

The Tea Story
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My Introduction to Loose Leaf Tea

In 1964, coming back from Chicago, I stopped at Schuler's Restaurant in Stevensville. When I asked for a cup of hot tea with my meal, the waiter brought a box with three compartments, each filled with a black loose leaf tea. That was my introduction to loose leaf tea. And I have been enamored with it ever since.

Tea Proverbial Sayings

“Tea tempers the spirits, calms and harmonizes the mind, dispels lassitude and relieves fatigue; it arouses thought and prevents drowsiness, lightens and refreshes the body, and clears the perceptive faculties.” Lu Yu, 760 AD

In the drama of the past
Thou art featured in the cast,
O Tea!
And thou hast played thy part
With never a change of Heart,
O Tea!
Arthur Gray, 1903

“Tea urges tranquility of the soul.” H.W. Longfellow

“Though it is ridiculed by those who are naturally coarse in their nervous sensibilities, or have become so from wine-drinking, and are not susceptible of influence from so refined a stimulant, yet it will always be the favorite beverage of the intelligent.”

T. DeQuincey, 1850

The Tea Story.

- A fact, which is foreign to most Americans, is that tea is second only to water as a world beverage. So let's explore what the Tea story is all about.
- Subjects
 - True Tea - *Camellia sinensis*,
 - Tea leaf Constituents – that give tea its character

- Tea History and Culture -
- Tea Categories – White, Green, Oolong, Black, Puerh.
- Tea trip pictures – In 1999, Marge and I went with Roy Fong of Imperial Tea Court in San Francisco and other members of the ITMA to China to visit tea gardens and factories.

Camellia (Thea) Sinensis

- Tea is made from the vegetative buds and young leaves of the Camellia (Thea) sinensis plant. If the tea is not made from an infusion of the tealeaves of this plant, it is not a true tea.
- Herbal teas (tisanes) are not true teas and should not be considered as such. They are beverages made from the infusion of blends of herbs, spices, or other plant material in hot water.

Camellia sinensis varietals.

- The Camellia sinensis species tea bush has a number of varietals but the two major ones are:
 - Camellia sinensis var. sinensis – small leaf tea bushes (Chinese tea plant).
 - Camellia sinensis var. assamica – broad large leaf tea bushes (Indian tea plant).

Cultivar

- A **cultivar** is a natural or cultivated **strain** of tea plant (Camellia sinensis) chosen for production for certain **characteristics** that differentiate it from other strains. (Asexual propagation methods – layering, cutting, grafting, to produce other plants.)
- 700 year old Song Dynasty (960–1279 AD.) cultivar and its “off spring”. (Wu Dong, Feng Huang, Guangdong).

Tea Trees

- Not all cultivated Camellia sinensis plants are two to five feet high bushes. Some of the plants are allowed to grow into tea trees. This is especially the case in the Yunnan and Sichuan provinces in southwestern China where wild tea plants were originally discovered 1,700 years ago.

Tea Leaf Classification.

- Tealeaves are frequently identified by the position they occupy on the stem of the branch.

- The new leaf bud at the top is simply called the bud. Some of the more expensive white and green teas are composed only of these tender, succulent new buds. The bud usually has downy hair covering its under surface.
- The first and second leaves are called Orange Pekoe and Pekoe. A fine picking, or plucking, is usually composed of these two leaves and the bud. Production of Green and White teas uses either the bud alone or just the bud and the next two small leaves.
- The third and forth leaves are called Pekoe Souchong and Souchong. These more mature leaves are used for Oolong and Puerh teas because they don't break down as easily during the more involved tea production process.
- The first picking of the season – called the “First Flush” – is usually harvested in late March to early April. The “Second Flush” is usually picked four to six weeks later in early May.
- It all starts with the quality of the leaf and quality is pretty much confined to the bud and first 4 leaves and the 1st and 2nd flush of the season.

