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Names for *Manihot esculenta*: Geographical Variations and Lexical Clarification

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Abstract

This study elucidates the derivations, distensions and distortions of the names for a major world crop domesticated in tropical America. In addition to the several Latin binomials, English speakers have used one or more of six vernacular terms for this plant. Two of these words are straight borrowings (*yuca* from Spanish, *mandioca* from Portuguese and Spanish); one (*yucca*) implies and causes interference with an entirely different group of plants in the genus *Yucca* and two are conflated meanings that originally referred to manioc products (cassava and tapioca). All things considered, manioc is the one best name for this plant in English. By taking a critical approach to nomenclature geographers and others can add precision and clarity to communication about phenomena within their general domain.

Key words: *manioc, names, English language, cultural-historical geography*

Resumen

Se plantea en este artículo las derivaciones, distensiones y distorsiones de los nombres de un cultivo importancia mundial domesticado en América tropical. Además del binario latino en evolución, seis términos vernáculos se sirven en inglés corriente: a) dos entre ellos son préstamos directos ('yuca' del castellano; 'mandioca' del portugués y castellano); b) uno ('yucca') confunde el cultivo del raíz comestible con plantas distintas en el género *Yucca*; y c) dos más entre ellos tienen un significado referente a productos derivados ('cassava' tirado de casabe; tapioca). Considerando toda la terminología, 'manioc' queda como el denominativo en inglés lo más idóneo y adecuado para esta planta. Se invoca aquí la prioridad en nomenclatura, pues la lengua inglesa, sobrecargada con un léxico desmedido, no cumple su vocación universal con tales obfuscamientos.

Palabras clave: *manioc, nomenclatura, lengua inglesa, yuca, geografía histórico-cultural*

Introduction

Unless scholars clarify and refine nomenclature, they cannot communicate with others. A focus on names might best be viewed as a side-benefit of working through larger questions that require defining terms and coming up with special insights about them. That knowledge can be used to rethink the words we use through habit. More than most languages, English, with many superfluities in its huge vocabulary, would benefit from critical attention of that sort (Halpern 2001). The spotlight is on English, for over the past decade it has gained much ground as the one truly global language (Short *et. al* 2000). However, a lack of lexical arbitration hinders its full potential in that direction. Thus, any changes have to come from persuasion rather than the fiat of an official body. The foundation for lexical reassessment rests on thoughtful studies. Geographers have a

role to play in this onomastic function. By inclination, they converge local knowledge of the material world with a global perspective, and they contextualize concrete phenomena into larger meanings. Depending on their specialties, geographers can elucidate terminology of such subject realms as foreign places, house types, livelihood forms, environmental contamination, and biological organisms.¹ Names of plants and animals form a particularly rich area for scholarly cogitation, when organisms as named entities are contextualized in spatial, temporal, ecological and cultural ways, new perspectives for them begin to emerge. In his work on cultivated plants, Carl Sauer (1950) was especially attentive to the vernacular labels that were given to crops. He believed that they held clues to the origin and diffusion of both the plants and of the people who use them.² The impingement of Western cultures onto non-Western cultures can often be deciphered from naming patterns.³

Appellatives must be used with care for they become the templates for geographical knowledge. Faulty translation can be a problem. How a misrendered plant name can throw understanding into disarray was noted in the case of a British translator for the Hakluyt Society who wrongly applied the word 'taro' to the 'yuca' that an eighteenth-century Spanish expedition report described as one of the crops grown on Easter Island (Langdon 1988). The translator initially refused to believe that manioc could have been growing in the Pacific realm before European contact. Once that error was corrected, it reinforced the possibility that pre-Columbian voyages from South America reached at least that far into Polynesia.

Manihot Esculenta as Organic Reality

Manihot esculenta, the crop species of multiple names, is a perennial that grows two to four meters high, with a woody stem, palmate leaves and large tuberous roots (Figure 1).



Figure 1. *Manioc plant with roots. From: Willem Piso, De Indiae utrisque re naturali et medica libri quatuordecim (Amsterdam, 1658: 114)*

An efficient producer of carbohydrates on poor soils, manioc is valued throughout much of the tropical world for its edible roots. Although Africa depends more on this plant

than do other continents its domestication in tropical America has never been in serious doubt. Using phytoliths, Piperno and Pearsall (1998: 121-126) claim an age of 9,001 years B.P. for domesticated manioc. Its genetic constitution has long been considered to include more than a dozen different wild *Manihot* species. However, the conclusion from a recent study of genetic markers point to quite a different scenario. Olsen and Schaal (1999) make two bold assertions that a) manioc was not derived from different progenitor species, but rather from a wild subspecies of *Manihot esculenta*; and b) that its place of origin as a domesticated plant was the southwestern fringe of the Amazon drainage centered on the State of Matto Grosso.

If that hypothesis becomes the prevailing notion about manioc origins, its diffusion reached widely into several different climates, including under irrigation in deserts. Archaeological manioc remains have been dated 3,800 years B.P. on the Peruvian coast (Ugent, Pozorski and Pozorski 1986). There and elsewhere this plant has sustained for millennia many millions of people in what later became known as Latin America. The central role of manioc in Neotropical culture history is suggested by Lathrop's (1977) provocative idea that an ancient floodplain agriculture focused on manioc may have been the source of all aboriginal agricultural systems of the New World.

