Plants from Abroad: Botanical Terminology in 18th-century British Encyclopaedias

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1. Introduction

1.1. Scientific and cultural background

During the 18th century British encyclopaedias included in their lemmata an increasing number of botanical lexis, that is the terminology pertaining to "that branch of natural history which treats of the uses, characters, classes, orders, genera, and species of plants. […] and what useful and ornamental purposes may be expected from the cultivation of it [i.e. botany]" (*Encyclopaedia Britannica*, 1768-1771, s.v. *Botany*). More often than not, these terms represented migrating plants coming from exotic places, new geographical areas, whether eastwards or westwards. This "abundance of unknown specimen of plants" (Taavitsainen 2012: 140) rapidly moved to the cultural world of the mother kingdom, "and put pressure on taxonomies" (Taavitsainen 2012: 140).

The necessity to classify and study plants, as well as the fundamental interest in their properties and possible uses, favoured the spreading of modern botanical gardens all over Europe, which developed from 16th-century medical gardens aiming at cultivating and researching botanical species for medicinal uses (see Brockway 1979: 1 ff.). The new institutionalized gardens, mostly supported by national governments, played an important role in collecting foreign plants but also "in generating and disseminating useful scientific knowledge […] in encouraging and facilitating plant transfers" (Brockway 1979: 2), particularly relating to colonial expansion. Some new plants (such as *Theobroma Cacao* and *Cinchona Officinalis*), or already known ones (such as *Camellia Sinensis*, *Coffea Arabica* and *Saccharum Officinarum*), actually became cash crops for those nations involved in expanding commerce. Botany was rapidly becoming an applied science or, in other words, a useful discipline known as experimental botany, besides being a theoretical one aiming at establishing clear nomenclatures: "eighteenth-century political economists […] taught that the exact knowledge of nature was key to amassing national wealth, and hence power" (Schiebinger 2004: 5).[1] 18th-century botanists thus catalogued precious plants in order to acclimatize them to new soils in Europe or in European colonies around the world and thus substitute luxury imports with domestic production (see Schiebinger 2004 and 2005; Brockway 1979; Musgrave 2000). Botany emerges as an outstanding business and as "an essential part of the projection of military might into the resource-rich East and West Indies. It was precisely because finding and identifying valuable plants was so important to state purposes" (Schiebinger 2004: 5) that systems of classification and clear denominations were fundamental to the state.[2]

[1] For a detailed discussion on this topic see Schiebinger 2004 and 2005. In particular, she affirms that (2005: 11) "The botanical sciences served the colonial enterprise and were, in turn, structured by it. Global networks of botanical gardens, the laboratories of colonial botany, followed the contours of empire, and gardens often served its needs. […] botanical gardens […] by the end of the eighteenth century were […] experimental stations for agriculture and way station for plant acclimatization for domestic and global trade, rare medicaments, and cash crops."

[2] As regards taxonomy and nomenclature, an important turning point is represented by the publication, in 1735, of Carl Nilsson Linnaeus's *Systema Naturae* and, later, in 1753, of his *Species Plantarum*. The principles discussed in his works were deeply influential on modern European approaches to botany at least for two main reasons: first, for the establishment of a set of rules to name plants (known as binomial nomenclature, that is to say a generic name followed by a more specific one for the identification of each individual plant, for example *Camellia Sinensis*, *Coffea Arabica*, *etc.*); second, for the universal applicability and usefulness of such categorizing and naming system in investigating the natural world (see Müller-Wille 2007). The influence of Linnaeus's approach was so deeply felt and so innovative that a series of societies of amateurs naturalists regularly met at different coffee houses in London, until 1788, when the Linnean Society was definitely established (see Brockway 1979: 65).

One of the consequences of this renewed and growing interest in the natural world was the inclusion of a very large number of botanical headwords in mid and late 18th-century British encyclopaedias, either universal or specialized: from the very beginning, a relevant and increasing number of items was recorded with the aim of popularizing disciplinary improvements and discoveries among experts and non-experts alike and, more or less directly, support national and colonial identity. [3]

The natural world was thus transformed, defined and categorized into new lexical items: a process which aimed at 'creating science', building cultural identities, and consolidating western hegemony and linguistic imperialism (Schiebinger 2004: 196 ff.). Naming ultimately was to know, to possess and to master nature.[4] The study of botany became a kind of lens also transforming social habits, social curiosity and social interests (see Lonati 2012: 7-9; Berg 2005: 46 ff.): plants were adapted to the ideal values and the practical needs of British civil society. A complex process of acquisition, appropriation and transformation of the external world was at work since "[u]tility ought to be the principal intention of every publication" (*Encyclopaedia Britannica*, Preface 1768-1771: v).

In medical and commercial dictionaries, which were deeply interested in botanical discoveries and innovations, the specific qualities of plants (domestic and/or exotic) and the cultivation processes were described both for their medical properties and for British commercial and cultural issues.

