Potatoes in Europe before 1600

This article is about the potato (*patata*), and is not about the sweet potato (*batata*), nor about any other root. In reading early documents, care has to be taken to be sure that the writer is in fact referring to the potato. Most of the details in this article are from, or related to, my book on Lancelot de Casteau's *Ouverture de Cuisine* (not yet published). The first version of this article was prepared for a talk given in 2019.

In the early years there was some confusion in Europe between potato and truffle, and some words for the potato are variations of the Italian "tartoufle" ("truffle"). Both grow underground, have similar shapes, and have thin skins. The potato was called "earth apple" in France ("pomme de terre") and in the Netherlands ("aardappel"). In Spain it is called "papa", the same word used by the Andean people.

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What was unusual about the potato, characteristics that would slow its spread to Europe, and within Europe?

1) While potatoes grew wild in many places in the Americas, they were only cultivated high in the Andes, average altitude 9000 feet, which meant that the Spaniards were unlikely to notice potatoes until they reached the high Andes, which they only did after they had invaded Peru and Columbia. Despite their tropical location, the cultivated potatoes were adapted to the much cooler temperatures of the high Andes, and did not grow at sea level.

2) The cultivated potatoes in the high Andes grew no further than 26 degrees from the equator, which meant that they were adapted for almost equal day and night ("short day tuberization"). This meant that in Europe the plants would not start setting their tubers until about mid September. The crop would not be ready for harvest until late October or even early December, which could run the risk of serious frost damage, especially with the colder weather of the late 1500s and early 1600s.

There are three exceptions to these first two points. I'll get to them later.

3) The potato belongs to the *Solanum* family, which was viewed with suspicion, because some species from the family, such as the deadly nightshade, were known to be poisonous. The stalks and leaves of the potato are poisonous, a green potato is poisonous, and some species of wild potato are poisonous.

4) While most potato species can be grown from seed, the potato is normally grown by burying a tuber, or portion thereof, in the ground. This procedure was different from any other European crop of the time. An attempt in the Netherlands in about 1600 to grow potatoes from seed produced no tubers. What you get from planting tubers are genetic clones of the original. Cloned crops, on their own, tend to be at higher risk for disease. Potatoes for next year's planting must be stored properly for months, so that they don't rot, which is more difficult than for seeds. Transporting potatoes for planting elsewhere, such as from the Andes to Europe, is even more challenging.

The Andean peoples cultivated seven different species of potato in over 2,000 varieties. They would plant multiple species and varieties (up to 200 in a single field) to ensure that disease, drought, pests, or frost would leave at least one crop to harvest, even if from a less tasty species. The Andean peoples had spent hundreds or thousands of years deliberately and expertly developing the potato for food.

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These are the seven species cultivated by the Andean peoples.

• The species *Solanum tuberosum* is by far the most widespread species today, and was the most widespread among the Andean people.

• 2 species, *S. goniocalyx* and *S. stenotomum* are also cultivated.

• 1 species, *S. phureja* is grown at lower altitudes, and has a couple of exceptions of its own -- it does not require equal day and night to produce tubers, and does not have a dormancy phase.

• 3 species, *S. ajanhuiri*, *S. juzepczukii*, and *S. curtilobum* are frost-resistant. Two of these, *S. ajanhuiri* and *S. juzepczukii*, are sexually sterile, and can only be propagated by planting tubers.

5) There would eventually be rumours in Europe that the potato caused leprosy; and opinions that the potato should only be fed to pigs. It is my assessment that these had no effect on the pre-1600 adoption of the potato in Europe, though they do seem to have affected more widespread adoption in the later 1600s and in the 1700s.

These five points represent many risks. Farmers in Europe at the time tended, very sensibly, to be extremely cautious about new crops. They would only risk trying something new, especially something as radically different as the potato, if they saw a neighbour growing and eating the potato successfully. This was a major factor in the very slow spread within Europe. A pre-1600 example from a small region in France shows a rate of spreading of about 1 km per year. At that rate, it would have taken over 500 years for the potato to have spread from that region to near Paris. Fortunately for the potato, sometimes a farmer or a potato enthusiast would move to a distant place, take the potato with them, and start a second region of introduction.

Before 1600, the potato was definitely not widespread in Europe, but rather was grown and eaten in a number of small relatively isolated areas in France and Italy, and presumably Spain (near Seville and Toledo). The potato was deliberately grown on the Canary Islands, which are a part of Africa colonized by Spain. It was grown in Germany and Switzerland by 1600, though perhaps only in the gardens of botanists.

How and when might the potato have left South America?

We have zero -- zip, zilch, nada -- solid information about how the potato actually made it to Europe.

We note that many plants discovered in the Americas made it to Europe within a year, and we usually know who brought them. So why did the potato take very much longer? The first recorded direct contact with the potato in South America was in 1537, and the first printed reports about the potato appeared in 1552 and 1553.

The early Spaniards might have seen potatoes when they raided the Caribbean coast in search of slaves and treasure in the 1490s (and later). But they might not have actually noticed those potatoes, having bigger things to seek, particularly silver and slaves. And of course they would not have seen potato plants being grown.