Today, Brazil and Paraguay more than other countries have integrated manioc into their national diets (Aguiar 1982).⁴ If considered in terms of the percent of calories supplied to the average diet, manioc is most important in Paraguay where it provides 15 percent of food intake. In Brazil it is only five percent. By contrast, in Congo (ex-Zaire) that proportion is 54 percent, and in Mozambique, 42 percent of the food calories come from manioc (CIAT 1993).

Naming process

As with all organisms, manioc became a cognized reality only when humans applied a name to it. The concrete tie between the name and this object depended on a consistent pattern of shared meaning within an interacting group. Given their onomastic origins in non-literate cultures, they are unlikely to ever be temporally reconstructed. The quest for understanding begins near the end of the fifteenth century when Europeans recorded the terms they heard applied to the plant. Several of the common names for *Manihot esculenta* in the European languages ultimately derive from an early observation of the plant in the Caribbean. Even though many local words exist for it elsewhere, nomenclatural precedence was important in setting the pattern that followed. However, two initial appellations involved a false start.

Columbus (1999), in the journal of his first voyage, mentioned *age* (also spelled *aje*), unmistakably described as what is known to be manioc.⁵ Columbus then claimed that the same plant occurred in Guinea (West Africa), which explained why Markham (1970: 113), an early translator of Columbus's journal, called it yam, a name properly applied to various species of *Dioscorea*. Clearly, however, the plant that the Genoan navigator saw was not a yam. Another confusion derives from the Europeans' later application of the word *age* or *aje* to the sweet potato. A similar kind of initial misapplication occurred in the account of Pedro Alvares Cabral's journey of 1500 to Brazil. A rootcrop seen somewhere near the north coast was assumed to have been a yam, which the Portuguese had known previously from West Africa, and so given the name of *inhame* (Greenlee 1937: 25). Subsequent voyages of the sixteenth century rectified the error, for the New World plant observed and commented on was manioc, a plant in an entirely different taxonomic family. In the course of the sixteenth century, plant names and identities of useful plants became consistently matched. The plants acquired concrete recognition as organisms when the orthography of each became conventionalized. Spellings sometimes

varied. Native people may have pronounced it differently from place to place and language to language. These variables affected how Europeans wrote the name down in their journals. Editors and printers too had a part in how a name was set into type on a printed page. These idiosyncrasies resulted in a period of floating orthographies that the publication of dictionaries helped to standardize.

Perspective of Science

Two and a half centuries after Europeans had first learned about the plant, it acquired another level of identity with the classification of Linnaeus. In 1753, he published it with the binomial of *Jatropha manihot*, a species in the Euphorbiaceae. In the following year, an alternative genus, *Manihot*, was proposed for it in print (Farr, Leussink and Stafleu 1979: 889; 1038). *Manihot* as a generic name of science came from the common name manihot that Thevet (1983: 148) recorded for the plant when he saw it on the Brazilian coast in 1555. As a common name in English, manihot still appears in some dictionaries but is no longer used in the vernacular. For more than a century after Linnaeus, both genera, *Jatropha* and *Manihot* appeared in the literature as synonyms, until finally the former was discarded in the early twentieth century in favor of the latter. *Manihot* became the universally accepted manioc genus; one, however, shared with about 100 other species which have none of the food user of the domesticated species. In 1827, the taxonomist Pohl divided the domesticated species into two separate species: *M. aipi* Pohl (that was also subsequently called *M. dulcis* Baill. and *M. palmata* Mueller) to encompass the nonpoisonous varieties, and *M. utilisima* for the bitter, i. e. poisonous kind.⁶ This binary distinction between poisonous and non-poisonous kinds had been identified in the sixteenth century. Jean de Léry (1990: 69- 77) traveling on the coast of Brazil in 1556, contrasted ‘aypi’ and ‘maniot’, the latter of which required a heavy investment in processing to remove the poison. In that same century, the Italian traveler Galeotto Cei (1992: 13) contrasted the two kinds from his observation in the Antilles: ‘caribe’ (poisonous) and ‘boniatta’ whose root was peeled and then simply cooked. In making this same critical distinction, in the late sixteenth century Acosta (1940: 172) called the “non-poisonous kind ‘dulce’ i. e. ‘sweet.’” Cobo (1956: 1: 165) contrasted ‘dulce’ with ‘amarga’ i. e. ‘bitter’. This sweet/bitter terminology to separate non-poisonous and poisonous kinds has persisted up to the present, although using the taste method to make the determination could have fatal consequences. In Brazil, however, a different metaphor emerged for the distinction that used the tame/wild antonymy: *mandioca mansa* and *mandioca brava* (also spelled *braba* whose literal meaning is ‘wild’). Both are part of the same domestication and therefore quite “tamed”; what is still not clear, however, is which one came first in culture history. Both kinds lend themselves to making flatbread *casabe* in Spanish; *beiju* in Portuguese), although the poisonous varieties are the most commonly- used for this purpose. Nye (1991) vets several perplexing issues of bitter vs. sweet manioc.