1.2. Aim of the study

The analysis focuses on applied botany and discusses those plants such as *Camellia Sinensis*, *Coffea Arabica*, *Theobroma Cacao*, *Saccharum Officinarum* and *Cinchona Officinalis* which were mostly exploited for commercial and/or medical reasons. These plants, coming from abroad – and commonly known by the name of their products, such as *tea*, *coffee*, *cacao, chocolate, sugar* and *quinine* – became in short extremely popular, deeply changing western cultural and social habits, in Great Britain and all over Europe. Besides their strictly scientific relevance, they were thus included in encyclopaedic lemmata as a testimony of a world in which the display, the adaptation of exotic items to domestic taste and social needs – ultimately, their commodification – is the most evident exploiting issue of this changing process.

[3] The *Encyclopaedia Britannica* (1768-1771) well represents such steep growth and, as emphasized by Kafker (1994a: 158), "[t]he *Britannica* champions the study of the natural sciences".

[4] Schiebinger (2004: 195) affirms that "One could, however, see the rise of Linnean systematics also as a form of what some botanists have called 'linguistic imperialism', a politics of naming that accompanied and promoted European global expansion and colonization. Naming, the way cultures come to refer to objects whether animate or inanimate, is a deeply social process. It is also highly political, and botanical nomenclature should be considered in a larger context of the history of naming."

1.3. Primary sources and methodology

The source essentially consists of British dictionaries of arts and sciences, either universal or specialized, issued from the beginning of the 18th century: from 1704 (John Harris's *Lexicon Technicum*; henceforth *LT*) to 1771 (*Encyclopaedia Britannica*; henceforth *EB*).

Harris's *LT* is the first English dictionary of arts and sciences aiming at explaining "not only […] the *Technical* Words […] but also those *Arts themselves*" (Preface). It is considered "the epoch-making work" whose influence was "immediate in subsequent publications of English dictionaries" (Hayashi 1978: 72; see also Bradshaw 1981).

The *EB*, issued in Edinburgh, testifies to the dynamism of the Scottish cultural context, it is compiled on new principles to avoid the parcelling out of knowledge in alphabetical order, which means that "the editor included long articles which he called treatises or systems" (Kafker 1994a: 151). A great amount of botanical terms are included in this work, alongside the unifying treatise on *Botany*, about twenty-five pages long (for further details see Kafker 1994 & 1994a; Abbattista 1996).

Besides the above mentioned works, the most relevant encyclopaedias for this survey are: Ephraïm Chambers's *Cyclopaedia* (1728; henceforth *Cy*), the masterpiece of British encyclopaedism before the publication of the *EB* and "one of the most influential and respected reference books of the eighteenth century" (Bradshaw 1981a: 123). It includes manifold fields of knowledge, alongside their scientific/technical vocabulary and, frequently, many different viewpoints within the same entry; Robert James's *A Medicinal Dictionary* (1743-45; henceforth *MD*), representing the great effort of 18th-century medical lexicography to categorize medical knowledge for (non-) experts (also including botanical terminology/medicinal plants); Richard Rolt's *A New Dictionary of Trade and Commerce* (1756; henceforth *NDTC*), and Malachy Postlethwayt's *The Universal Dictionary of Trade and Commerce* (1757 [1751-53]; henceforth *UDTC*); both represent the commercial outlook on an expanding reality and, as a consequence, on new products and their commercial revenue.

For reasons of comprehensiveness, other dictionaries, such as John Barrow's *A New and Universal Dictionary of Arts and Sciences* (1751; henceforth *NUD*), William Owen's *A New and Complete Dictionary of Arts and Sciences* (1754-55; henceforth *NCD*), Temple Henri Crocker's *The Complete Dictionary of Arts and Sciences* (1764-66; henceforth *CD*) have also been consulted.

The analysis is essentially qualitative in approach: the survey is carried out on a restricted sample of items. The approach is primarily lexicographic and lexicological, even though the cultural perspective plays a cogent role in the discussion.

2. THE COMMODIFICATION OF BOTANY: FASHIONABLE GOODS AND MEDICAL REMEDIES

2.1. An outlook on botany across time

The following few paragraphs firstly highlight how botany is conceived, conceptualized, defined in 18th-century scientific and cultural contexts, as a background for the focus of the study which is the discussion on the several uses and application of botanical knowledge or, in other words, applied botany (see 1.1. and 1.2.).

At the start of the century, botany emerges as a vast domain to be systematized and regularized, which means, in Harris's words, the constitution of "a pretty exact *Botanick Lexicon*" (*LT*, Preface, 1704).[5] Later on in the century, botany is more precisely defined as "the Science of Herbs […] that part of Medicine, and Agriculture, which treats of Plants, whether Medicinal or others, their several Kinds, Forms, Virtues and Uses" (*Cy*, 1728, s.v. *Botany*), thus overlapping with – and belonging to – disciplines such as "*Medicine. Pharmacy. Agriculture. Gardening."* (Chambers, *Cy*, Preface, 1728: ii).