Tea Time

- Tea Shed at head of Da Hong Pao Canyon – Gaiwan and Gongfu (Yixing) methods.
- Teatime with friends stimulates great conversation and is one of the most socially rewarding activities that one can have.
- Especially in the orient, tea drinking is imbued with greater meaning than is applied to any other beverage. Tea drinking does, in fact, reflect much that is characteristic of Chinese and Japanese culture, from the delicate taste itself, to the way it is prepared and to the way it is served. Anyone who has tried to describe the taste of tea will recall having a difficult time. The flavor is much more subtle than that of coffee, beer, or wine. It has a more refined aroma, a delicate and haunting flavor, and frequently a unique and lasting finish.
- The stimulating effect of tea brings into harmony two seemingly contradictory elements – alertness and relaxation. It is the essence of moderation. An offer of a cup of tea is therefore like an invitation to relax and enjoy the here and now for what it is.
- I like to comment that “Where there is tea, there is civil discourse and respectful dialogue”.

Tea Constituents - in the fresh green leaves

- Tea has been linked with health from the very beginning, and is prized for its ability to banish fatigue, stimulate mental powers, and raise the energy level.
- There are numerous soluble chemical compounds in the fresh tealeaf that contribute to the infusion, which gives tea its character. This is a list of most of them.
- By far the most important group is the tea polyphenols, also called flavonoids, which can average 30% of the dry weight of the fresh tea-leaves.
- Everyone wants to know how much caffeine is in tea, so I will comment on that shortly.
- The essential oils contribute to the aroma and flavor of the tea.
- Amino Acids (L-theanine) make up 1 to 2 % of the dry weight of the tea. Theanine is an amino acid whose calming effect seems to counterbalance the stimulatory effects of caffeine.
- Statin is a natural compound like the statin drugs that help lower cholesterol, but tea contains a very small amount.
- The fluoride content of the infusion depends entirely on how much fluoride is in the soil. Usually it is very little.
- The other compounds are insignificant.
 - The oxidation process, in which the enzyme (polyphenol oxidase), phytochemicals and other substances in the fresh green leaves are exposed to warm air and moisture, change the constituents into other substances, such as aromatic oils and more complex forms of polyphenols that determine the taste and health qualities of the final product. These tannins define the color of black teas and give the tea liquor a strong astringent / pungent taste.

Flavonoids in fresh tealeaves.

- Tea catechins sometimes called green tea catechins, are a group of flavonoids that exist naturally in the fresh leaves of the tea plant, *Camellia sinensis*.
- Catechins are not stable and slowly undergo enzyme (polyphenol oxidase) triggered oxidation – so called endo-oxidation, to form other substances when they come in contact with light, oxygen, and moisture. Heat is used to halt the enzyme-triggered oxidation process at various stages of development.
- Endo-oxidation is frequently called fermentation, but that is a misnomer. Fermentation is oxidation due to microbial agents such as bacteria, yeast

and molds on the surface of the leaf – so called exo-oxidation, which only occurs with Puerh teas.

- Catechins are potent anti-oxidants that neutralize free radicals.
- By comparison, one 5 oz. cup of green tea has the same flavonoid – or anti-oxidant potency of five 5 oz. glasses of red wine or nine large red apples.

Catechin Composition of fresh tealeaves by pluck position.

- Catechins can average 30 to 40 % of the dry weight of the fresh tea-leaves.
- EGCG (epigallocatechin 3-gallate) – which is the red part of these circles, is the most potent health-contributing factor in tea. It accounts for 50 -75 % of the catechins in green tea.
- The other catechins, represented by the other colors are of lesser importance.
- The catechin content of the fresh green leaves varies with leaf position, being less in the lower leaves.