Starting with Francis (1878), the realization emerged that even the so-called sweet varieties can contain high levels of hydrocyanic acid (HCN) in the root bark. HCN ranges from as little as 20 mg/kg in sweet varieties to more than 1,000 mg/kg in bitter varieties (CIAT 1993). Manioc is a highly polymorphic plant, but no visual distinction can be made between plants of sweet cultivars on the one hand and bitter cultivars on the other (Schwerin 1970). The obvious external characters of stem, leaves and flower offer no clue. Ciferri (1938) was the first to reevaluate the taxonomic mindset of two separate manioc species built around the above false distinction. The two designated species of the crop were collapsed into one specific epithet, *Manihot esculenta* Crantz, first proposed in 1766 but ignored until the twentieth century. It represents a case of how the heavy

weight of a long-standing folk distinction formed the basis of a species definition that had no scientific taxonomic justification. It is, however, a folk distinction that forms a continuum whose toxicity depends as much on the soil conditions, age of plant, size of roots, and method of cultivation as it does on the clone itself.

The welter of vernacular names for manioc has always vindicated the use of Latin binomials to set the plant's identity straight. Yet most writing and talking about this and other plants do not start with a universally validated reference point. Only a tiny proportion of even educated people know or use scientific names for them. The common name will always be the dominant way of identifying biological organisms. However, in the case of *Manihot esculenta*, there is no one common name in English. An array of terms emerged that has sometimes waylaid those still learning about what this plant is and where it fits into culture history and contemporary world agriculture. The same author and the same book perpetuated the confusion. Purchas' (1626) five-volume compendium of exploration and discovery made no attempt to rationalize nomenclature for this plant; in one place *mandioca* is used, in another *yuca*, in still another *cassavia*, *cassavie* or *cassava*. Even such a well-edited modern tome as Chiappelli (1976: 636; 860), the plant has been called *cassava* in some chapters and *manioc* in others. Six primary labels have been used in English over the past 500 years to refer to the same plant.⁷ To understand this nomenclatural evolution requires attention to its origins in New World indigenous and Romance languages.

Common Names of *Manihot* in English

Manioc

This term was derived from a deformation of the Tupi word *maniot* which was first written ca.1555. Between 1568 and 1590, it was also spelled *manibot*, *maniot*, *mangot*, *mangiot*, *manyoc* and *mognoc* (OED 1989: 9: 318). French-speaking explorers initiated the orthographic evolution to 'manioc', perhaps because it corresponded to what in linguistics is called prosody, that is the use of pitch, tempo and rhythm, and this usage became standardized. The prestige of French in Europe led to paronymic borrowing in other Western languages: in German, *Maniok*; in Dutch, *moniok*; in Russian, *mahnoka*; and in Italian, *manioca*. English seamlessly adopted the French orthography intact, without, however, mimicking the French pronunciation.

Cassava

A second name, one with substantial currency in the English speaking world, is *cassava*. The word derives from *casabe* (also spelled *casavi*, *casaba*, or *cazabi*), originally an Arawak word from the Caribbean which referred quite specifically to the baked products made from the flour of the root. In Spanish, *casabe* has retained that original meaning because the chroniclers who described it made a careful distinction between the plant (name used) and the flatbread (*casabe*) made from it (Acosta 1940: 7 Cob0 1956: 1: 165; Fernández de Oviedo y Valdes 1959: 1: 230-233; Las Casas 1958: 172; Monardes 1970). In the eighteenth century the word *casabe* entered the Castilian lexicon with its aboriginal meaning (Diccionario de Autoridades 1969: 1: 245).

However, in many English-language writings, the plant and the product were conflated. The British arch-pirate, Francis Drake (1981: 237 contributed to that confusion. In his journal, the plant is called *cassavia* and *cassania*, the latter an apparent misspelling, whereas the flatbread made from it was called *cassado* in Drake's journal, also an apparent corruption of *casabe*. The leap from the specific to the more general meaning was a classic case of metonymy: something contiguous, yet only part of the

whole, was figured for that thing itself.⁸ Helped by Drake's rendering, cassava became the prevalent British name for this plant. Some English authors continued to use cassava to refer to the flatbread, but others favored the name cassado or cassada for that (Sloane 1707: I: xviii; 1725: II: 363). Eventually, however, Drake's metonymic usage became generalized in a larger part of the British realm. Minor spelling variations of it occurred; for example Ligon (1657) writing of Barbados, called the plant 'cassavie.' This subtle shift in English occurred partly because the English experience with it was in caring the flatbread, not growing the plant. Beginning in the 1570s, casabe became the main ship food, replacing hardtack made from wheat.

The Portuguese had originally taken the plant to Africa. However, it was the British agronomists and plant breeders in Africa and in the West Indies who wrote most about tropical agriculture in the world using their term 'cassava' for 'manioc.' Influential reference works radiating from London, such as the first dozen editions of *Encyclopedia Britannica*, had their part in standardizing the word cassava in British usage. In the United States, the term cassava has been much less accepted. To Carl Sauer (1952: 45-6; 1966: 53), steeped in the colonial Hispanic nomenclature, only the flatbread merited the name of cassava. On another front, a new confusion has arisen with the appearance since the 1980s of a melon cultivar (*Cucumis melo inodorus*) called *casaba* in Western supermarkets.

