

Theobroma cacao

[Synonyms : *Theobroma leiocarpum*, *Theobroma pentagona*, *Theobroma sphaerocarpum*]

COCOA is an evergreen tree. Native to Middle and South America particularly the Andes, it has directly from trunk or branches clusters of long-stemmed small fragrant, yellowish-pink (almost red) flowers.

It is also known as *Abeno della cioccolata* (Italian), *Arborele de cacao* (Rumanian), Bastard cedar, Cacao (English, French, Italian, Spanish), *Cacaotier* (French), *Caca-uatl* (Spanish), *Caccao* (Italian), *Cacoyer* (French), *Chocolat* (French), Chocolate, Chocolate nut tree, Chocolate tree, *Chocolath-gas* (Singhalese), Cocoa-plant, *Coco-maram* (Tamil), *Hind bademi ag* (Turkish), *Kaakao* (Finnish), *Kakao* (German, Swedish), *Kakaobaum* (German), *Kakaovník obyčejný* (Slovak), *Kakaovník pravý* (Czech), *Kakawag* (Turkish), *Pokok choklat* (Malay), *Theobroma*, and *Trujillano* (Spanish).

During its first 2-3 months of growth the fruit are known as ‘cherelles’.

The ripening, to one foot long, woody reddish yellow or grey fruit pods (on average about 30 per tree) are gathered twice a year and split open. The sweet, sticky and unpleasant-smelling white pulp and rind are removed and the large seeds (20-50 in each pod) are heaped into mounds to ferment. The seeds are then sorted, washed and allowed to dry out for 24 hours before being heat dried and roasted. (A cultivated hybrid tree is likely to yield only 1-2 lb. of dried beans annually.) Grinding then follows to produce a basic paste. This paste is partly separated by pressing to yield cocoa butter and a more suitable substance for grinding for cocoa powder. The quantity of sugar and flavouring eg. vanilla (*Vanilla planifolia*), added to the cocoa powder is understood to determine whether the end product is cocoa or chocolate. A red colouring matter can be extracted from cocoa butter.

Warning – excessive intake can cause dramatic mood swings.

Cacao is derived from cocoa’s Aztec name *cacahuatl* or from *kakawa*.

Cacahuatl was said to form part of the diet of Quetzalcoatl, the plumed serpent-god. There are other theories however that are more complex and trace *cacao*’s origins back to the preceding Mayan times, or even the earlier Olmec cultures that were prominent in the Mexican coastal plains from about 1200-400 BC. (Archaeologists finds have included a kettle-like pot from Belize in Central America. This pot dated from about 600 BC and analysis of its contents confirmed it to be the then earliest known vessel found for preparing chocolate.)

Aztec legend describes the cocoa tree as the most beautiful in Paradise with the ability to slake thirst, satisfy hunger, cure illness and bestow universal knowledge. Another story describes how an Indian went mad when he exchanged his soul for a fruitful cocoa crop. After his tears had destroyed his trees, he fled to Yucatan for sanctuary and was transformed into the god of Rain and Dew by the Great Spirit.

It is believed by some authorities that first cultivation of cocoa dates back to the Olmec civilization at least 3000 years before the Europeans appeared on Middle American shores at the end of the 15th Century and that the Mayans who followed them were responsible for establishing cocoa plantations in Mexico in about 600. Among objects essential to the afterlife archaeologists have found chocolate jars and bowls in Mayan

graves bearing the word *ka-ka-w* – and identification of this word was some authorities contend how the first significant progress was achieved in deciphering phonetic inscriptions on so many Mayan artefacts. The Mayans made a frothy dark-coloured drink (that was often flavoured with various ingredients including vanilla, *Vanilla planifolia*, and chili, *Capsicum annuum* var. *longum*) of which it is said the most important part for them was the froth. A painted vase dated from about the 8th Century depicts how the Mayans (and the Aztecs after them) made this froth – the liquid in a wide-mouthed cylindrical vessel is shown being poured from a height into a bowl.