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- EGC (epigallocatechin) – green
 - ECG (epicatechin3-gallate) – blue
 - EC (epicatechin) – pink
 - Catechin – brown

Caffeine Story

- Caffeine is an important ingredient of the tealeaf.
- Caffeine was discovered in coffee and tea in the 1820's.
- By dry weight, tea contains more caffeine than coffee.
- However, a cup of tea contains only about half as much caffeine as a cup of coffee. (50 mg. vs. 100 mg.) That's because a cup of tea requires much less tea to make than a cup of coffee.
- Caffeine is a CNS and metabolic stimulant, and is used to reduce physical fatigue and to prevent drowsiness.
- Common undesired effects include mild anxiety, jitteriness, and insomnia.
- The biological half-life of caffeine varies widely among individuals. In healthy adults it is roughly 6 hours.
- Caffeine is very soluble and most of it is dissolved out of the leaves in the first four to five minutes of the infusion.
- Therefore, second and third infusions of the tealeaves have much less caffeine.

Chinese Dynasties and Tea Culture

- I now would like to move on to tea culture and tea history.
- According to Chinese legend, the Chinese emperor Shen Nong, who reigned in about 3000 BC, accidentally discovered tea. He was sitting in the shade of a wild tea tree and boiling some drinking water when a breeze blew a few leaves from the tree into the pot and gave the water a flavor that he found delicious. He experimented further and found it to have medicinal properties, as well as a pleasing flavor.
- The native tea plant of southwestern China, has been known to Chinese botany and medicine ever since.
- The first cultivated tea trees from seeds were planted in rocky soil in the hill districts of Sichuan province in about 350 AD. The tea-leaves can be harvested after about three years.
- Prior to the Tang Dynasty, the liquor from boiled tealeaves was used primarily for medicinal purposes.
- It was highly prized for possessing the virtues of relieving fatigue, delighting the soul, and strengthening the will.
- The Taoists claimed it as an important ingredient of the elixir of immortality.
- The Buddhists used it extensively to prevent drowsiness during their long hours of meditation.
- In the forth and fifth centuries, tea became a favorite beverage in some regions of China.
- But it needed the genius of the T'ang dynasty (618-907 AD.) to emancipate tea from its crude state as a medicinal beverage, and lead to its final idealization as a cherished social beverage.
- This came about primarily because of a poet of the 8th century, Lu Yu. (733-804 AD.). His book, "Ch'a Ching – The Classic of Tea" was published in 760 AD. He identified tea as a beverage integral to the Chinese spirit and the act of its drinking as a celebration of life. Through the proper ritual of preparation, appropriate equipment, and the environment, he showed how a simple beauty can be realized, and an inner harmony expressed in an outward form and order captured in teatime.
- During the Ming Dynasty (1368–1644 AD), withered, fired or steamed, and dried loose-leaf teas became popular. However, this style of green tea did not keep or travel well outside China. So the Chinese merchants started to roll the leaves and expose them to air to complete the oxidative process and then roast the tea leaves to reduce the moisture content to less than 3% to prevent the leaves from rotting. This black tea, or red tea as the Chinese call it, was manufactured mainly for export.

Japanese Tea

- Tea drinking spread from China to Japan during the Tang dynasty (618-907AD). Japanese Buddhist monks visiting in China brought tea seeds back to Japan in 805 AD. Tea cultivation started up in the Uji region near Kyoto, and shortly after tea became an important part of Japanese life.
- The original tea ceremony began as a custom practiced in China during the Tang dynasty. However, while it died out in China, the Japanese continued developing it as a complex sacred ritual with close ties to their art and religion. They use whipped powdered green tea (matcha tea) for their tea ceremony.
- Notice the well manicured rows of closely planted bushes and the mechanical tealeaf harvester, characteristic of Japanese tea gardens.

Japanese Green Tea

- Gyokuro Green Tea – Green tea with high chlorophyll content from cloth shaded bushes for 3 to 4 weeks prior to harvest.
- Matcha Green Tea – Powdered ceremonial tea (Tencha) used for the tea ceremony and in Japanese restaurants.

Tea Transport Routes from China to Europe & U.S.