Tapioca

A third name for this plant is tapioca, a word that, like cassava, has had its meaning expanded from a manioc product to the plant. In its correct usage, tapioca (from the Tupi word, *tapioca*) is only a special manioc product. It is made by heating the starch until the grains hydrolyze and aggregate into pearls.⁹ Yet some writers applied that particularism to the manioc plant itself. As thus used, "tapioca" spread especially to the former British colonies of India, Ceylon and Malaya. The name has also been used in North America, justified on the principle that the familiarity of the name makes an exotic plant more recognizable to the general public. Most English-speaking people of the non-tropical world have never seen *Manihot esculenta* growing or even for sale, but they have eaten it as tapioca pudding. For example, Jacques (1958: 138), grasping for the familiar, called this economic species the "tapioca-plant." Word slippage of that sort can also distort information. Attribution of that name led to highlighting the making of tapioca, which is a relatively small worldwide use of the root.

Mandioca

Mandioca is a word for *Manihot esculenta* derived from another Tupi-Guaraní word, *mandiag*, which was first recorded in 1526 (Corominas 1954: 3:221). Hans Staden's 1557 book was the first in the world in which the word "mandioca" appeared in print. Mandioca or variants of it, was the term transcribed for the plant in the sixteenth-century travel accounts of Europeans sent to Brazil (Magalhães 1922 43; Pyrdard 1964: 315) and also to Paraguay (Nuñez Cabeza de Vaca 1984: 206). Now the word mandioca is well ensconced in the countries of Brazil, Paraguay, Argentina and Uruguay and, as such, is part of the lexicon of both Portuguese and Spanish (Figure 2). When used in the western Amazon basin of Colombia, Ecuador and Peru, mandioca means specifically bitter manioc (Tovar 1966: 128; Velasco 1989: 155). This restricted usage suggests that this kind of manioc was introduced from Brazil; the sweet manioc of this Amazon region is called yuca. Mandioca entered the vocabulary of English by way of those who had gotten to know the plant in Brazil. For example, Henry Walter Bates (1975: 72.266), the British naturalist who spent more than ten years in the Amazon, called it by its Brazilian name.

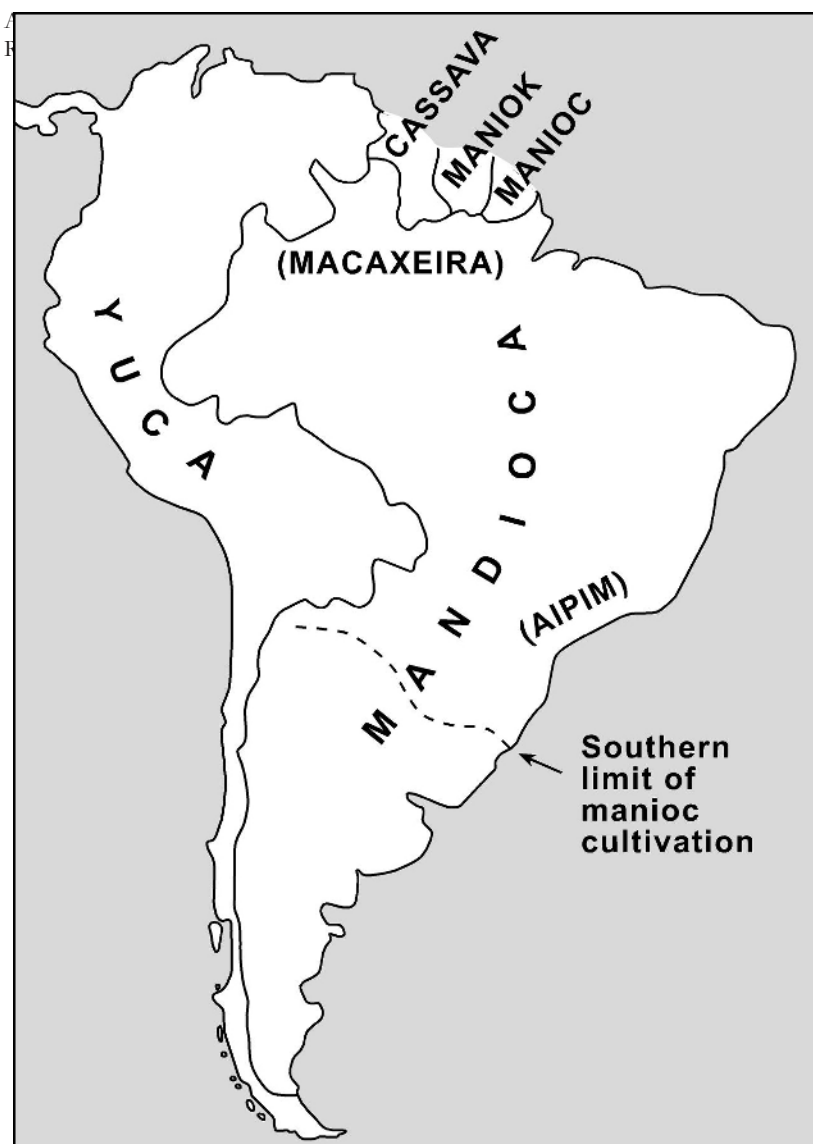


Figure 2. In Brazil, mandioca is the main term; aipim and macaxeira are regional names for sweet manioc. In Surinam, cassava is an alternative name for manioc.

recently, North American agronomists with Brazilian experience have often favored the name *mandioca* in their reports. *Mandioca* gets an entry in the larger English-language dictionaries (OED 1989; WTI 1993). However, shades of meaning complicate matters. In at least one other case, *manioc* is defined as only the edible root, not the plant itself (WBD 1999). This restrictive definition came from usage in Northeast Brazil. There, the

generic term *mandioca* was applied only to the root, whereas the plant itself was called *maniva*. Marcgrave (1942: 65), who traveled in Brazil in the seventeenth century, was the first to make this terminological distinction now largely ignored.