This complex and articulate network among the multifarious branches of knowledge, disciplines and sub-disciplines is confirmed some years later in Owen's *NCD* (1754-55). Alongside "the classes, characters, parts and virtues of plants; whence arise many thousands of articles as […] Tea, Sugar, Resin, Gum, &c." (Owen, *NCD*, Preface, 1754-55: xiii), botany also treats "the characters, preparations, and various uses of all which are given under their respective heads, as has been already mentioned in speaking of Pharmacy" (Owen, *NCD*, Preface, 1754-55: xiii); whereas in James's Preface, the medical, geographical and commercial perspectives definitely merge under the botanical lens, since the benefits of eastward and westward medicine, known by means of trade with "remote Nations" (James, *MD*, Preface, 1743-45: ix; see also Schiebinger & Swan 2005), become vital to British economic interests.

Botanical knowledge emerges as applied knowledge, besides being a theoretical one (see Schiebinger 2004; Schiebinger & Swan 2005; Brockway 1979; Müller-Wille 2007): any classification may depend on and/or may be established according to the different functions and uses for the benefit of mankind, alongside the description and interpretation of the structural, inborn characteristics of plants and herbs. This distinctive feature is well expressed in the *EB*: the article *Botany*, in its first introductory section titled "Uses of Botany", clarifies the task of the botanist and the ultimate goal of his perusal, which is to inquire "into the nature and properties of vegetables" and to "consider whether they be possessed of any qualities which may render them of use in

[5] In Harris's Preface, pages are not numbered.

food, in medicine, or in any of the arts (*EB*, s.v. *Botany*, 1768-71: 627; see also Schiebinger 2004: 6).[6]

The discovery and the cultivation of new plants in the East and West Indies meant the introduction of new foods and new medical remedies. These commercial goods made botany to be perceived, in the mind of the expert and non-expert alike, as a "curious, respectable, and useful" science (*EB*, s.v. *Botany*, 1768-71: 634), the study of which "merits the highest encouragement from the public, and ought to be attended by farmers, landed gentlemen, gardeners, &c. as well as by physicians and philosophers" (*EB*, s.v. *Botany*, 1768-71: 634).

2.2. Economic botany

This section, which is central to the research focus, exemplifies some encyclopaedic entries concerning *Camellia Sinensis*, *Coffea Arabica*, *Theobroma Cacao*, *Saccharum Officinarum* and *Cinchona Officinalis* which became widespread consumer goods and actually changed modern western society and its habits. For their socio-economic and cultural relevance they also became the symbol and one of the causes of human and environmental exploitation: eastern and western plantations had to provide crops to fuel British industry and commercial needs (see Berg 2005). Plants were thus cultivated for their cash crops in the expanding world of the West and the East Indies, and then exported to be processed in Europe; whereas others were directly transformed in the colonial industries.

Scientific research operates thus at a socio-economic level since "scientists, like other men and women, are shaped by the social values of their times" (Brockway 1979: xi), most of them served their mother country at home or around the world collecting and investigating new species and trying to adapt exotic plants to new soil and new climates.

In the 19th century, plants which originated in the West Indies, such as *cacao* and *cinchona*, were transferred into the East Indies (for both see Brockway 1979: 53-54 and 103 ff.); whereas others, such as the *sugarcane* (originally widespread in China and the

[6] In the 18th century, two kinds of botanists may be distinguished, the so called *armchair botanists* (such as Carl Linnaeus, 1707-1778) who never left Europe and mainly practised their activity in their *cabinets* and in the botanical gardens, experimenting on those specimens coming from abroad; and *voyaging botanists* (such as Hans Sloane, 1660-1753) who explored unknown areas around the world to discover new species to be classified, studied and ultimately exploited for agricultural, medical or, in more general terms, commercial issues. However, the domestic-*armchair* approach and the exotic-*voyaging* one, often overlapped: botanists in different contexts and places (in Europe or in European colonies) actually served their own mother countries (see Schiebinger 2004: 23-30 *passim*). Moreover, the dynamic and experimental activity "also served as a medium of exchange among naturalists" (Schiebinger 2004: 58), since many plants travelled in all directions, and not only towards European gardens.

East Indies and later into the Mediterranean regions) was brought by Columbus to the West Indies at the end of the 15th century. The sugarcane proliferated and gave birth to "a highly influential industry in the Caribbean in the 17th and 18th centuries" (Musgrave 2000: 37); however, "the post-Columbian exchange of plants should not lead us to ignore the activities of the Arabs, who […] brought many plants of Asiatic origin to medieval Europe […] the Arabs were the main agents of plant diffusion in the world" (Brockway 1979: 47).

Coffee was domesticated by the Arabs who introduced it to India, and later the Dutch brought it to Ceylon, Java and ultimately to the New World (Brockway 1979: 51 ff.). *Tea* (first introduced to the West in the early 17th century by the Dutch) was transferred from China to India by a British botanical mission in mid- 19th century to directly control plantations and increase commercial revenue. Later on, Indian tea definitely supplanted Chinese tea on British tables (Brockway 1979: 28-29, 52; see also Musgrave 2000: 89 ff.).

Imperial expansion favoured the transfer of seeds and plants from a geographical area to another to have direct control over production and to lower costs. Transmigration was carried out by smuggling, a widespread practice, tolerated and even supported by the state, since "a corps of trained botanists [were] ready to cooperate with the government in removing from a weaker nation a desirable plant for development on British soil, under British control" (Brockway 1979: 28). However, smuggling was also detrimental to national revenue when it was exploited to avoid high commercial taxes: to solve the problem and to manage this increasing loss of money many acts of parliament were issued during the century.