- Tea Transport Routes to Europe and U.S.
 - Chronological Order
 - 1610 – Dutch East India Company: Established sea routes around Cape of Good Hope from Asia to Europe – Netherlands – France – Germany.
 - 1650 – Dutch West India Company brought tea to America – New Amsterdam (Peter Stuyvesant)
 - 1657 – Dutch East India Company brought tea to England
 - 1684 - British East India Company: Took over Asian sea routes and established the first English trading post on China's mainland at Canton.
 - 1689-1730 - Established Overland Tea Road from China to Russia.
- The first tea reached Europe around 1610 on Dutch East India Company ships from Java where they met Chinese junks out of the port of Amoy (Xiamen) in Fujian province. They traveled around the Cape of Good Hope to Europe, a 16,000 mile trip.

- The Dutch were Europe's first tea drinkers. Tea became very popular in Dutch high society. But after an initial splash, tea never made much headway in the Netherlands where coffee took over early in the 18th century. In France, wine and in Germany, beer became the traditional beverages. But tea became very popular in Russia after its arrival by the overland caravan route in 1689, making Russia, with Britain, European's other great tea-drinking nation.
- Tea arrived in America a decade before it arrived in England. In 1650 Peter Stuyvesant introduced it to the Dutch colony New Amsterdam (New York) which was settled as a colony by the Dutch West India Company in 1624, and from there it spread to the other colonies.
- Fifty years later in 1674, the British took over New Amsterdam from the Dutch and renamed it New York. They found themselves with a colony that probably drank more tea than all England.
- Tea first showed up in England in 1657 – five decades after Europe and about one decade after America. (Thomas Garroway was first to import tea from China and sell to England in 1657) Coffee houses for men only had started up a decade earlier, with the importation of beans from the Middle East. Twining opened the first teahouse strictly for tea in 1717 – open to women as well as men – and tea began to overtake coffee as the leading non-alcoholic beverage in Britain.
- Afternoon tea was started in England in the 1840's and it became an institution shortly thereafter.
- In 1684, the British East India Company took over the sea routes and succeeded in establishing the first English trading post on China's mainland at Canton (Guangzhou). Soon tea made up over 90 percent of China's exports to England. Silk and porcelain chinaware came second and third.
- The Chinese emperor decreed that the foreign merchants could only dock their ships on an island in the Pearl River near the port of Canton (Guangzhou) and only for eight months of the year, and that they had to do business through appointed Chinese merchants.
- The foreign merchants also had to pay a certain amount to the emperor based on tonnage of trade, which was collected by the chief official in charge, the "hoppo".

The Boston Tea Party

- In 1773, the British East India Company had a large surplus of tea, which was in danger of going stale, and shipped it to the colonies in America to sell through its chosen agents. In addition, the tea tax of three pence per

pound, the duty imposed on tea by the Government of King George III in 1767, even though it was modest, upset the disgruntled citizens. “No taxation without representation” became a rallying cry throughout the colonies.

- The anger erupted into the Boston Tea Party on December 16, 1773. After a meeting attended by 5,000 people, fifty men disguised as Indians and armed with hatchets and pistols attacked the three tea ships anchored in Boston harbor.

The Boston Tea Party

- They broke open the chests and dumped into the harbor the British East India Company’s entire consignment valued at 10,000 pounds sterling. Patriotic anti-tea incidents also took place in many other ports of the colonies. Ultimately such incidents lead to the American War of Independence in 1776.

The Clipper Ship Races of 1833 – 1871.

- In the middle third of the 19th century, clipper ships, which carried tea from China to Britain, would compete in informal races to be the first ship to dock in London with the new crop of each season. (Built in America ports – 1833. Built in Liverpool, Aberdeen and Glasgow yards -1850)
- They covered the 16,000 mile journey around the Cape of Good Hope in about 100 days as opposed to the older British ships, which took over 120 days.
- In the famous race of 1866, three ships (Taeping, Ariel, and Serica) had left China on the same tide and arrived at London 99 days later to dock within one hour and 15 minutes of each other.
- Steam ships took over the route, going through the newly opened Suez Canal, starting in 1872.