Yuca/yucca

The fifth common name for this plant in English is spelled with either single or double "c." The adoption in English of *yuca* is a wholesale transfer most directly from Castilian, which, in turn was derived from the Taino Indian term for the plant as it was recorded on Hispaniola. Several early Spanish chroniclers applied the name "yucca" to it in other regions where this was not the locally used name. Zárate (1947: 469) met manioc in Peru and called it *yucca*, not *rumu*, the indigenous Quechua term. Particularly influential was José de Acosta (1940: 172-173), astute recorder of the marvels of the New World. He applied the name *yuca* to this plant everywhere he found it in the Spanish Indies. Another Jesuit, Bernabe Cobo (1956: 1:164-165), also chose the name *yucca*; even though he had spent many years in Peru, that name was not in any Indian vocabulary list. The general acceptance of *yuca* in the early colonial period gave that name an undisputed place in the Spanish lexicon. It was consolidated further as part of the language when, in the early eighteenth century the influential *Diccionario de Autoridades* (1969) included an entry for this plant under *yucca*.¹⁰

Consistent use of *yuca* as the dominant term for *Manihot esculenta* in the Spanish-speaking world influenced its entry into English. The English translation of Monardes' (1970: 103) retained *yuca* as the name of the plant. To some authors, the word rings of aboriginal authenticity. Carl Sauer (1966), who used *yuca* throughout his acclaimed study of the Caribbean at the time of contact, defended that usage as the one "...first heard in the islands" Denevan (1971a:4 99; 1971b) put his own slant on the meaning of *yucca* as being synonymous with sweet manioc, a narrowing of the meaning of that word that is not shared in the Spanish-speaking world.

The slight variant "yucca" has been widely, though inappropriately used in English for *Manihot esculenta*. Its origin may have been Eden's translation of Pietro Martire d'Anghiera (1992: 127), that in both the 1555 and 1577 editions, was rendered as "poisonous roots of a yucca that were used in the preparation of a bread." The 1504 edition of d'Anghiera's work, in Italian, had spelled the name "yucca." *Yucca* still appears in Italian dictionaries as a word now largely obsolete for manioc. The double "c" in English orthography has been persistent through the centuries, but not in Spanish. Grace (1977: 1) claimed that "...yucca was a name used in Latin America for this plant;" Weatherford (1988: 80) made the same erroneous assumption. The simple addition of that extra consonant to anglophone usage has created a good deal of written and oral confusion. The ethnobotanist Heiser (1981: 153) explicitly warned his readers that "yuca should not be confused with yucca, an entirely different plant." The infelicitous use of *yucca* in a popular article in *Natural History* prompted a letter to the editor from an informed reader to set the record straight (Kyser 1991: 2). Yet the misusage persists. When sold in North American supermarkets, the root is typically labeled *yucca*.

Yucca is both the scientific and common generic for about 40 different species in the agave family. Their spiky rosette leaves and showy white flowers make them appealing erotic ornamentals. Two species widely grown in warmer parts of the world are *Yucca aloifolia* called Spanish bayonet, and *Y. elephantipes*, the giant yucca. Part of the confusion of *yucca* with manioc may come from the fact that they are both perennial woody shrubs. However, none of the *yucca* species yields an edible root. An example of how botanical confusion has led to a swampland of misinterpretation in the minds of non-botanists is the case of Goodman (1986: 236) writing about Peru. In his examination of Spanish colonial control of Indian behavior, he alluded to "use of the juice of a

species of yucca” that Viceroy Toledo prohibited to native people in a 1572 decree. Yucca is described as an “Indian herb,” which might to some erroneously suggest agave. In Mexico, the sap of agave is used to make pulque; the problem, however, is that pulque was not made in Peru. What Toledo’s edict referred to in fact, was the alcoholic beverage made from manioc (*yuca*). In making manioc beer, the macerated root is masticated and boiling water added. Chewing provides enzymes from the human saliva that break down the manioc starch into sugar. Wild yeasts then ferment that sugar into alcohol. This beverage provided the vehicle for unrestrained drunkenness that led to uproarious and often anti-social behavior that threatened the loss of Spanish control of the Indian population. Only with correct knowledge of what plant is involved does Goodman’s comments about “yuca juice” make sense. The most egregious nomenclatural confusion occurred in the herbal of John Gerard (1974: 1359). His illustration of *Yucca*, drawn apparently from a flowering specimen in his own garden in London, is titled “Yuca or Iucca Perana. The roote whereof the bread Casava or Cazava is made” (Figure 3a).