It follows that this perspective on botany is economic in nature: the investigation on the qualities of plants alongside the experimentation for their usefulness as food, medical remedies and other commodities are the focus of a multidisciplinary approach known as economic botany, that is to say

> the study of the identification, properties, uses, and distribution of economic plants […] utilized either directly or indirectly for the benefit of Man. […] the benefits may be domestic, commercial, environmental, or aesthetic. […] economic botany presents a totally practical approach to the use of plants. […] from in-depth knowledge on the use of plants in the wild (ethnobotany) through to an appreciation of the requirements for commercial production.[7] (Wickens 1990: 14-15)

[7] This concept is well expressed and discussed by Brockway (1979: 74-75), she states that "This was also an era of economic botany, when the usefulness of new plants to the national economy was prominent in the minds of all but the purest taxonomists. Every new plant was being scrutinized for its use as food, fiber, timber, dye, or medicine. Botanic gardens consciously / served the state as well as science, and shared the mercantilist and nationalist spirit of the times. […] As the 'national commerce and riches' was being augmented by trade with the colonies and a growing home market for tropical

Such an approach is central to this study, since Britain and contemporary colonial nations exploited theoretical knowledge in botany and turned it into commercial revenue.

Useful plants are necessarily recorded in useful reference works, prestige works, commodities themselves unifying the country, spreading knowledge and spreading cultural, national and socio-economic identity.

2.3. Camellia Sinensis*,* Coffea Arabica *and* Theobroma Cacao

Tea, coffee and chocolate (deriving from *cacao*) became common beverages in the course of the 18th century. All of them, but particularly tea and coffee, "moved from occasional to habitual beverages; they were popularized in public and domestic social settings – the coffee houses and café culture, and informal gatherings of family and friends for tea" (Berg 2005: 57). Drinking these hot beverages was associated with politeness and favoured sociability and conversation in the upper classes: coffee was consumed in public places, whereas tea was mainly a domestic beverage which towards the end of the 18th century also became "a priority of expenditure among the artisan and labouring classes and even the poor" (Berg 2005: 230). Chocolate, particularly *stomachich hot milk chocolate* was introduced to England by Hans Sloane (physician and naturalist, President of the Royal Society of London between 1727 and 1741), according to Schiebinger (2004: 7) the "innovation was a big one: Cacao beans had traditionally been mixed with honey and hot peppers by the Mayan, Aztec, and Spanish; Sloane made this bitter drink palatable to the English by preparing cacao with milk and sugar – though the exact recipe was kept secret".

The origins of this plants were widely unknown among consumers: their history, their botanical description, their properties and uses are thus provided by – and well documented in – 18th-century encyclopaedias. They testify to the inclusion of detailed entries not only concerning theoretical knowledge but also the changing cultural, social and economic load: they represent knowledge *in progress* and its social impact.

Tea is primarily defined as the "leaf of a tree or shrub growing in several provinces of China, Japan, and Siam, whose infusion is in general used as a drink" (Rolt, *NDTC*, 1756, s.v. *Tea;* see also Chambers, *Cy*, 1728, s.v. *Tea*); such definition usually expands into more detailed descriptions concerning the plant itself and its external aspect, the places and the manner of cultivation, and the differences in "colour, flavour, and size of the leaf" (Postlethwayth, *UDTC*, 1757, s.v. *Tea*; see also *EB*, 1768-1771, s.v. *Tea*).

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products, Britain and the other European powers established many small botanic gardens in the colonies, some of them older than Kew Gardens."

Coffee, which massively enters the market in mid-17th century and later becomes one of the most exploited plants in the transatlantic plantations, is defined as "a Seed, or Berry brought from *Arabia Felix*; used for the making a Drink of the same Name […] prepared from these Berries; very familiar in *Europe* for these 60 Years" (Chambers, *Cy*, 1728, s.v. *Coffee*).

This introductory sections are systematically expanded by more in-depth discussions on the history of tea and coffee, their importation into Europe, their commercial relevance and the denominations used in Britain for the supposedly different varieties. On the one hand, coffee varieties are strictly bound to the areas in which they are cultivated, such as

> from the *Arabians*, […] *Levant Coffee*, which is the smallest of all the other Kinds, […] from the *Dutch* […] *Java* or *East India Coffee*, which is the largest, and of a whitish livid Colour. […] from *America*, […] *English* or *Surinam Coffee*; and the Berries of this Kind are indifferently large, and of a greenish Colour. They are also sometimes imported into *Europe* from a *French* Settlement in *Africa* call'd *Bourbon*, under the name of *French Coffee*. (James, *MD*, 1743-45, s.v. *Coffee*)

On the other hand, the multifarious denominations for tea seem to be a matter of fashion since the "*Chinese* know nothing of *Imperial Tea*, *Flower of Tea*, and many other Names, which are used in *Europe* to distinguish the Goodness, and the Price of this fashionable Commodity"; in any case, continues Chambers "[w]e have three Kinds of *Tea* in *Europe*, *viz. Green Tea*; […] *Bohea Tea*, […] *Red Tea*, or *Tartar Tea*, or *Honan Thea*" (Chambers, *Cy*, 1728, s.v. *Tea*; see also Rolt, *NDTC*, 1756, s.v. *Tea* and *EB*, 1768-1771, s.v. *Tea*), belonging to the leaves of the same plant and "only differing according to the seasons when they are gathered, and the manner of drying" (Owen, *NCD*, 1754, s.v. *Tea*).