The Western Tea Trade

- Towards the end of the 18th century, a seemingly insatiable western demand for tea as well as for silk and porcelain from China caused a significant deficit in the British balance of trade. China, with plenty of cotton textiles, did not need broadcloth, the main product Britain had available for export.

- This spurred the East India Company to sell opium grown on its plantations in India to independent traders who shipped it on to China for sale and payment in silver that remained in Canton, the only Chinese port sanctioned for foreign trade. Thus, without moving any bullion around, British merchants were able to get silver for opium and then in turn pay for tea with the same silver. China prohibited the importation of this opium, but the traders persisted.

The Opium Wars

- In 1839, the Chinese emperor, rejecting proposals to legalize and tax opium, tried to solve the problem by abolishing the trade.
- He confiscated around 20,000 chests of opium without offering compensation, blockaded trade, and confined foreign merchants to their quarters near Canton.
- The British government objected to this arbitrary seizure and started the First Opium War (1839-1842). Using its superior naval and gunnery power, it inflicted a quick and decisive defeat of the Chinese forces.
- In 1842, the Treaty of Nanking forced China to open four new treaty ports (Shanghai, Fuzhou, Xiamen, and Ningbo) in addition to Canton (Guangzhou) and ceded Hong Kong Island to the British. The failure of the treaty to satisfy British goals of improved trade and diplomatic relations led to the Second Opium War (1856–60) with a similar outcome.

Tea Cultivation in India

- The British East India Company had become uneasy about its total dependence on China for tea. About 1830, others discovered the secret methods of tea cultivation and processing. Plants and seeds were smuggled out of China and made their way to Assam.
- Using Chinese seeds, plus Chinese planting, cultivation and processing techniques, the British government launched a tea industry by offering land in Assam to any European who agreed to produce tea for export.
- In 1834, British agents also confirmed the existence of wild tea plants in Assam. In four years, tea from both sources was being produced for export to London.
- Tea cultivation also spread to Ceylon -Sri Lanka (1840), (*It took over after the coffee blight (*Hemileia vastatrix*) hit the area in the 1870's*), the Darjeeling area in the Himalayas (1856), and to the Nilgiri Hills (1861) in the south. Ultimately, India would become the world's leading producer and exporter of black tea.

Tea Categories

- Again, all tea categories come from the same species of bush, Camellia (Thea) sinensis.
- Depending on the bush varietal, soil, pluck, quality of the leaf and the processing of the leaves, one can produce White, Green, Oolong, Black, Darjeeling, Puerh and flavored teas.

Map of China – Tea Producing Provinces

- The major tea producing regions include:
 - Zhejiang for green tea
 - Fujian for white tea and oolong tea
 - Anhui for black (red) tea
 - Yunnan for black tea and Puerh tea
- Darjeeling area

China White Tea

- Chinese White tea is a lightly oxidized tea primarily produced in the northeastern region of Fujian province and consists of two types.

Chinese White Tea

- Compare Silver Needle vs. White Peony
 - Harvest - Late March vs. Early April
 - Pluck – Bud only vs. Bud plus two leaves
 - Wilt under sun for 2-3 days – Both
 - Handle gently to prevent bruising and oxidation – Both
 - Low-temperature bake-dry in electric ovens – Both
 - Brewed at 165 to 175 degrees – Both
 - Pale Color – Delicate fragrance & flavor, which is fresh, light and sweet. No astringency or vegetal, grassy flavor.
- Bai Hao Yen Zhen (White Hair Silver Needle)
 - The tealeaves are from the first harvest in late March and consist only of the tender unopened downy covered leaf buds from the first flush.
 - The pickings are laid in shallow baskets to wilt under the sun for an extended period (one to three days).
 - The soft shoots are then piled briefly (one to three hours) before they are taken for a low temperature bake-dry in ovens.