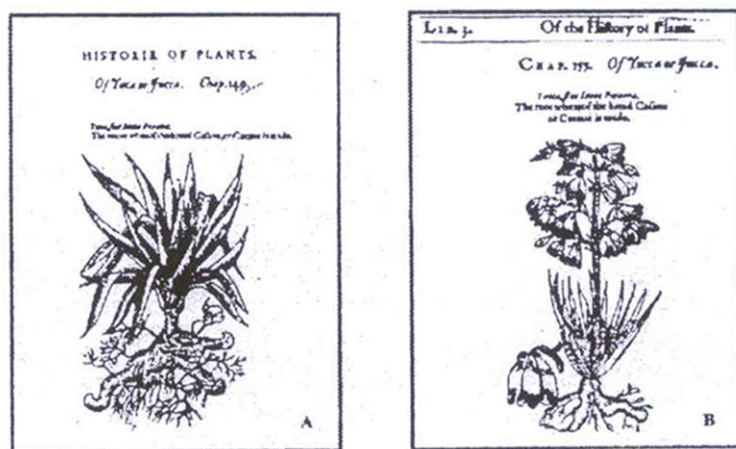


Figure 3. Woodcuts in two editions of a famous and influential herbal: Fig. 3A, from the original 1597 edition (Gerard 1974:1359), resembles a plant in the genus *Agave*, whereas Fig. 3B from the posthumous 1633 edition (Gerard 1975:1543) clearly illustrates a species of *yucca* in the genus *Yucca*. The first is called ‘yuca’ whereas the second is ‘yucca’; however, in both cases Gerard confused these plants with manioc by writing above the plant for each the words: “the root(e) whereof the bread Casava or Cazava is made.”

The 700-word description accompanying the woodcut betrays Gerard’s befuddlement about the plant with which he was dealing. “It is reported unto me by travellers, that the Indians do call it in some places Manihot, but generally Yuca or Iucca; it is thought to be the plant of Theophrastus, Arachidna, and of Plinies, Aracidna.” Whether referring to *Yucca* or *Manihot*, his information on distribution was in either case spurious, for he wrote that this plant grows “in all the tracts of the Indies, from the Magellane Straights (sic) unto the Cape of Florida, and in most of the Islands of the Canibals ...” Gerard seemed oblivious to the incongruity of plants of New World origin present in the classical antiquity of Theophrastus and Pliny. How Gerard (1545-1612) could have confounded two entirely different plants owes much to the extraordinary

importance given to names in the Renaissance as part of an organism's identity. Names were considered to be part of the inherent reality of the organism, not something arbitrarily applied to a thing as we now know they are. Moreover, the fact that *Yucca* has a spreading rhizome may have led Gerard to assume that he was dealing with manioc. Although it is well-known that Gerard plagiarized part of his herbal from Dodoens and others, confounding *Yucca* and *Manihot* appears to be his own mix-up. Gerard's herbal, charmingly written and illustrated was first published in 1597 and the most popular book of plants in the seventeenth century. It played a big part in perpetuating the confusion of a genus in the *Agavaceae* with a species in the *Euphorbiaceae*.

Thomas Johnson, editor of the posthumous 1633 edition of Gerard, must bear part of the responsibility for continuation of this vexing confusion. In his revision of Gerard's 1597 description, he corrected on the basis of Parkinson's (1975) herbal that first appeared in 1629—the assertion that this plant was the same as manioc. Although the heading above the illustration changed *yucca* to *yucca*, it inexplicably left intact the sentence about the plant being the source of “casava/casaba” (Figure 3b). Parkinson also lacked nomenclatural clarity when he tried to identify the plant with the edible root (i. e. *Manihot*) as “Indian iucca.” In the thinking of the period, “Indian” referred to a plant originally from the New World; this geographic source fits both *Yucca* and *Manihot*; more seriously, it was *Yucca* that fit the designation “iucca”, not *Manihot*.

Yucca referring to *Manihot* has been especially common in popular or non-technical English language sources. Among the nineteenth-century explorers who so used it were Markham (Blanchard 1991:113); Herndon (1854: 158); Bingham (1916: 469); and Miller (1918: 125). More recently, Ridgway (1986: 168), O'Hanlon (1988: 125) and Muller (2000: 91) repeated the infelicity. Geography textbooks fell onto the same solecism James and Minkel 1986: 10; Morris 1987: 106, and Jordan and Rowntree (1985: 74). Scholarly tomes such as those of Alba (1977: 12), Baker (1983: 66) and Morison (1983: 232) have not escaped this linguistic blunder as have journal articles (e. g. Works 1990: 46). Translators too have been prone to gloss the Spanish word *yuca* into its purported English equivalent of *yucca*. For example, Cohen's English translation of Zárate's (1947: 469) Spanish chronicle substituted *yucca* for Zárate's (1968: 44) *yuca*. Can we assume that all readers would have known exactly to what that referred? Referring to a zone east of the Colombian Andes, Vázquez de Espinosa (1948: 338) described “casabe de yuca braba.” In the English translation of this important work of the colonial period, those four words came out as “cassava of wild yucca” (Vázquez de Espinosa. 1942: 360) Three obfuscations occur in that translation: 1) cassava as used there refers to the baked flatbread (*casabe*) which is not what the word cassava now means; 2) the word *braba* (=brava) is mistranslated as “wild,” for “yuca braba” does not mean “wild manioc” but rather the poisonous kind which requires processing; and 3) *yucca* refers properly to *Yucca* spp., not *Manihot esculenta*. Other references to *yucca* in the English versions of translated works concerning manioc are found in von Tschudi (1849: 153,287); Marcoy (1874: 1:360); Moll (1944: 11,184) and Sánchez-Albornóz (1974: 60). These misapplications span more than a century, indicating a long-standing lack of awareness of the correct name for this important edible plant. The word *yucca* for manioc should raise a red flag for the translator who cares about accurate equivalency, but partly due to them, it has now acquired a life of its own.¹¹