The peculiar denominations given to tea and coffee in Europe – and especially in Great Britain – also reflect the appropriation and further adaptation of exotic traditions to western taste and social needs: actually "[t]he Drink, *Tea*, is made in *China*, and throughout the greatest Part of the East, after the same Manner as in *Europe*; *viz*. by infusing the Leaves in boiling Water, and drinking the Infusion hot". However, "among us, 'tis usual to temper its Bitterness with Sugar, which Orientals use little or none of" (Chambers, *Cy*, 1728, s.v. *Tea*; see also Rolt, *NDTC*, 1756, s.v. *Tea*): the perspective is definitely and exclusively a European one.

Coffee, which according to Owen "is rather used as a food than a medicine" (*NCD*, 1754, s.v. *Coffee*), is first roasted to give it "a just Degree of Torrefaction, […] then ground […] next boil'd" in water (Chambers, *Cy*, 1728, s.v. *Coffee*) and, as in the case of tea, the "Custom is to drink *Coffee* as hot as possible, with Sugar" (Chambers, *Cy*, 1728, s.v. *Coffee*). On this specific habit of using sugar, James explains that

> this Liquor, all over *Europe*, is most commonly edulcorated with Sugar, which by some is used for that Purpose in so large Quantities, as to transform the Coffee into a kind of Syrup, which affects the Palate with no other Taste than that of the Sugar. There are some who drink their Coffee with new Milk or Cream alone; but most are directed in the Quantity of this Liquor they use, either by Custom or Appetite. But 'tis needless to dispute about the Method of preparing this Liquor in *Europe*, since the Methods used by each Country is most acceptable to itself. (James, *MD*, 1743-45, s.v. *Coffee*)

Europe thus becomes the leading market for tea and coffee consumption as well as the model of a social practice: domestic, as well as public consumption in the tea houses and coffee houses were widespread in London (the first was established around 1650). Moreover, since tea houses admitted women, they counterbalanced, at a social level, the exclusiveness of those male circles, precisely the coffee houses, which according to James amounted to three thousands at the time (see James, *MD*, 1743-45, s.v. *Coffee*).

Besides the social relevance of these precious beverages, and the habit of drinking them for pleasure, tea and coffee also display a long series of supposed beneficial properties. Such properties can be ascribed to the *materia medica*, that is to say to that branch of medicine concerning the preparation of medical remedies and their experimentation and application. In particular, tea "so much in use of late years" but "hardly known an hundred Years ago" is considered to be "a Purifier of the Blood, promoting Digestion, strengthening the Head, provoking Urine, and preventing the Stone and the Gout: […] balsamic, analeptic, and accounted nourishing, and good for Consumptions" (James, *MD*, 1743-45, s.v. *Thea*); moreover, according to the Japanese "it renders the nuptial Embraces more acceptable and endearing" (James, *MD*, 1743-45, s.v. *Thea*). Whereas coffee, the physicians say,

> carries off Fumes and Disorders of the Head arising of too much moisture, dissipates Megrims, and absorbs Acrimonies of the Stomach, whence its use after a Debauch of strong Liquors; and hence also its use in promoting watching, by bracing the Fibres, and rendering 'em too tense for the Relaxation requir'd in Sleep. (Chambers, *Cy*, 1728, s.v. *Coffee*)

As a consequence, the medical relevance of tea and coffee drinking both supports and reinforces the spreading of a socio-economic practice; whereas 18th-century encyclopaedias help establish the British perspective on reality.

The third and last fashionable beverage under scrutiny here, which affected western taste and diet since the discovery of the New World, is chocolate, a kind of drink "the *Mexican* call'd [so] from *Chocao*, Sound, and *alte*, or *atte*, Water […] from the Noise the Instrument us'd to agitate and prepare the Liquor, made in the Water" (Chambers, *Cy*, 1728, s.v. *Chocolate*). Such liquor was introduced by the "*Spaniards*

[…] in *Europe*; and that perhaps, as much out of Interest, to have the better Market for their *Cacao* Nuts […] and other Drugs which their *West-Indies* furnish, and which enters the composition of *Chocolate*" (Chambers, *Cy*, 1728, s.v. *Chocolate*) which is esteemed to be a "very nourishing […] restorative, stomachic" preparation (Barrow, *NUD*, 1751, s.v. *Cacao*). Barrow continues declaring that the "nutritive or stimulating" properties of chocolate "ought to be determined from a joint consideration of the aromatic ingredients which enter its composition, and of the nature of the liquor in which it is dissolved for use" (Barrow, *NUD*, 1751, s.v. *Cacao*). Actually, chocolate is an extremely versatile product which can be adapted to different habits and needs across countries:

> Its nutritive quality is diminished by the addition of a large quantity of aromatics, since by that means it becomes too hot. It is also too hot when dissolved in wine, except in those remote northerly regions, where the inhabitants are accustomed to a hot regimen. When prepared with milk, it nourishes more than in any other form; but it seems at the same time to load the stomach too much. By the addition of an egg or two, which is the custom with some people, its nutritive quality is augmented. Water therefore seems of all others to be the best vehicle for Chocolate, since by its dilution it must of course promote the distribution of its nutritive principles. As for the quantity of Chocolate to be drank at a time, it is commonly determined by the person who drinks it. (Barrow, *NUD*, 1751, s.v. *Chocolate*)

Chambers highlights that in England "*Chocolate* is chiefly made […] simple and unmix'd, (tho perhaps not unadulterated) of the Kernel of the *Cacao*; excepting that sometimes Sugar, and sometimes *Vanilla* is added: any other Ingredients are scarce known among us." (Chambers, *Cy*, 1728, s.v. *Chocolate*).

As regards cacao-nuts, their therapeutic effects were already well known both by the Mexicans who used them "as anodyne" and "eaten raw, to asswage pains of the bowels" or as an "oil […] excellent for burns" (Rolt, *NDTC*, 1756, s.v. *Cocoa*) and by South American women who "use it for rendering the Skin smooth and even, without leaving any shining unctuous Gloss behind it" (James, *MD*, 1743-45, s.v. *Cacao*).

For all these reasons, tea, coffee and cacao/chocolate obviously represent an inexhaustible source of revenue.

In particular, the cultivation of coffee in the British plantations must be supported and strongly promoted by the government, giving the planters "proper encouragement […] in the American colonies", since this plant "yield[s] a very considerable revenue" (Rolt, *NDTC*, 1756, s.v. *Coffee*) and, if the "island of Jamaica affords very good coffee […] other of our island colonies would afford very good, was due care taken to cultivate it" (Postlethwayt, *UDTC*, 1757, s.v. *Coffee*).

Tea is an "article of very great consumption" and, as a consequence, it must be guarded from smuggling which causes "an extraordinary detriment to the *Public*

Revenue" and is caused itself by "the high duties charged on tea and other commodities" (Postlethwayt, *UDTC,* 1757, s.v. *Tea*). The advantages derived from such a commodity are so valuable and self-evident that Rolt and Postlethwayt report that "an act of parliament […] passed in 1745 for reducing this duty […] brought a great increase to the revenue" (Rolt, *NDTC*, 1756, s.v. *Tea*; see also Postlethwayt, *UDTC,* 1757, s.v. *Tea*).

Cacao and chocolate, for their multifarious properties, are resourceful commercial items for many trading countries and their commercial ambitions. On the one hand,

> The Spaniards, who find this composition very beneficial and acceptable, and know it to be a commodity of sure consumption, are so industrious to bring it to perfection, and make it extremely valuable […]. (Postlethwayt, *UDTC,* 1757, s.v. *Chocolate*)

and, for this reason,

> pretend to confiscate all European ships in America with cocoa on board; though this fruit is produced by the English in Jamaica, and by the French in Martinico. (Rolt, *NDTC*, 1756, s.v. *Cocoa*)

On the other hand, the British government prohibited the import of "Chocolate ready made, and cacao-paste […] from any part beyond the seas" and imposed strict control and a series of rules within the country, since "[i]f made and sold in Great Britain, it pays inland duties" and "it must be inclosed in papers containing one pound each, and produced at the excise-office, to be stamped" (Owen, *NCD*, 1754, s.v. *Chocolate*; see also Rolt, *NDTC*, 1756, s.v. *Cocoa*).

Protectionism – and 18th- and 19th-century colonial wars as well – are thus the obvious consequence of an extremely complex commercial network carried out by European governments all over the colonized world: protectionism aimed at creating monopolies and even cartels, from shipment to processing cash crops, and further import-export activities. British commercial and political power – as well as British national identity – are thus established on this basis.

2.4. Saccharum Officinarum

The discussion on esculent plants, in the perspective of socio-cultural and commercial issues, necessarily deserves some considerations on the sugarcane in the West Indian colonies. Sugar, an "addictive good" (Berg 2005: 21) whose production and consumption steadily increased in the 17th and 18th centuries, alongside the production and consumption of tea, coffee and chocolate (see 2.2. and 2.3.; Brockway

1979; Musgrave 2000; Schiebinger 2004), is one of the most important botanical sources of British colonial revenue.

