

THE "VIRGINIA" POTATO.

BY W. R. HERARD.

In an interesting article on Harvard's Botanic Garden, in a recent number of the SCIENTIFIC AMERICAN SUPPLEMENT, the author remarks that "almost the earliest mention of potatoes, after their introduction from Virginia into Ireland in 1584 by Sir Walter Raleigh, is made by Falstaff in The Merry Wives of Windsor, where he says: 'Let the sky rain potatoes; let it thunder to the tune of Green Sleeves, hail kissing-comfits, and snow eringoes.'" The potato of Shakespeare, however, and of all writers from the middle of the sixteenth to about the middle of the seventeenth century, was the root to which the name rightfully belongs—that of *Batatas edulis*, Choisy (*Convolvulus edulis*, L.), one of the most widely distributed plants of Central and South America.

The first mention of the aboriginal name *batata* or *batata* is found in the Ninth Book of the Second Decade (published in 1516) of the New World of West India by Peter Martyr, who gives it as the designation of an edible root found in use among the natives of the province of Uraba, Darien.¹ In the Fourth Book of the Third Decade, he mentions the *batata* among the vegetable products found in Honduras when Columbus, in his fourth voyage, landed on that coast in 1502. The Spaniards adopted the name and thereafter applied it wherever they found the root in cultivation or wherever they themselves introduced it, and thus gave the Darien appellation (varied by different writers to *patata*, *potata*, *potato*, *potada*, *padada*, etc.) a wide dissemination.

According to Gomara (Hist. de las Indias, 1553), Columbus carried the potato, among other products of the New World, to Spain on his return home in 1504, and presented it to Queen Isabella. The consequence was that the culture of the plant, which is well suited to the climate of that country, was soon afterward begun there, and subsequently in other parts of southern Europe, and by the middle of the sixteenth century had become common.

At an early period the roots were imported from Spain and the Canary Islands into England, where, when steeped in wine or made into confections, they were believed to have the power of restoring decaying vigor, a fact to which, as well as to the supposed aphrodisiac properties of eryngo root, covert allusion is made in the above quotation from Shakespeare.

The transfer of the name to the tuber of *Solanum tuberosum* is due to John Gerard, who in his description of it (Herball, 1597, p. 781) says: "Because it hath not onely the shape and proportion of Potato's but also the pleasant taste and vertues of the same, we may call it in English Potatoes of America or Virginia." Such a transfer was unfortunate, since it was subsequently to involve the necessity of using epithets, colloquially and in print, to distinguish the two esculents—those of "Irish," "English," "round," "common," etc., for the *Solanum*, and of "sweet," "Spanish," "Carolina," "Bermuda," "West India," "long," etc., for the *Batatas*.

The common potato (which, by the way, is a thickened underground branch of the stem, and not, like the sweet potato, a tuberous root) was, at the time of the discovery of America, in cultivation from Chili, to which it is indigenous, along the greater part of the Andes, as far north as to New Granada. It was introduced from Quito into Spain about 1580 under the name of *papa*,² which, in Spanish, it still bears. From Spain it found its way to Italy, where it became known as *tartuffalo*,³ and thence was carried to Mons in Belgium by one of the attendants of the Pope's legate to that country. In 1588 it was sent by Philippe de Sivry, governor of Mons, to the botanist de l'Écluse, professor at the University of Leyden, who, in 1601, published the first good description of it under the name of

¹ "They dygge also owte of the ground certeyne rootes growyng of them selves, whiche they caule *Batatas*." Martyr, Decade II., Book 9 (Eden's translation, p. 82). The expression "growing of themselves" is interesting in view of the statement that has been made that the plant was never found in a wild state.

² The word *batata* belongs to the Urabak language of Darien. Oviedo (Hist. general y natural de las Indias, 1525) states that he had observed the root in extensive cultivation in St. Domingo. Its name there must have been, among the natives, *hayiti*, since the Arawaks of the Greater Antilles substituted *y* for the *l* and *r* of other dialects, and the Arawak name of the root in South America was *haliti* or *hariti*. The Caribs of the Lesser Antilles called it *mabi*, whence the word "mobby" adopted in English as the name of a fermented beverage made from the root.

³ Except in Mexico, where they adopted the word *camote*, from Aztec *camotl*, and afterward introduced it into Peru, where it supplanted the Kechua name *apichu*.

⁴ According to the late Prof. James Orton (The Andes and the Amazons, p. 102), *papa* is the name of the potato in the language of the Napos, a people whose country, called by the Quito government "La Provincia del Oriente," lies on the eastern slope of the Ecuadorian Andes, and was formerly part of Peru. The trade in the natural products of the country is monopolized by Quito.

