The Crop of the Day

Tea, *Camellia sinensis*

**Main production areas**

  - black: 165 million lbs.
  - green: 12
  - oolong: 2
  - jasmine: 0.5
- Biggest suppliers: Argentina (33% of black tea), China (22%), Indonesia (11%)
- Thirteen percent of all North American beverage consumption is tea.

**Sources**

- http://www.branch.com/teas/teas.html: Todd and Holland Tea Merchants
- http://zebra.scarolina.edu/smell/cup.of.tea.html: A nice cup of tea, by George Orwell
- http://www.nitehawk.dk/bnielsen/teachronology.html: Important events in the history of tea
- gopher://bluehen.ags.udel.edu:71/hh/.broadleafeg/.descriptions/c_sinens.html: *Camellia sinensis*
Tea, *Camellia sinensis*

**Botany (I)**

- The genus *Camellia* covers a still increasing number of over 260 species.
- It is economically most important because of *Camellia sinensis* (the tea tree) and horticulturally because of *Camellia japonica* and an increasing number of interspecies hybrids (evergreen ornamental shrubs and trees).
- The tea plant is an evergreen shrub or small tree that may reach 30 feet if unpruned.
- It is adapted to sub-tropical areas. The plants tolerate some frost, and could be grown in southern U.S., but are not because of economic factors.
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**Botany (II)**
- The leaves are lanceolate, glabrous, but sometimes pubescent on lower surface, and 2 to 5 inches long. The harvested portions are the succulent short tips and young leaves. Including older leaves reduces the quality of the tea. Leaves are harvested at intervals of 2 weeks or less.
- Three types of tea derived from *Camellia sinensis*: green, black, and oolong tea.
  - For green tea, leaves are heated quickly after harvest to inactivate enzymes.
  - For black tea, leaves are wilted and partially dried in shallow layers, then are rolled by twisting or wringing. A short oxidation or fermentation period is followed by heating at 160°F or above to stop oxidation.

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**History (I)**
- 2737: “Invention” of tea by Chinese emperor Shen Nong
- 222: Tea will be mentioned as a substitute for wine for the first time in Chinese writings of the next half century.
- 708: Tea drinking gains popularity among the Chinese in part because a hot drink is far safer than water that may be contaminated and may produce intestinal disease if not boiled.
- 800: Lu Yu wrote the first definitive book on tea, the *Ch'a Ching*.
- 1484: The tea ceremony (“Cha-no-yu” or “the hot water for tea”) has been introduced by Japan's shogun Yoshimasa.
- 1560: The first European to personally encounter tea and write about it was the Portuguese Jesuit Father Jasper de Cruz. Portugal, with her technologically advanced navy, had been successful in gaining the first right of trade with China.
- 1597: The first English mention of tea appears in a translation of Dutch navigator Jan Hugo van Lin-Schooten's Travels. Van Lin-Schooten calls the beverage *cha*.

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**History (II)**
- 1618: The Chinese embassy in Moscow presents several chests of tea to Czar Alexis.
- 1658: The London periodical Mercurious Politicus carries an advertisement: "That excellent and by all Physitians approved China Drink called by the Chineseans Tcha, by other nations Tay, alias Tea, is sold at the Sultaness Head, a copthee-house in Sweeti Rents."
- 1662: Infanta Catherine da Braganza, consort of Charles II, introduces to the London court the Lisbon fashion of drinking tea; she also introduces the Chinese orange.
- 1680: The social critic Marie de Rabutin-Chantal, the Marquise de Seven, makes the first mention in 1680 of adding milk to tea.
- 1773: The Boston Tea Party Group board East India Company ships at Griffen's Wharf, and throw 342 chests of tea (valued at more than £9,650) from the London firm of Davison and Newman into Boston Harbor.

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**History (III)**
- 1780: English sugar consumption reaches 12 pounds per year per capita, up from 4 in 1700, as Britons increase coffee and tea consumption.
- 1824: The Royal Navy reduces its daily rum ration from half a pint to a quarter pint, and tea becomes part of the daily ration.
- 1825: British colonists in Ceylon plant coffee bushes.
- 1840: Afternoon tea is introduced by Anna, the duchess of Bedford. The tea interval will become a lasting British tradition, but the English still drink more coffee than tea.
- 1869: The coffee rust *Hemileia vastatrix* appears in Ceylon plantations and will spread throughout the Orient and the Pacific in the next two decades. It will destroy the coffee-growing industry, and soaring coffee prices will lead to wide-scale tea cultivation.
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**History (IV)**

- 1890: Thomas Lipton enters the tea business to assure supplies of tea at low cost for his 300 grocery shops.
- 1904: Iced tea is created at the St. Louis fair by English tea concessionaire Richard Blechynden when sweltering fairgoers pass him by.
- 1904: Tea bags are pioneered by New York tea and coffee shop merchant Thomas Sullivan (small hand-sewn muslin bags).