Chambers defines and describes sugar as "a very sweet, agreeable Juice, express'd from a kind of Canes, growing in great Plenty in the *East* and *West Indies*; particularly in *Madera*, *Brasil* and the *Caribbee Islands* (Chambers, *Cy*, 1728, s.v. *Sugar*). In 18th-century encyclopaedias, particularly in dictionaries of trade and commerce, the emphasis is placed on production processes and economic relevance, as a matter of fact Schiebinger (2004: 8) affirms that "[b]y the eighteenth century, sugar had become the most important cash crop imported into Europe from the Americas". It is not an accident that in Postlethwayt's (*UDTC*, 1757, s.v. *Sugar*) the entry *Sugar* includes sub-sections such as "The manner in which *Sugar* is drawn from the canes" along with sugar varieties ("*Cassonade*, or *Powder Sugar*. […] *Sugar Royal,* and *Demi Royal*. […] *Brown Sugar*. […] *White and Red Sugar Candy*"), but no general definition and/or plant description are given. This entry is followed by a more specific one on *Sugar Colonies*, especially Barbados

> whose growing success […] promoted the settlement of the others, and, as the sugar plantations increased, more hands were required to carry on the works […] This gave birth to the Guinea Trade, for supplying those colonies with negro slave; […]. These branches of trade were of the utmost advantage to Great-Britain, forasmuch as they drew no money out of the kingdom, but yearly brought in large sums. (Postlethwayt, *UDTC*, 1757, s.v. *Sugar Colonies*)

The cultivation of the sugarcane thus opens to more sombre scenarios and behind the fashionable consumption of sugar in British civil society – and all over Europe as well – the worst of the exploitation is carried out with the support of

> several acts of parliament […] to confine the trade of the sugar colonies to Great-Britain, and British ships only; which restraints soon made London the chiefest [market] in Europe for sugar; and, as there was yearly more imported than was necessary for home consumption, the merchants exported the surplus to foreign markets, and, by underselling the Portugueze […] they gradually beat them almost out of all their sugar trade […] This trade of re-exporting sugars was carried on for many years with great success. […] This shews what may be done by industry and trade, rightly applied. (Postlethwayt, *UDTC*, 1757, s.v. SUGAR *Colonies*)

As a consequence, botany becomes subservient to commercial interests and colonial ambitions, revenue and income are the leading and absolute principles regulating exchange, up to its most dehumanizing and obscure issues, such as slavery.

2.5. Chinchona Officinalis

If sugar was the most important cash crop of 18th-century commerce, the *Chinchona Officinalis*, or *Quinquina*, or *Cortex*, or the *Peruvian bark*, "was the most valuable commodity by weight" (Schiebinger 2004: 8). The substance drawn from this plant, that is quinine, became extremely important in European pharmacopoeia and indirectly "opened up previously inaccessible regions of Africa and Asia to European acquisition" (Musgrave 2000: 141) since the alkaloids contained in it became essential in contrasting and curing tropical fevers, such as malaria, before the introduction of penicillin (Brockway 1979: 109). Among other medicinal plants, most of which entered the preparation of remedies and cures for multifarious diseases, the case of the Chinchona Bark is thus of the utmost relevance in 18th-century *materia medica*. Colonial expansion and the acquisition of new territories made the demand for chinchona grow. The potential loss of wild cinchona supplies favoured its cultivation and later displacement from South America to the East Indies in the second half of the 19th century: the "chinchona plants and seed arrived at Kew in 1861 […] before being dispatched […] to their new home in the Indian Nilgiri Hills, where the growing conditions were very similar to those naturally occurring in the Andes" (Musgrave 2000: 154). The chinchona transfer and the transformation of a spontaneous plant into a cultivated one produced better varieties, even though "these varieties would have flourished even better in their natural habitats […] if science had been independent of political considerations" (Brockway 1979: 125).

The name "*Kina* is taken from the Count of *Chinchon*, who was Viceroy of *Peru* when the Medicine was discover'd" (James, *MD*, 1743-53, s.v. *Quinquina*) and where it grows in great abundance (see Chambers, *Cy*, 1728, s.v. *Cortex* and Barrow, *NUD*, 1751, s.v. *Cortex*). The Chinchona Bark takes many other different denominations according to its origin (Peru), its nature (bark, cortex, wood) and its contemporary history (Jesuits, Chinchon), as it is clear from two definitions taken from Chambers's *Cyclopaedia*:

> *Cortex Peruvianus*, call'd also *Quinquina*, *Kinkinna*, *Quinaquina*, *Pulvis Patrum*, and popularly the *Jesuit's Bark*; is the Bark of a Tree growing in the *West-Indies*, called by the *Spaniards Palo de Calenturas*, q.d. *Fever-Wood*; by reason of its extraodinary Virtue in removing all Kinds of intermitting Fevers and Agues. (Chambers, *Cy*, 1728, s.v. *Cortex*)

and

> *Quinquina, Quinaquina,* call'd also *China China*, and *Kin-Kina*, a Medicinal Bark brought from the *West-Indies*; call'd also, by way of Eminency, the *Bark*; and *Cortex Peruvianus*, the *Peruvian Bark*, from the Country whence it is brought; and popularly the *Jesuits Bark*, because its first Introduction chiefly sold and administered by the Jesuits. See *Cortex*. (Chambers, *Cy*, 1728, s.v. *Quinquina*)

The plant was little known in Europe until the 1640s, when it was brought to Spain and, some years later, to Italy and France (see Chambers, *Cy*, 1728, s.v. *Quinquina*).