Pattern of name usage

It is difficult to generalize the pattern of adoption of words for *Manihot*. Popular travel accounts mention this plant by various names. Academic-oriented literature tends to follow the nomenclature used in the discipline. In anthropology and

geography, manioc is the preferred appellation for this plant, whereas cassava prevails in this regard in agronomy and agricultural economics. Usage also varies country by country. Great Britain and the more recent British colonies favor cassava. Thus Parry (1969), a British-trained historian, refers to cassava and cassava bread in Jamaica which is also what it is called there. Among North American authors, the choice in terminology follows certain practices, but to which there are always exceptions. Those who write on Africa tend to call the plant cassava, yet Jones' (1959) monograph was titled *Manioc in Africa*. For writings on tropical America, authors often adopt the local term in the area in which they did their research. Kimber (1988), working on Martinique, wrote of manioc; Denevan and Schwerin (1978), doing research in Venezuela, called the crop yuca; and Dufour (1988;1995), whose field site was in eastern Colombia, used the word manioc in early publications, but later switched to calling the same thing cassava.

Most recent dictionaries and encyclopedias published in the United States list cassava as the main entry. However, nomenclatural anarchy continues with this plant. Thorough computer searches of the literature on this plant require many keyword combinations to retrieve the full record. Computer technology has exacerbated the incongruities of having so many names and so little agreement.

A line of linguistic thought claims that there is no such thing as true synonymy, so that each of the terms for this plant as used in English impart a different stylistic intent or emotional meaning. Among the names discussed, *Manihot esculenta* is the most obviously defensible. No one would dissent from the appropriateness of a Latin binomial in scientific discourse as a wag of conveying precision in plant identification. The welter of common names, however, has very weak legitimacy. Any use besides sheer denotation is hypothetical or superficial. One might say that cassava is the preferred usage for those who want to attach themselves to the agronomist bandwagon on the assumption that plant science people are the experts on the subject. Cassava speakers might also be anglophiles glorifying the exploits of Sir Francis Drake who discovered that casabe was better for his pirates than hardtack. The word yuca may invoke authenticity of those who acquired their knowledge of the plant in Latin America. The field site advantage also applies to mandioca as a term which might impart a special cognizance of Brazilian reality where this plant is so much part of the culture that it probably was invented there. Tapioca is the didact's dream word, for it immediately associates an otherwise little-known plant to many people with the lumpy pudding that everyone has eaten at one time or another. Yucca is the anti-elitist vocable that goes with the flow of popular usage: If the supermarket has that label for this root, it must be right! Manioc as a term may convey to some an internationalist tone, as if everyone would recognize it even if they did not know English.

Non-denotational differences in these common names are ultimately contrived. The only way out of the terminological morass that leads to macaronic communication is to make a sensible nomenclatural decision.

Conclusion: Getting Rid of Superfluity

The onomasticon, that is the vocabulary of names of a useful tropical plant of Latin American origin, opens a reflection on the larger process of nomenclature as it relates to the nature of each of the languages that have incorporated those names. English has a heavy lexical baggage. Ever since A.D. 1066, when it accepted a large mass of new words without abolishing the old, English has encouraged synonymy. Unlike Romance languages, the need for prosody has not determined acceptance of a word in English. Whereas in France and Spain academies functioned as gatekeepers to sift good vocabulary entries from the bad, no such body charged with linguistic arbitrage existed in

any English speaking country. Contrary to popular belief, editorial boards of dictionary projects do not function in that way. As it stands, a new word, however superfluous, that has gained a modest level of acceptance necessarily joins the published lexicon. Insatiable borrowing at the rate of ca. 600 new terms a year and uncritical inclusion have ballooned the lexicon of English provided in unabridged dictionaries to more than 500,000 entries. When lexemes are considered, the count for English is at least 1,000,000 (Crystal 1995: 119). Even the most educated native speakers have no use for most of the half million listed in the weighty tomes. For non-native learners, rampant synonyms obstruct the learning of English. A lexicon pruned to ca. 150,000 words would better enable English to effectively function as the global language. Like population growth or sprawl, a language is not outside human control. However, the idea of a language board to sift the lexicon of English would take a collective act of will that has yet to emerge either within or among anglophone countries. In its absence, those who ferret out lexical errors or inconsistencies in the spoken and written language can make their own suggestions.

Interchangeable use of the six substantives in English for *Manihot esculenta* have complicated and sometimes hindered communication about this plant. Lemaire (1950), in her attempt to get a handle on the literature of this plant, referred to the difficulty of dealing with the string of names. Little has changed in half a century. It is a logomachic minefield that requires needless negotiation. Rather than passively assuming that this is an unresolvable issue, a nomenclatural recommendation is in order. Cassava and tapioca are properly applied to particular products, not the plant and its root. Yuca and mandioca are good names in Spanish and Portuguese, but they are not needed in English any more than *casa* is needed to say house or *maça* to mean apple. As for yucca, it is fiendishly confusing if used for *Manihot*, given its semantic interference with an entirely different group of plants. Employing the words cassava and tapioca, whose original meaning was a plant's products, for the plant itself warrants its removal from the English vocabulary.