In the standard narrative, it was not until 1532 in the Andean highlands of Peru, or 1537 in the Andean highlands of Columbia near Bogotá, that the Spaniards would have seen fields of potato plants. In both cases the Spanish were engaged in conquest, and it might have taken months or even years for someone to decide that they wanted to learn how to eat the potato, and then learn how to grow the potato, and then decide to take the potato to Europe. In both cases, the transport of the potato tubers to Europe would have required one or more slow land transport stages plus one or more lengthy ocean voyages.

So we get to our **first exception**, an observation that may be original with me, that I first noticed in 2012:

The first meaningful encounter between Spaniard and potato could have happened seven years earlier. In 1525 the Spanish town of Santa Marta was established on the north-east (Caribbean) coast of Columbia. Unlike most Spaniards, the governor of Santa Marta, Rodrigo de Bastidas, had a policy of respect, humanity, and friendship towards the indigenous peoples. He maintained peaceful relations with them. He was joined four years later by a missionary, Jerónimo de Loaysa, who was also a consistent defender of the indigenous peoples. Furthermore, there was an indigenous city in the high Andean Sierra Nevada only 50 kilometres inland from Santa Marta. Transport of the potato to Europe from Santa Marta would have required no slow land transport stages. While there is no evidence of Santa Marta being the first transit point in the potato's voyage to Europe, the preconditions for knowledge and tuber transmission were unusually favourable.

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Whether the earliest possible date was 1525, 1532, or 1537, we can probably assume at least a year for someone to decide that the potato was sufficiently edible, and to learn enough about one variety of the potato to be able to grow it. Add an extra year if the person was with an army engaged in conquest. Add another year to transport that potato to the most likely destination, Seville in Spain, where the potato was perhaps first grown in Europe in the mountains near Seville. Add four years for potato production to be expanded to the Canary Islands. Add another four years to have potatoes ready for export from the Canary Islands back to Europe. Those four-year durations are based on two estimates. The estimate by Hawkes and Francisco-Ortega was that it would take five years to convert a few potatoes into an entire field of potatoes with a surplus for sale (quoted in Ríos et al.). Salaman suggests three years (Salaman 143). Add a year or more if the first shipment rotted on the voyage, or failed to grow properly in Europe. Why have I mentioned the Canary Islands? We'll find out in a few minutes.

The earliest feasible dates for the potato to actually be in Europe would be 1527, 1535, or 1540. For availability for export from the Canary Islands, perhaps 1535, 1543, or 1548. For all of these dates, random variations in human behaviour and luck could have delayed matters further, or sped matters up.

Now that we're drowning in dates, we get to our **second exception**. This is another observation that may be original with me. Interestingly, I first noticed this in 2019 while doing some additional research for an earlier version of this article.

Olivier de Serres, 1600, says that his potatoes in France matured near the end of September. (Salaman 87) That September date suggests that he had potatoes from the species *Solanum phureja*, which does not require equal day and night, rather than from the usually-assumed *S. tuberosum*. Were any of the other potatoes that reached Europe in the 1500s from *S. phureja*? If so, this would have helped somewhat with early dissemination in Europe, by avoiding the late fall harvest problem. A potential downside of *S. phureja* is that with no dormancy phase, the potatoes might try to sprout too soon, rather than waiting for weeks or months.

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And now for our **third exception**.

There is one place in South America where the potato was growing at sea level, far enough from the equator that the setting of tubers was not tied so rigorously to equal days and nights. The island of Chiloé off the southern coast of Chile had such potato varieties. While the Spanish conquered the island in 1567, they probably would not have initially realized how useful these varieties would be in Europe far from the equator. We do not know when potato varieties from Chiloé first made it to Europe. The difficulties of successful transport would have been daunting, and multiple attempts would perhaps have been needed. These varieties of *Solanum tuberosum* did, however, eventually make it to Europe, and would eventually be the foundation of the European potato and then the worldwide potato.

Regardless of where the potatoes came from, there were almost certainly multiple independent introductions of the potato into Europe before 1600.

When you least expect it, we reveal a sixth unusual thing about the potato.

6) The Andeans invented freeze-drying, and turned potatoes into *chuño*, which they stored for bad years, or traded when they had a surplus. The three frost-resistant species mentioned earlier were insipid or bitter, and were almost always made into *chuño* rather than eaten directly. *Chuño*, in turn, could be eaten; or could be ground into flour and used for cooking.

Six unusual things aren't enough, we also have a seventh unusual thing.

7) Some species of wild potato that were poisonous could be consumed safely by eating them with a particular kind of clay that counteracted the tomatine poison. (Johns)

Oh, and the eighth, ninth, and tenth unusual things.

8) The potato was very nutritious.

9) The potato had an unusually high yield per acre.

10) The potato was turned into alcohol (*chicha* and *chakta*) by the Andean peoples.

When might the potato have reached Europe?