In the 16th Century the 1502 expedition of the seasoned Genoese explorer, Christopher Columbus (1451-1506) was according to some authorities proffered sacks of cocoa beans as part of the welcome gifts. Other authorities suggest that the famous explorer captured a Mayan trading vessel with cocoa beans on board and, fascinatingly, that although he may have been aware that the beans were used as a form of currency he never appreciated that they were also the basic ingredient of an important drink in the region. Whereas the Spanish historian and explorer, Gonzalez Hernandez de Oviedo y Valdes (1478-1557) noted that in the Yucatan in Mexico cocoa beans were not only used in barter but also that cocoa was a prized Aztec food and drink.

Cocoa beans continued as a medium of exchange for many centuries after the sudden appearance of the western Europeans in the Middle and South Americas. In the 1540s Nicaraguan ladies would exact 10 cocoa beans from Europeans as the fee for their favours. It has been calculated according to some records that 12 beans equalled about ½ p (and the smallest coin used was then worth about 3p). [Although such information is valueless in isolation it is, nevertheless, worth including here as it does help to place the currency in a picture of everyday life.] In the 16th Century, still in Nicaragua, Oviedo y Valdes (1478-1557) noted too that 100 beans ‘could buy a tolerably good slave’. Taxes were paid in cocoa beans – in some quarters until about 1887. Even well into the 20th Century when Europe had put the 1st World War behind her beans were still a recognized currency in some parts of Mexico – although not for taxes.

Aztec nobles and warriors kept pure cocoa in gold jars. They mixed it into a thick paste with cornflour (ground maize, *Zea*) and boiled this with hot capsicums, such as chili pepper (*Capsicum annuum* var. *longum*), to produce a bitter-tasting chocolate drink that they called *xocoatl*. [Perhaps it should be mentioned here that some authorities subscribe to the view that the original Spanish name *chocolatl* is derived from a Mayan word for ‘hot’ *chocol* and a Nahuatl (Mexican Indian) word for ‘water’ *atl* – not from the Aztec name mentioned earlier.] Vanilla (*Vanilla planifolia*), wild honey (some food historians suggest that the Aztecs were the first to sweeten their chocolate) and century plant (*Agave americana*) provided some of the alternative flavourings. According to an eyewitness account in 1519 made by Bernal Díaz del Castillo (1492-1584) [who was a Spanish soldier and historian with Hernando Cortés (1485-1547) the conquistador and conqueror of Mexico] emperor Montezuma II (1466-1520) had *xocoatl* in different colours served at the end of each meal in solid gold cups. Aztec warriors also carried ground cacao tablets as part of their rations (these were stirred in water). In contrast poorer homes used the valuable cocoa abstemiously as a food flavouring .

Initially the Spanish conquistadores did not enjoy the drink but they are said to have persevered with it as they came to believe, erroneously, that it was an aphrodisiac. (Some food historians have pondered the possibility that this may have been a misunderstanding of the Aztec practice of drinking chocolate in the evening after a meal.) Then they began to add sweetener and the Spanish missionaries who followed in the wake of their conquering army were completely captivated by the drink’s improved taste. The Spanish are also said to have devised a different method for developing the drink’s essential froth

– the liquid was put in a closed pot with a central hole in its lid and a swizzle stick was inserted and twisted through this hole. Relatively quickly the missionaries’ enthusiasm took such a hold that in the West Indies the Spaniards opened up *chocolaterias* where chocolate was prepared and drunk. In 1550 nuns cloistered in southern Mexico are said to have learnt the joys of mixing it with vanilla (*Vanilla planifolia*) and sweetener, and it is reported that the missionaries became so addicted that they even allowed their own cultivation of a cocoa crop to take precedence over conversion of the heathen American Indians to their Christian belief. (Christian bishops appalled at this lapse ordered the ‘farmlands’ to be sold and their wayward clergy to return to their duties.)

As with other major commodities the precise timing of the introduction of chocolate (or cocoa) to different European countries is open to debate – not least because many of the earlier records which refer to it are unreliable and historians note that the drink’s reputation often out-distanced its actual geographical progress. According to some the craze for chocolate had spread back to Spain itself in 1524 – while others have suggested that it reached Spain in 1528 (brought home to the Spanish court by Cortés and yet others note that it had certainly crossed the Atlantic by 1544 when some Dominican friars accompanying a group of Middle American Indians from what is now Guatemala presented the future Philip II of Spain (1527-1598) with various products of the New World, these including chocolate. Even from the beginning there was little dispute that cocoa was a lucrative commodity. The Jesuits, recognizing an opportunity to make a profit from the drink, developed it further for European taste by mixing it with water and using such flavourings as cinnamon (*Cinnamomum verum*), ginger (*Zingiber officinale*), nutmeg (*Myristica fragrans*) or pepper (to counter any excessive sweetness), as well as ambergris and musk (as a ‘strengtheners’). Between them the Spanish and the Portuguese were to corner this market for over 100 years.