Manioc -unambiguous, internationally recognizable, and easy to pronounce- is the appropriate term in English for this plant. Communication about this crop plant will be more precise and less conflictive if the five other discussed terms for it --cassava, mandioca, tapioca, yuca and yucca --are decommissioned in English usage as plant names. As used now for the plant itself, all six common terms have identical denotational meanings. Its Latin binomial takes on even greater significance than otherwise it might as a way of clarifying to the reader what plant is at issue. Elimination of all but one would go a long way in furthering the effort to make the language a precision tool of human expression.

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Notes

¹ Examples of linguistic elucidation by geographers are the use of maize names as diffusionary markers (Johannessen 1992); inconsistencies of toponymic renderings in Portuguese (Gade 1996); and a dictionary of English definitions of geographically-related terms in Spanish (Driever and Espejo-Saavedra 1994).

² Carl Sauer's contributions to the study of plants were synthetic rather than analytic.

His holistic perspective on them led to provocative insights (Gade 1999 184-213). A photograph of Carl Sauer examining a manioc plant near Ica, Peru is reproduced in Gade (1988: 32).

³ An example of how a name evokes diffusion and the power of analogy is manioc in the Philippines. The Spaniards brought it there, together with the sweet potato (*Ipomoea batatas*, “camote”), in the sixteenth century. The name adopted into Tagalog for manioc was *kamoteng kahoy*, translated as “wood camote.” Thus, the substantive for one introduced root crop (*Ipomoea*) was applied to another (*Manihot*); to distinguish the latter from the former, the word “kahoy” (=wood) was added as a qualifier. The woody habit of manioc is the most obvious physiognomic difference from the herbaceous sweet potato.

⁴ Through the mid-1990s, Brazil produced ca. 25 million metric tons of manioc, Paraguay was in second place with ca. 3 m. tons and Colombia had 1.7 m. tons (Wilke 1998: 553).

⁵ The journal entry in Columbus’ original (for 16 December 1492) regarding the first written description of manioc is as follows: “...Toda esta irla y la de la Tortuga son todas labradas como la campiña de Córdoba; tienen sembrado en ellas ajos, que son unos ramillos que plantan, y al pie dellos naçen unas rayzes como çanxhorias, que sirven par pan y rallan y amassan y hazen pan d’ellas, y después tornan a plantar el mismo ramillo en otra parte y torna a dar quatro y çinco de aquellas rayzes que son muy sabrosas: proprio gusto de castañas. Aquí las ay las más gordas y buenas que avía visto en ninguna “tierra”, porque también diz que aquéllas avía en Guinea ...” (Columbus. 1999:372).

⁶ In Brazil, two additional names besides mandioca are widespread: *macaxeira* is used in the Amazon basin and *aipim*, occurs from the Northeast southward. The latter term entered Brazilian Portuguese in the sixteenth century from a Tupi word *ayi-pii* (Machado 1995, I: 161). Aipim and macaxeira refer specifically to sweet manioc which in the agricultural lexicon of Brazil has long served to make a critical distinction from the poisonous kind.

⁷ The two principal voices of authority of the English language---the Oxford English Dictionary (OED 1989) and the Webster’s Third International Dictionary of the English Language (WTI 1993) --each have the following headwords for this plant: cassava, mandioc(a), manioc, manihot, tapioca, yuca and yucca.

⁸ A metonym is a figure of speech that substitutes for the name of a thing an attribute of it or something which it suggests. Closely related to that is a synecdoche in which a part represents the whole, but does not necessarily imply a change in name. The pronominal structure of English lends itself to metonyms and synecdoches. That vagueness, for example, is apparent in the following translation: “This is a root which the Indians use to make bread; they call it cassava” (Kraemer 1996: 254). The innocent word “it” merges the root and the bread. Likewise, the slippery use of language a similar ambiguous misconception. Hawkins (1963: 176) in the sixteenth century wrote of “meale of cassava” which demonstrates the possibility of misinterpretation: either a gruel made from a plant called cassavi (=cassava) or a meal itself called cassavi.

⁹ Grace (1977: 2) wrongly defined tapioca as “baked products of cassava flour.”

¹⁰ Confusion about yucca/yucca has also occurred in Spanish. Alonso (1958: 4222) in the

description under yuca in the *Diccionario del Idioma* confuses *Manihot* and *Yucca*: “Planta de la América tropical, de la familia de las liliáceas de 15 a 20 cm. de altura. Cultívase en Europa como planta de adorno y de su raíz se saca harina alimenticia.” If referring to *Manihot*, the species is not in the family Liliaceae nor is it cultivated in Europe as an ornamental plant. If writing of *Yucca*, edible flour is not taken from the root of any of the species in this genus, nor is it (now) in the Liliaceae.

¹¹ Electronic search raises the glossological stakes. About half of the “yucca” entries generated from search engines refer to *Yucca* sp.; the other half to *Manihot*. One food-related web site extant in April 2002 dangerously confounded the two plants (“you say yuca, I say yucca.”) at: <http://www.anapasid.org/yucca.html>). The confusion is compounded by the publicity promoting the rhizome of the genus *Yucca* for use in healing everything from arthritis to constipation.

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