and grain remained dominant in agricultural commerce, the potato did become the staple food for the poor—and the new working classes across Europe. Nutrients from the potato contributed to a population increase that was big enough to supply not only the additional labor for field farming the potato, but with the workforce Europe needed for its transformation into an industrial society. Workers left the fields for the new factories that were made possible by the shift into fossil fuels like coal. Unlike the physical force needed by the Incas and Spaniards to drive workers into the mines, industrialists only needed to offer a subsistence wage, or something close to subsistence, and a suitable number of workers came out of the countryside and into the mines and factories to drive the growth of industrialization.

The rapidly growing European population also filled the ranks of the imperial armies and navies, and their victories throughout the world allowed millions of Europeans to migrate overseas. The potato also helps explain the rise of northern Europe that started about 1750 and lasted for 200 years. It is certain that without the extra food supplied by the potato Germany and Russia would not have become leading industrial and military powers.

This lesson has not been lost on the developing world. Today, the potato is catching on in Africa and Asia, where nations struggling to feed hundreds of thousands of hungry people have been turning to the potato. In South Asia and in some parts of Africa, per-capita potato consumption has outstripped consumption in many European countries. These days, Rwandans eat more potatoes than the Irish.

FRIES & CHIPS

Once the potato became a basic part of the peasant diet of Europe, it began its ascent to a higher social status. During the early 1800s, street vendors in Paris started offering slices of fried potato. They were shaped like a quarter moon and called *Pommes de terre Pont-Neuf*, which translates as "New Bridge

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Potatoes". They were named after one of the bridges that cross the River Seine and turned out to be an early form of the French fries we know today.

By 1870, fried potatoes had made their way across the channel to England, where street vendors put them together with fried fish to create England's national fast food. At about the same time, they probably came over to the United States.

A recipe for slices of deep-fried potato shows up in an American cookbook dated 1878. But what Americans call French fried potatoes are known as *chips* in England and what we call *chips* in America are called *crisps* in England, which of course makes perfect sense when you remember that George Bernard Shaw pointed out that the Americans and the English are two peoples "divided by a common language."

These days, Americans buy over three billion dollars worth of potato chips each year. But Americans eat most of their potatoes in the form of French fries. Each year, Americans consume over thirty pounds of French fries per person. During the 1780s, Thomas Jefferson was our ambassador to France and seems to have spent much of his time in Paris drinking wine and collecting recipes. When he returned to the States, he brought with him a recipe for perfect French fried potatoes. But in spite of their introduction by a gastronome of Jefferson's standing, fries did not become very popular with Americans until the end of the First World War when American troops returned from the French front with a love of French fries.

They became even more popular during the 1930s when people started driving around the country in their own automobiles. Roadside restaurants began to serve fries because they were easily eaten in a car.

At the end of the Second World War there was a fantastic growth in the use of frozen foods, and the French fried potato became a major item in the new frozen food cases that were being introduced in supermarkets. They also became the most popular food item in the restaurant business—for decades they have been the most profitable offering in fast food.

So there you have it: the story of the potato. From South America, to Spain, from Spain to Ireland, through Europe, Africa, Asia, North America and finally back to a McDonalds in South America. Five hundred years of baking, sautéing, whipping, mashing and deep frying that dramatically changed the history of the world.

To Learn More

1001 Things Everyone Should Know about Irish-American History
by Edward T. O'Donnell
published by Broadway Books

The Irish Famine
by Peter Gray
published by Harry N. Abrams, Inc. / Discoveries

The Great Irish Potato Famine
by James S. Donnelly, Jr.
published by Sutton Publishing

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