One interesting footnote parallels developments associated with the tea-drinking habit (*Camellia sinensis*) that was also taking Europe by storm in the 17th Century and amongst other things encouraged potters to find new drinking vessels. Authorities explain that up to this time chocolate had been drunk from a clumsily-shaped pot and that, instigated by a Marques de Mancera, this was about to change as in South America a more manageable receptacle was devised to replace it. From 1639 to 1648 the Marques was the Spanish Viceroy of Peru and when he saw a lady accidentally spill her chocolate at one of his receptions he instigated the invention of a cup and saucer known as a *mancerina* from which the chocolate could more easily be enjoyed.

In the early 17th Century the taste for chocolate spread quite quickly through Europe (with some emphasis on medicinal virtues) despite the hindrance of an initial Spanish monopoly over the beans exported from Middle America. But in 1634 beans also began to be exported from Venezuela and, shortly thereafter parts of the West Indies as well. Increasingly they passed through Amsterdam and once the Dutch had undermined Spanish control competition began to play its part – and the drink’s popularity knew no bounds on the Continent of Europe by the end of that Century.

By 1600 (for some historians) chocolate had reached Italy – certainly some records declare that chocolate’s progress through western Europe was aided by an Italian traveller named Antonio Carletti (who is supposed to have discovered the joys of it in 1606). Records also show that it was familiar to a Roman physician in 1644, was being enjoyed with many different flavourings by the Medici family in 1666 and was first sold in Florence in 1668. Towards the end of that Century the Italians were also flavouring both savoury and sweet dishes with chocolate in wild abandon. (This may be why many Italians more than any other western Europeans came to nurture a belief that chocolate could be poisonous.

Apparently in 1774 Pope Clement XIV (1705-74) was held in some quarters to have been poisoned by a bowl of chocolate.)

The early 17th Century also saw it crossing the Spanish border into France with the exiled Jews who settled in Bayonne. There they started to process this chocolate drink. But the newfangled 'drug' was too much for the French authorities there and its manufacture was banned from the City. Despite this setback however the small Jewish community continued to produce the drink – but on the City outskirts. (In the future this persistence was to be embraced by the City's fathers who were only too anxious when the time was right to claim 'Bayonne chocolate' as their own – and place the City on the map with its other manufacture, the gruesome bayonet.). Then the eldest daughter of Phillip III of Spain, Anne of Austria (1601-1666), married Louis XIII in 1615 and brought chocolate with her to the French Court. Roughly in the same period (some time before 1642) French records also mention that Cardinal Richelieu's older brother drank chocolate to treat 'splenic vapours'. Not an encouraging start for a promotion. Food historians note that a David Chaliou was granted a monopoly of all chocolate sales on French soil in 1659 and in the following year Maria Theresa (1638-1683), daughter of Philip IV of Spain, travelled to France to marry Louis XIV. She adored chocolate and in her entourage was a maid whose primary duty was to prepare this drink for her mistress. Although the French Court took up the custom, by 1670 it is believed that there was still only one chocolate merchant in Paris – presumably David Chaliou. In 1705 a new French edict permitted the sale of cups of chocolate, like coffee (*Coffea*), by café owners and about 50 years later the first French guild of chocolate makers was established at Bayonne in 1761. But there was one remaining hurdle that prevented its full acceptance in Catholic dominated western Europe. This was the Roman Catholic Church's concern that drinking chocolate broke Lenten rules of abstinence. It was not until 1776 after much heated debate that this problem was resolved. That year saw Pope Pius V (1504-1572) decree that the drink would not be in conflict with the fasting rules – and the establishment of a French royal chocolate factory (for the drink, not for the edible chocolate familiar today) followed thereafter.