⁵ From Ital. *tartuffalo* ("earth tuber") was derived M. H. Ger. *Tartuffel*, and, by dissimilation of the two *t*'s, the Ger. *Kartoffel*. French *pomme de terre* is a translation of *aardappel*, the Dutch name.

Papas Peruanorum, and stated that it had then spread throughout Germany. Recommended in France by Caspar Bauhin, the culture of the tuber rapidly extended in 1592 throughout Franche Comté, the Vosges, and Burgundy; but the belief becoming prevalent that it caused leprosy and fever, it underwent an ordeal of persecution from which it did not recover until three-quarters of a century afterward.

It is positively known that the potato found its way into Ireland in the later part of 1585 or the beginning of 1586, and all authors, with scarcely an exception, who have written on the subject, ascribe its introduction into that country to some of the colonists who were sent to Virginia by Sir Walter Raleigh in the middle of 1585, and who, becoming discouraged, returned home in the fleet of Sir Francis Drake in the fall of 1586. Dominique Chabrée, a Genevese botanist, who wrote in 1666, tells us that the potato was known to the natives of *Virginie insula* (Roanoke Island) by the name of *Openauk*, a statement repeated by Sir Joseph Banks (1805), and deemed worthy of credence by de Candolle (1883). Let us see what basis there is for the belief, as well as for the statement that has passed unchallenged for three centuries, that the potato was found in cultivation among the Indians of Virginia. Thomas Hariot (the surveyor and historian of Raleigh's first colony, of 1585), in his "Briefe and True Report of the New Found Land of Virginia" (written in 1588), gives the native names of and describes sixteen vegetable productions which were used as food by the Renape Indians of Roanoke Island, and of which six were subterranean. As the latter have never hitherto been identified, it may prove of interest if I enumerate them and give their native and scientific names and their uses. They are as follows:

(1) *Okeepenauk* (pl. of *okeepen*), "earth tubers." These were those round or roundish objects, often as large as a man's head, that are occasionally turned up by the plow in old fields, and which were formerly supposed to be fungi, and, as such, were described under the name of *Pachyma cocos*. The productions are now known to be due to a disintegration of the cellular tissue of the roots of certain trees (mainly coniferous), through a pathologic process called pectosis. The interior white mass consists entirely of pectose and is of little or no nutritive value. It was used by the Indians only when there was a scarcity of other food. "Indian bread," "Indian loaf," "Indian potato," "Indian truffle," and "tuckaho" (from *ptuk-weu*, "it is round") are some of the popular names of the object.

(2) *Coscushaw*, a root which was taken by some of the colonists to be cassava. It was the thick, fleshy rootstock of *Peltandra alba*, the "arrow-arum," "wamp-pee," and one of the several roots called "tuckaho." This, after having been sliced and placed in the sun or near a fire in order, by drying, to dissipate its acrid juice, was pounded into flour which was used as a bread material. Its nutritive value is due to the large amount of starch which it, in common with the rhizomes of most of the Araceæ, contains. The acrid and pungent berries of the plant were used by the Indians for boiling with their venison.

(3) *Tsinaw*, "a kind of roote like unto the which in England is called the *China root*." It was the tuberous rootstock of *Smilax Pseudo-China*, the brown fecula obtained from which was employed for making bread, and, by boiling, for making a jelly, which Hariot pronounces "a very good spoonmeat." *Tsinaw* is not an Indian word, but represents an attempt of the natives to pronounce the word "China," heard from the mouths of the English.

(4) *Habascon* (miswritten for *habonsikan*), "used with what is boiled." It was the aromatic root of *Ligusticum actæifolium*, called "angelico" or "non-do,"⁶ which was highly esteemed by the Southern Indians as a flavoring material for their soups, stews, and boiled meats.

(5) *Kaishucpenauk* (pl. of *kaishucpen*), "sun roots," a name which shows that the capitula or flower-heads of the plants were called *kaishuckanauk*, or "imitation suns." They were the tubers of *Helianthus tuberosus*,⁷ the "Jerusalem artichoke," which were boiled as food.

(6) *Openauk* (pl. of *open*), the general Algonkian

⁶ From the Powhatan (Renape) name of the root, viz., *wonâeu*, "it is boiled" (pronounced *wonâo*, and corrupted by the inhabitants of Virginia to *nondo*.)