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**Green tea preparation**

- Leaves intended for green tea are plucked in the same manner as black tea. They are then manufactured in three stages completed within a single day.
- Panfiring (or steaming) occurs immediately after the leaves are plucked. The leaves are placed in a metal pan over a hot flame to render them soft and pliable. The sudden exposure to heat destroys the enzymes that would otherwise lead to fermentation.
- Rolling the leaves on heated trays to reduce their moisture content is the next step. The process is done with the fingers and palms, and sometimes with the entire forearm up to the elbow.
- Firing in large mechanical dryers is the final stage of drying. Fired green tea retains only two percent of its moisture.
- Some green teas produced for export are rolled and fired several times; although this increases their shelf life, it may also impair their taste and character.

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**Black tea preparation**

- Fermentation (= oxidation) changes the chemical structure of the tea leaf, allowing key flavor characteristics to emerge. (It doesn’t, however, make tea alcoholic.)
- The longer the fermentation process, the more caffeine contained in the final product (see the chart below.)
- The tea leaves are first withered to remove about 1/3 of their weight through evaporation.
- They are then rolled and spread on cement or tile floors and tables in a cool, humid room to ferment.
- After careful monitoring to ensure proper color and pungency, from 1 to 5 hours, the leaves are then fired at 120° in hot pans or modern dryers to remove almost all of their moisture and stop the fermentation process.

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**Caffeine content of beverages**

<table>
<thead>
<tr>
<th>Beverage</th>
<th>Caffeine per 6-oz. cup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Espresso (2oz.)</td>
<td>60-90mg</td>
</tr>
<tr>
<td>Drip coffee</td>
<td>60-165mg</td>
</tr>
<tr>
<td>Black tea</td>
<td>25-110mg</td>
</tr>
<tr>
<td>Oolong tea</td>
<td>12-55mg</td>
</tr>
<tr>
<td>Green tea</td>
<td>8-16mg</td>
</tr>
</tbody>
</table>
Composition of tea

- Contain polyphenols (catechin):
  - 25% of dry weight of fresh tea leaves
  - Mostly in white and green tea
- Antioxidants:
  - May protect against cancer, heart disease?

Tea, *Camellia sinensis*

"Mandarin" (from the Portuguese "mandar" meaning to order) - the court official empowered by the emperor to trade tea.

"Cash" (from the Portuguese "caixa" meaning case or money box) - the currency of tea transactions.

"Caddy" (from the Chinese word for one pound weight) - the standard tea trade container.

"Chow" (from the Indian word for food cargo) - slang for food.

The tea trade and the English language

"Love and scandal are the best sweeteners of tea." Henry Fielding (1707-1754) "Love in Several Masques"

Chinese saying: "Better to be deprived of food for three days than of tea for one."

"We had a kettle; we let it leak: Our not repairing made it worse. We haven't had any tea for a week. The bottom is out of the Universe." Rudyard Kipling (1865-1936) "Natural Theology"

"My experience... convinced me that tea was better than brandy, and during the last six months in Africa I took no brandy, even when sick taking tea instead." Theodore Roosevelt (1858-1919) Letter, 1912

Tea in the News: The Cutty Sark fire

May 21, 2007

Firefighters were called at 4.46am and were on the scene within four minutes. By 6.20, they had brought the fire under control.

Initial estimates put the cost of the damage, which has destroyed the main and lower tween deck, at around £5m.
Significance of the Cutty Sark

- The 280ft ship was built in 1869 with a unique hull design that made it one of the world's fastest vessels.
- The Cutty Sark was destined for the tea trade, then an intensely competitive race across the globe from China to London, with immense profits to the ship to arrive with the first tea of the year.
- In the end, clippers lost out to steamships, which could pass through the recently-opened Suez Canal and deliver goods more reliably, if not quite so quickly, which as it turned out was better for business.
- Australia-to-Britain times of as little as 67 days.
- Her best run: 360 nautical miles (666 km) in 24 hours (an average 27.75 km/h).