Although today the United Kingdom is in the forefront of chocolate consumption (in any form) England only began to adopt the drink in the mid-17th Century. Here it became customary to make it with milk (or even madeira and beaten eggs). In about 1650 chocolate became fashionable in Oxford, and London saw its first chocolate house in 1657. It was in Gracechurch Street in the City of London and was opened by a Frenchman who not only sold the ready-made drink but also a recipe book on how to make it. Samuel Pepys (1633-1703) who apart from his duties as an Admiralty official was the now celebrated English diarist, is said to have visited this establishment and given it his 'seal of approval'. Other chocolate houses followed and as with many of the coffee houses these too became fashionable meeting places and in several instances were the forerunners of London men's clubs – White's began in 1693 as White's Chocolate House (with no particular political affiliation) and served both chocolate and coffee while The Cocoa-Tree Chocolate-House ultimately became The Garrick Club associated today with actors, literary men and lawyers. Also like the coffee houses, the chocolate houses were viewed with some concern by establishment figures who were especially nervous after the restoration of the monarchy in 1660 and suspected these might be venues for political unrest – and in 1675 shut them down with the coffee houses only to re-open them after ten days because of the extreme public outcry. Despite the impression this gives however the chocolate drink's initial popularity on the Islands was nothing to that which swept through mainland Europe – and it is also interesting to note that at the end of the 18th Century chocolate in Britain was still primarily a perquisite of the well-to-do.

At this time chocolate still contained excess fat and little or no progress had been made in harnessing what is an unbelievably bitter bean to produce today's edible and 'moreish' sweetmeat. It was not until the early 19th Century that a solution was found by a Dutchman, C.J. van Houten, who succeeded in devising a practicable process. The door then opened not only to a yet more palatable drink but also to the production of powdered and solid chocolate, as it is known today.

Chocolate was as popular across the Atlantic as in Europe, although there seems to be little record of its enjoyment amongst North American Indian tribes (despite records that show that the Hanaksiala and Haisla Indians seem to have used it to make a drink).

Massachusetts seems to have been the starting point for chocolate in North America. In 1765 cocoa beans were introduced to Dorchester, Massachusetts by an Irish immigrant, John Hanan and with Dr. James Baker's help (he financed the first mill) these were refined and subsequently Walter Baker and Company, the first chocolate business in North America (which was to be one of the roots of today's Kraft Foods) was opened there and a factory established. (This was years before the first European factory was opened in France.). But there was then a significant pause. Enthusiasm for this new-fangled chocolate seems to have been lacking until fishermen from Gloucester north of Boston returned from a trip to the tropical south with a cargo of cocoa beans received in payment for their previous load. The next major steps appear to have occurred in the mid-1800s when in 1852 one of the Walter Baker employees, Samuel German, added sugar to the bitter chocolate to produce German's Sweet Chocolate. Separately three more noted chocolate factories were opened in the United States in Philadelphia, San Francisco and Los Angeles in 1865, 1868 and 1887 respectively – and 1876 saw the arrival of the first chocolate factory in Canada. In 1894 forerunners of the North American ubiquitous Hershey bar made their début when Milton Snavely Hershey (1857-1945) set up the Hershey Chocolate Company to mass-produce that Continent's first inexpensive individually-wrapped bar of chocolate. The 20th Century saw the advent of more chocolate manufacturers (including that of Mars, Inc. by Franklin Mars (1883-1934) and his wife Ethel in Tacoma, Washington) as well as further manufacturing developments in the United States and Canada. In addition in New York in 1925 the New York Coffee, Sugar and Cocoa Exchange emerged and this would enable investors to speculate on cocoa futures.

In Europe it was in the 19th Century that significant and rapid changes were to be witnessed in the burgeoning chocolate industry. Van Houten (1801-1887), a Dutch chemist and chocolate manufacturer, established a factory in Amsterdam in 1815, and this was followed swiftly by two in Switzerland built by François-Louis Cailler (1796-1852) and Philippe Suchard (1797-1884). They were joined in 1825 by Antoine Menier (1795-1853). Apparently Menier, a pharmacist had built a factory in Paris in 1815 to produce powder and flours for the drug industry and now he established a factory at Noisiel too for which he invented a mechanised procedure for coating pills with chocolate. [But it was not until his son, Emile Justin (1826-1881) became involved in the family's company and concentrated his energies on chocolate that the family became 'chocolatiers' and ultimately sold the original drug manufacturing business.] Across the Channel the English Quaker businessman, John Cadbury (1801-1889) entered the chocolate business in 1831 and food historians declare that in 1847 Joseph Fry (1728-1787), a fellow English Quaker who had established J.S. Fry & Sons, was the first chocolate manufacturer to offer bars of eating chocolate. (One other English Quaker connected with chocolate ought to be mentioned – Joseph Rowntree (1836-1925). In 1869 he and his brother, Henry Isaac (1837-1883) started a cocoa factory in York in 1869.) Back on the European mainland Henri Nestlé (1814-1890) developed a practical method for