- The tea is brewed in water at 165 to 175 degrees for 2 to 3 minutes.
- The pale yellow liquid has a delicate flavor and fragrance, which is fresh, light and sweet.
- Bai Mu Dan – White Peony
 - It is a type of white tea made from plucks in April and consists of one leaf shoot and two intermediate young leaves.
 - The later picking date and larger more mature leaves impart this tea with more body than the Silver Needle tea.
 - The flush is sun-withered for an extended period of time (one to three days) and then piled briefly (one to three hours). The leaves are handled gently to avoid cellular breakage and oxidation. The leaves are then dried in covered sheds or bake dried in ovens.
 - The brew is a very pale green. The flavor is light, fresh, mellow, and fruity with a sweet taste devoid of any astringency or grassy flavors.

Chinese Green Tea

- Green tea is a non-oxidized tea, and is practically the only tea consumed in China.
- The most well known green tea in China is Long Jing (Dragon Well) tea from the Hangzhou region of Zhejiang Province.
- It is praised for its “four unique traits”: jade color, vegetative aroma, mellow chestnut flavor, and its singular flat leaf shape.
- The first flush is harvested in late March or early April and consists of either the bud alone or a bud and two leaves.
- It is withered overnight on bamboo mats to make the leaves soft and limp and then pan-fried to prevent the oxidative process. This gives the green leaves a distinctive flat appearance. Additional pan-frying reduces the moisture content to at least 6 % to get the desired result.
- The tea is usually brewed at 165 to 175 degrees for one to two minutes to start with.
- The liquor has a pale green color with a slightly grassy, soothing, sweet aroma, and a delicate, highly refreshing vegetative flavor with a sweet floral aftertaste.

Chinese Oolong Tea

- Oolongs are partially oxidized teas mainly produced in Fujian and in northern Guangdong the province of their origin. (Mount Wudong – trees over 700 years old – carbon dated verified, in the Phoenix Mountains in

- Guangdong province). Later the technique and unique plants were taken to Taiwan, which produces some wonderful green oolongs.
- An intricate process - The major steps in oolong production are in principle the same in different regional and style practices:
 - Selective plucking
 - Sun-withering
 - Shading
 - Partial oxidation
 - Roasting
 - Curling, twisting and/or rolling
 - Baking
 - Drying
 - Sub-categories
 - Phoenix (Feng Huang)
 - Wuyi (Shui Xian, Rougui (Wuyi Cassia), Meijian, Yan Cha (Da Hong Pao, Tie Lohan (Iron Buddha), Bai Jiguan (White Crest of Rooster)
 - Anxi (Tai Quan Yan)
 - Taiwan

Oolong Tea Plants

- The oolongs undergo the most critical, and complex process of all the teas produced.
- Because Oolongs are a full-bodied beverage, the leaves must not be picked too early or at a tender stage, but a little later in the spring when the leaves are more developed and mature to hold up during the production process.

Oolong Tea Garden

- Young man carrying two 50 lb. baskets of tea from the field to the factory.

Oolong Tea Processing

- Unlike leaves for green tea, those destined to be oolongs are wilted in the direct sun for a short time – 2 or 3 hours.

- Then the wilted leaves are immediately brought inside, placed in bamboo baskets and shaken to bruise the leaf edges. This bruising is what makes the edges oxidize faster than the center of the leaf.
- The leaves are then spread out to air-dry.
- This process is repeated several times throughout the remaining day and into the night.

Oolong Tea Processing

- After multiple episodes of shaking and air-drying, the leaf edges become reddish, as a result of endo-oxidation, while the center of the leaf remains yellowish-green.

Oolong Tea Processing

- The oxidation process is arrested at varying stages by thoroughly firing the tea to produce either a green (20-30%), or a brown (40-50%), or a black oolong (60-70%) tea.
- The tea-leaves are rolled into small balls or into twisted leaves.
- The tea is then roasted (dried) to reduce the water content.
- The final firing produces a tea which contains less moisture – one or two percent - than other teas, which enables them to keep longer as well as hold up for multiple infusions.