First, the solid dates:

1567: A barrel full of potatoes, accompanied by a barrel of oranges and a barrel of lemons, arrived in Antwerp, Belgium, from the Canary Islands. (Lobo Cabrera)

1573: Potatoes are recorded as food for a hospital in Seville, Spain. [this date has been known since 1934] (Ríos et al. quoting Hawkes and Francisco-Ortega)

1574: Potatoes arrived in Rouen, France, from the Canary Islands. (Ríos et al. quoting Hawkes and Francisco-Ortega)

1585: Two potato recipes in a Spanish cookbook. (Martinez Montiño)

1587: A potato plant in Mons, Belgium. (Salaman 90 quoting Charles Clusius)

before 1591: A potato plant in Kessel, Germany. (Wiegelmann 76 quoting Wilhelm von Hessen)

and for fun

1719: The first permanent cultivated potato fields in North America in Londonderry, New Hampshire, using potatoes brought from Ireland. The 1722 town charter required the payment of quit-rent in potatoes. (Willey)

Second, the probable dates:

1557: Boiled potatoes in a menu for a banquet in Liège, Belgium. (de Casteau)

1560s or later: Potatoes cultivated in Italy. (multiple independent sources, including Clusius, that when combined raise the likelihood to probable)

1580: Hans Fugger in Augsburg, Germany, receives potatoes from Venice, Italy. (Gentilcore 24)

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Third, the shaky dates:

1540 or so: Potatoes introduced to Bécuse, France, by a monk returning from Toledo, Spain. (Liebaers et al. 255–256 quoting Gourdol quoting Charles du Faure de Saint-Sylvestre) (I have failed to find a copy of Charles du Faure de Saint-Sylvestre to assess the accuracy of his claims)

1553: Malpeaux says that Ravius introduced the potato into Spain. (Salaman 145)

1565: Potatoes sent by Phillip II of Spain to Pope Pius IV in Italy. (Moulin 156)

Fourth, an extremely shaky date:

1545: Potatoes in a menu for a feast in Chambord, France.

1567 is currently the earliest cast iron date for potatoes in Europe. Potatoes would have been in Europe for many years before that, but we can't say for certain when or where. There are earlier dates that may be highly probable. My personal assessment is that 1527 would be the absolutely earliest possible date (though unlikely) to have potatoes grown in Europe. Somewhere in the 1530s is more likely, with the 1540s as a second choice.

Recipes for potatoes, and descriptions of preparation. (these are all that I am aware of)

a) de Cieza, Spain 1553 [speaking of indigenous preparation in South America]
One is called potatoe, and is a kind of earth nut, which, after it has been boiled, is as tender as a cooked chestnut, but it has no more skin than a truffle, and it grows under the earth in the same way. (de Cieza 143)

b) Martinez Montiño, Spain 1585 [these are mentions, but without details]
A recipe *Capones Asados* (Roasted capons) describes fried mashed potato balls used to garnish capons. A second recipe *Olla Podrida* includes potatoes. (Martinez Montiño)

c) Wilhelm von Hessen, Germany 1591
It is boiled until the skin can be removed, the cooking water is discarded, and then the potato is cooked in butter until done. (Wiegelmann 76)

d) Gerard, England 1597 [at least three more recipes in later editions]
Rosted in the embers, or boiled and eaten with oile, vineger and pepper. (Gerard 782)

e) Olivier de Serres, France 1600
As to the taste, the cook so dresses all of them [potato and truffle] that one can recognize but little difference between them. (Salaman 87)

f) Charles Clusius, Austria 1601
Italians ... cooked [the potato] with mutton in the same manner as they do with turnips and the roots of carrots. The Papal Legate had them cooked like carrots or parsnips. (Salaman 90 104)

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g) de Casteau, Liège 1604 (while printed in 1604, this represents recipes from about 1545 to 1590)

119. Boiled potato. [listed in a 1557 menu]
Take well-washed potato, and put it to boil in water. Being cooked it is necessary to peel it and cut into slices, sprinkle melted butter on top, and pepper.

120. Potato otherwise.
Cut the potato into slices as above, and put it to stew with Spanish wine and new butter, and nutmeg.

121. Otherwise. [Stewed potato] [also included in a recipe for *Olla Podrida*]
Take the potato in slices, and put to stew with butter, chopped marjoram, some parsley: then take four or five egg yolks beaten with a bit of wine, and pour it on top all while boiling, and pull away from the fire, and serve thus.

122. Otherwise. [Roast potato]
Put the potato to roast in the hot cinders as chestnuts are cooked, then it is necessary to peel it and cut it into slices, put on top chopped mint, some boiled currants on top, and vinegar, a bit of pepper, and serve thus.

h) Bauhin, Switzerland 1620
Here [in Basel] one sometimes roasts them under the cinders like truffles, removes the skin, and eats them with pepper. Others roast them, clean them, cut them into slices, sprinkle them with good fat and pepper, and eat them. (Bauhin 90)

There is also a recipe that is often suggested as being for potato, but I do not hold that view, concluding that it is probably for a New World squash (based on the cooking style), I have placed it here at the end of the recipes.

i) Rumpolt, German 1581
Earth apples. Peel and cut them small parboil them in water and press (or dry?) it well through a hair cloth chop them small and roast in bacon that is cut small take a little milk with it and let cook together like this it becomes good and well tasting. (Rumpolt Zugemüß 37)

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