condensing milk which authorities note was a significant advance enabling another chocolatier, Daniel Peter (1836-1919) to make his own contribution to the progression of the chocolate industry. 1875 (some say 1863) saw Daniel Peter's discovery of a method of making milk chocolate on an industrial scale and the following year the Swiss chocolate industry was born when he went into partnership with Cailler and Charles-Amédeé Kohler (1790-1874). Throughout this period the Peter and Nestlé companies worked closely together but it was not until 1929 that they all came under the Nestlé umbrella – and later in that Century further takeovers (including that of Menier in 1988 when Nestlé took over Rowntree-Mackintosh which had itself acquired Menier in the 1970s) consolidated and centralized the industry still more. [One other Swiss chocolatier should perhaps be mentioned as his observations of chocolate's melting mechanisms and his equipment inventions are said to have played an important and lasting role in the history of the chocolate industry, Rodolphe Lindt (1855-1909).]

Enjoyment of chocolate, once it had made an appearance outside American shores, was not contained within Europe. It spread in all directions from the Near East and was certainly known in India by the mid-18th Century.

Today the best quality and the most aromatic cocoa beans are considered to come from Venezuela and are known as Caracas cacao. Those from Brazil, Ecuador and the West Indies have a pleasant bitter taste and the latter two are usually mixed with weaker cocoas as flavouring. African cocoas (which accounted for two-thirds of the world's cultivated crop in the 1980s) are normally used in commercial products. Apparently it was the Portuguese who established cocoa plantations in Central Africa and at the end of the 19th Century smuggled seeds from these were used to start plantations in Ghana that today yield crops upon which that Country's economy depends.

This is the point at which parallels with the coffee industry and its reliance on the Ethiopian coffee forests emerge – in reverse. The ancestry of the African plants is limited as they were derived initially from only a very few wild specimens – and without an 'injection' from more wild trees it would be nigh impossible to make any significant improvement in that stock. This has meant reference to cocoa's natural habitat, Middle and South America – and it is/has been a race against time as the wild trees are disappearing rapidly in Amazonia for instance as the jungle gives way ahead of crude civilization and oil finds. Yet from some of the plant material rescued by collectors so far geneticists have already been able to enhance the stock on African plantations by for instance improving their resistance to disease and increasing their productivity.

But in the Spring of 2001 cocoa plantations (together with other commercial plantations and enterprises in West Africa) were attracting what was no doubt unwelcome attention for another reason. The spotlight of the world's media was being focussed on a trade in child slaves rounded up from various countries in West Africa. Reports from aid workers in Africa and from journalists declared that these children (thousands of them) were being sold by poor families, were kidnapped or were lured into slavery under false pretences and that this had by then been going on for some time. It was reported that the children were being made to work for long hours (often at extremely dangerous tasks) and were forced to live in appalling conditions.

It has been appreciated for some time that chocolate contains theobromine and caffeine (two alkaloids responsible for its stimulating and refreshing effect) but only recently has it been found that it contains another chemical that can instil mood swings ranging from exhilaration to despondency. (When chocolate was still new and exciting in Europe it seems that it may have been the cause of some deaths – primarily because of the state of some of the beans by the time they had been transported across the Atlantic Ocean to European shores. Some authorities have discussed the possibility that chocolate made

from decomposing beans could have caused the early death of the English composer, Henry Purcell (1659-1695.)

Today apart from obvious chocolate products from the food, confectionery and drinks industries, cocoa butter is also a commercial ingredient in ointments, pessaries, massage oils and cosmetics, as well as a pharmaceutical flavouring.