The introduction and the usage of the Peruvian Bark in Europe marked a dramatic change in the cure of intermittent and tropical fevers: "its chief use is in curing of Agues, and intermitting fevers" (Chambers, *Cy*, 1728, s.v. *Cortex*), since "intermittent fevers were the great *opprobrium medicorum*, till since the discovery of America, and the bringing this bark among us" (Barrow, *nud*, 1751, s.v. *Cortex*). Fevers, of any kind, were actually a widespread scaring mass experience in 18th-century society (see Lonati 2013 and Lindemann 2010). However, the medicinal properties of the Peruvian Bark are multifarious and not limited to curing fevers:

> The Cortex is a Bitter, Absorbent, and Astringent or Styptic […] fit to soften sour acrimonious Juices; […] it blunts the Points of Acids, and prevents their Action […] As a Styptic, it must have earthy Parts to absorb Serosities, […] (Chambers, *Cy*, 1728, s.v. *Cortex*)

and

> It strengthens the stomach, promotes the appetite, and assists digestion: it dissipates flatulencies, and is a very good medicine against the worms. (Barrow, *NUD*, 1751, s.v. *Cortex*)

All this made the Peruvian Bark "almost universally allow'd one of the greatest and best Remedies within the whole province of Medicine (Chambers, *Cy*, 1728, s.v. *Quinquina*) and, according to James

> it came to be greatly in Vogue in *England* […] It was then termed the *English Remedy*, and consisted of an Infusion of the Bark in Wine. There was a little Treatise publish'd at that Time, with this Title, *The English Remedy for Fevers*. The Bark is an infallible Remedy for all intermitting Fevers, in the following Circumstances […].[8] (James, *MD*, 1743-45, s.v. *Quinquina*)

[8] According to Brockway (1979: 109), the new medicine for the cure of fevers was not immediately accepted by physicians, since "Seventeenth-century medicine in Europe leaned heavily on bleeding and purging, to expel the corrupt humours […]. So, the new fever bark had to overcome this prejudice as well as its failure to cure other fevers (typhoid, the plague), and in some quarters, fear of the Jesuits (the Popish Plot). But in 1678 Robert Talbor was named physician apothecary to King George II of England because of his success in curing the king's malaria with a secret formula. The next year the secret

The Peruvian Bark became a consumer good "in Vogue in *England*", a medicinal commodity, a common habit among others of different nature, usage and consumption, such as tea, coffee, cacao/chocolate and sugar. The commercial interests were huge as it was the competition for its cultivation and trade: the British government supported research for the cultivation and transfer of this plant to India, for the increasing need of quinine.

Such transfer, as above said, became effective in the nineteenth century – in the 1880s – and actually meant "cheep seedlings and free advice to colonial planters as well as eventual entry into a vertically integrated marketing system, [known as] the chinchona cartel" (Brockway 1979: 125).

3. Concluding remarks

Botany in the 18th century emerges as a relevant and strategic disciplinary domain, one which is rapidly evolving towards professional conceptualization and its applicability. The advances in theoretical botany, particularly concerning categorizing, classifying and denominating plants (taxonomy and nomenclature) as well as experimentation both in the botanists' cabinets and in the botanical gardens favoured the spreading of new (economic) plants and their varieties in Europe and the European colonies around the world.

As regards Great Britain and the British Empire, botanical innovations coming from the West and the East Indies were studied for their usefulness and adapted to the needs and values of contemporary society. The focus of botanical activity is not a theoretical one but, rather, a cultural, socio-economic, commercial and ultimately colonial one. In this period, botany rapidly shifts towards the sub-type – and later autonomous discipline – known as economic botany: plants are searched, studied, transferred and exploited according to their possible uses, whichever they are. Plants are cultivated in the colonies, crops are shipped and later processed to be transformed into food and medicinal remedies. Tea, coffee, cacao, sugar and cinchona entered the market for their supposed beneficial properties, both medicinal and alimentary but also because such commodities satisfied the needs of British polite society. Their commercial relevance as cash crops became the focus of colonial ambitions and also meant a huge effort to establishing commercial monopolies: it is not an accident that the British parliament issued a series of acts aiming at defining clear import-export rules – all of them widely documented in the encyclopaedias – to safeguarding any product.

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formula was purchased by King Louis XIV of France, who gave Talbor 2000 *louis d'or*, a title, and a large pension. When it was later published, it turned out to be merely the powdered Peruvian bark in wine. *Cortex Peruanus* entered the official London Pharmacopeia and its use became more common."

The individual entries – according to the nature of the works under scrutiny – include the tiniest details on the single headwords-topics and also display an acceptable plurality of beliefs, viewpoints and perspectives. Opening definitions give way to/are followed by botanical descriptions, historical information, socio-cultural issues, legal, political and commercial considerations. British socio-cultural and national identity is thus shaped on an economic basis and then represented in British encyclopaedias: these reference works clearly confirm and support social habits and social needs, besides spreading (useful) knowledge. Encyclopaedias are the expression of 18th-century values, they are commodities themselves to be used by the members of that polite society which favoured – and, in a sense, promoted – their advancement and their cultural function.

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