Chinese Oolong Yan Cha Tea (Rock Tea)

- Yan Cha Tea is a black oolong tea, which originates in the high mountains of WuYi Shan in northwest Fujian.
- This is referred to as “Rock Tea” due to the rocky terrain where the tea plants grow on steep slopes or terraces.
- The large dark twisted tealeaves are 70 to 80% oxidized and then roasted.
- The infusion has a pleasing aroma, smooth full-bodied slight metallic flavor, and a refreshing dry aftertaste.

Da Hong Pao (“Big Red Cape”) Canyon

- The next few slides are from our trip up Da Hong Pao Canyon.
- Da Hong Pao (Big Red Cape) Tea is a famous oolong Rock Tea from century old bushes high up in a canyon in the Wu Yi Mountains.
- These pictures are the start of the path that goes up about a half mile to the head of this beautiful canyon.

Da Hong Pao Canyon

- The canyon had spring water filtering down the walls to the floor and we had to walk across these ponds to get up the canyon.

Head of Da Hong Pao Canyon

- This is a Tea House at the head of the canyon and shows tea bushes growing on the rocky ledges on the side of the canyon wall.

Head of Da Hong Pao Canyon

- This picture from the opposite direction shows the six existing original seed trees of Da Hong Pao tea that grow on a steep rocky ledge on the sidewall of the canyon.
- The other bushes on the canyon floor and the terraces have been propagated from the original seed bushes.

Original Da Hong Pao Tea Bushes

- These are four of the six existing seed trees on the rocky ledge of the canyon wall.
- Some people claim that these original mother plants of the cultivar date back 600 years to the Ming Dynasty.
- The cultivar is unique as the rock is irrigated by spring water all year long. The canyon walls also block strong direct sunlight at noon but provide reflective sunlight throughout the day. The deep taproots from these old bushes bring in rich mineral and other rocky soil nutrients that other bushes don't have.
- Due to the special environment, the seed trees of Da Hong Pao are extremely precious. They were insured for one hundred million dollars in 2006.
- The tea from the propagated bushes is finished in a traditional dark twisted oolong leaf style with very low water content.
- The fragrant tea tastes mellow and rich with an enduring aftertaste and can be brewed many times.

Chinese Black (Red) Tea

- The traditional method for processing black tea involves four steps: withering, rolling, oxidizing, and frying (firing).
- The tealeaves are plucked by hand and then left out in the open under the

sun on bamboo mats or trays for several hours to wither the leaves.

Black Tea Flavonoids

- The next step is rolling to bruise the leaves, breaking down their cell membranes to bring together the chemical substances called catechins and the enzyme polyphenol oxidase that activates the oxidation of the polyphenols.
- The leaves are spread out in a cool place for several hours to react with the moisture and air to oxidize the whole leaf.
- The endo-oxidation process transforms the fresh leaf catechins to other flavonoids (tannins), such as theaflavins and thearubins, which are the higher molecular weight polyphenols found in black tea.
- The completely oxidized leaves turn black and are then fired to reduce the water content to less than 3 % to produce the final product.
- (The three main characteristics of a cup of black tea are its dark color, rich full-bodied flavor and its pungency or astringency due to the metabolism of the flavonoids to form tannins and essential oils.)
- Black tea manufacturing frequently includes blending of several black teas to ensure a brand of consistent quality.
- China exports 90 percent of her black tea production.

Chinese Keemun Black Tea

- Keemun Black Tea is renowned as one of China's finest black teas. It comes from Qimen in Anhui province.
- The broken grade tea is a full-bodied, black tea with a lively bouquet and mild pungency. It produces a dark red cup.
- (The whole-leaf Keemun Maofeng is a tightly rolled small leaf tea, which provides a delicious, mellow black tea taste with a pleasing aromatic sweetness.)
- (North China Congou – Black Congou – English Breakfast Tea – Burgundy Tea. Thick full liquor - Rich aroma – Superb bouquet.)