⁷ The Jerusalem artichoke is one of the plants characteristic of the Middle West, although now pretty widely distributed as an introduced plant, and extending in this way to Maine and south to Pennsylvania. It was never found indigenous in the country east of the Mississippi River. The fact of the cultivation of the plant on Roanoke Island, and, apparently, or the Chickahominy (although perhaps sparingly there), is interesting in more respects than one. Taken in connection with the presence in the southern Renape dialects of some loan and radical words and of a few inflections not found in the Renape dialects of Delaware, Pennsylvania, New Jersey, and New York, but common to the Algonkian languages spoken around the Great Lakes and in the region formerly known as the Northwest Territory, it shows that these southern members of the great Renape (or Lenape) group entered Virginia in prehistoric times, via the northwest, from the country beyond the Ohio River.

name (with slight variations according to dialect) for the tubers of the leguminous plant *Apios tuberosa*, popularly called "wild potato," "Indian potato," "ground-nut," "potato-pea," etc., and, by the French of Canada, "*pomme de terre*."⁸ *Open* is from *pen*, meaning "root" in composition, and a vocalic prefix which has lost its meaning, if it ever had any. The tubers, which are numerous, white, and like small artichokes, are farinaceous and tender and very good boiled or roasted. They are extensively employed by the Indians as food wherever the plant grows, that is to say, from New Brunswick (British America) to Florida, and west to Minnesota, Kansas and Louisiana. It was the tubers of this widely-distributed leguminous plant (very well described by Hariot) that were mistaken by Chabrée, Banks, and De Candolle for those of the *Solanum*, with which, as may be seen, the Indians, as might be expected, were unacquainted. How, then, did the belief originate that the potato was introduced into Ireland from Virginia? That is a question that can be easily answered. Sir Richard Grenville, acting for his cousin, Sir Walter Raleigh, sailed from Plymouth April 9, 1585, with a fleet of seven ships carrying 108 emigrants for founding a colony in Virginia. Reaching the coast of North Carolina (then Virginia) late in June, he landed his charges, and, after seeing them safely established on Roanoke Island, set sail for England. On his way thither, somewhere in mid-ocean, he fell in with a 300-ton Spanish ship, homeward bound from St. Domingo, which attacked him, but was soon overpowered and captured and taken as a prize to Plymouth. It was undoubtedly from the cargo of this ship, which is said to have been richly laden with products of the New World, that came the potatoes which Raleigh sent to the manager of his estates at Youghal, County of Cork, Ireland.⁹ The culture, begun here on a small scale, gradually extended, and the "spud" (as the Irish call it) became an important article of food in Ireland long before it was even known in England. From Ireland the culture was introduced into Lancaster, where, by the end of the seventeenth century, it had assumed large proportions. At the beginning of the eighteenth century the tuber became an article of export from Ireland and Lancaster to Jamaica and the British colonies of North America, where, from its place of shipment, it received the name of "Irish" and (more rarely) "English" potato.

Potatoes were served, perhaps as an exotic rarity, at a Harvard installation dinner in 1707; but the "murphy" (as the tuber is sometimes humorously called in Canada, New England, and New York, in allusion to the commonest of Irish surnames) was not brought into cultivation in New England till the arrival of the Presbyterian immigrants from Ireland in 1718.

A NEW AIRSHIP.

A new airship is being prepared for its first flight at Mrs. Phoebe Hearst's country home at Verona, Cal. It is the invention of C. H. Toliver, who has patents pending in Germany and other foreign countries, the laws of which do not permit a means of transportation of this kind to be taken on a trial trip until the letters patent have been issued. The machine has a propeller at each end and four at the sides for steering purposes. The balloon is rigid and non-collapsible; it contains 190,000 feet of material and will carry 6,700 pounds in addition to its own weight. This is equivalent to about thirty people.

The machine is 223 feet long and 40 feet in diameter; it is cylindrical and tapers at both ends. Its distinguishing feature is that the cabins are inside the balloon, from which nothing is suspended except the propellers. There are four 18-horse-power gasoline engines, the propellers being worked with a ball and socket and being arranged in such a manner that the machine can be steered without a rudder and can be turned without being under headway. It is intended that the new craft shall rise above storms.

PHOTOGRAPH OF THE "PENNSYLVANIA."

Owing to an oversight, the copyright notice was omitted from underneath our engraving of the "Pennsylvania," on the front page of our issue for September 1. The picture was taken by Mr. E. Muller, who holds the copyright.

There is now hardly a town or even a village in the district of Bilbao, especially when situated in the vicinity of running water, where electric light is not used. A great use has been made during the year of electric motors for small industries and workshops, these replacing in many cases small steam engines. As far as Bilbao is concerned, some further 4,000 horse-power was introduced from Guipuzcoa, while 1906 will see some 8,000 horse-power more employed.

⁸ The potato is called by the French of Canada *pataque*, a corrupt form of *patate*.

⁹ Possibly with the information that they came from America, which at that time would naturally have been understood to mean Virginia.