Chinese Yunnan Gold Black Tea (Dianhong)

- Yunnan Black Tea from Yunnan Province in southwest China is also a well-known black tea. Yunnan is recognized as the historical birthplace of

- tea. It has a history of 2,100 year since the aboriginal tea plants were domesticated.
- Due to the unique growing environment, the tealeaves in Yunnan are much larger than in other tea-growing areas. The high altitude and mountain mists are believed to create ideal conditions for tealeaf and bud development.
 - Yunnan tea is highly regarded for its unique malt taste.
 - (South China Congou – Red Congou – Claret Tea.)

Puerh (Dark) Tea

- Puerh is a unique tea produced from a "large leaf" variety of *Camellia sinensis* found in the mountains of southern Yunnan. In addition to the usual oxidation, it undergoes what is known as solid-state microbial oxidation by bacteria, molds and yeasts on the harvested leaves.
- Both the endo-oxidation, derived from tea-leaf catechins and cellular enzymes, and the microbial exo-oxidation on the surface of tealeaves, occurs after the leaves are wilted, rolled and then sun-dried.

Puerh Tea

- The raw product can be sold in loose-leaf form or pressed into cakes and bricks and allowed to age over time.
- Sometime the raw tea is placed in compost piles and exposed to air and moisture, and periodically turning over the piles to accelerate the aging process.
- This fermentation process gives puerh tea its unique earthy overtones. Despite it's dark color, it has a very mellow flavor and no bitterness.

Darjeeling Tea

- The Darjeeling district in West Bengal, India is in the southern foothills of the Himalayas near the border with Nepal on the west and Sikkim on the east.

Darjeeling Tea Garden

- The British first introduced Chinese tea plants in the foothills of the Himalayas in 1841 about 10 years after tea plants had made their way to Assam.

- Dr. Campbell, a civilian surgeon of the Indian Medical Service used stolen seeds from southwest China to begin his experimental tea planting.
- After Indian independence in 1947, Darjeeling's tea gardens shifted from British to Indian ownership.

Darjeeling Tea Garden – Kanchenjunga Mountain

- The tea is grown at attitudes from 3,000 to 7,000 feet above sea level on very steep slopes in the foothills of the Himalayans.
- In the background are the white peaks of Kanchenjunga (Elevation: 28,169 feet), which is the world's third-highest mountain after Everest and K2.

Darjeeling tea – First Flush

- The First Flush is harvested in mid-March following spring rains.
- After the tealeaves undergo a hard wither, they are rolled to break down the cell membranes, then partially oxidized, and fired.
- The infusion has a gentle, very light color, aroma, and mild astringency with a long finish.
- The Second Flush is harvested in early June and produces an amber, full-bodied, slightly astringent, muscatel-flavored cup.

Yixing Clay Tea Pots

- Yixing Clay Tea Pots are made in Yixing on the western side of Lake Taihu in Jiangsu Province.
- They date back to the 15th century. They are made of unglazed purple clay from the local area.
- With use, the pots develop a patina that can add to the flavor of the tea.
- The small pots are used for the Gongfu method of tea brewing for oolong, black and Puerh teas.

Gaiwan

- Covered teacup for tea preparation and drinking.

Gaiwan Preparation & Copper Kettle with long spout.

Eccentric Teapots

- Bellhop porcelain teapot

- Flat Rosette Pottery teapot by Ragnar Naess – 1987 Columbus Circle Art Fair near 57th and West Central Park.

Eccentric Teapots

- The “Hermaphrodite” teapot

Eccentric Teapots

- Twin teapots
- I ran across this picture of two teapots and it reminded me of someone whom many of you may remember and what he would have to say.
- “Don’t worry brother, You’ve still got what it takes.”