

How a Few Simple Things Changed History

Class 5

William A. Reader

E-mail: wreader@cox.net

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What We Will Cover Today

- The Impact of the Potato
 - The Irish Potato Famine & the U.S. Civil War
 - French Fries, Fast Food & McDonald's
- The Impact of Coffee
 - Notes on Coffee
 - Consequences of Coffee
 - Impact of the Coffeehouse
- The Impact of Tea
 - Notes on Tea
 - Consequences of Tea

Effects of the Potato Famine - 4

- Effects of Irish Famine emigration to the U.S.
 - Led to the growth of political machines in northern U.S. cities
 - Destabilized American politics in the decade before the Civil War
 - Fostered a nativist anti-Catholic reaction among native Protestants that led to the creation of the Know-Nothing Party, the weakening of the Democrats, and the destruction of the Whigs
 - This paved the way for the rise of the Republican Party and the Civil War
 - Increased the relative population of the North, intensifying Southern fears of political marginalization – this in turn intensified pro-secession sentiment

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Irish immigrants brought with them from Ireland a knowledge of the English language, a familiarity with the forms of English political institutions, and poverty. Situated in Irish ghettos in northern big cities, they were quick to politically mobilize and vote in order to obtain help and jobs. One consequence was that in a generation, the Irish became dominant in such areas of local governance as policemen, firemen, low-level office holders, and construction. By using income from “simple” and “honest” graft, Irish political bosses (many of whom were saloon owners) bestowed jobs and largesse (such as food, coal, and Xmas turkeys) on the needy in exchange for their votes.

Effects of the Potato Famine - 5

- Effects of Irish Migration to the U.S. – 2
 - Changed the character and role of the Catholic Church in America
 - Prior to the Irish Famine migration, the American Catholic Church had been the church of a small minority of largely well-to-do persons of English and French extraction
 - After the migration, the Church became a church of lower-class and working-class Irish
 - Gave the Church an ethos of sexual puritanism that reflected the sexual repression induced by the famine

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French Fries - 1

- French fried potatoes (*Pommes frites*) were based on an 18th century Parisian recipe that Thomas Jefferson brought back to the U.S. in 1802, but they didn't catch on in the U.S. until the 1920s
 - In the 19th century, Americans ate their potatoes baked, boiled, or mashed.
 - U.S. servicemen who had enjoyed fried potatoes in France popularized them in the U.S. in the 1920s

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French Fries - 2

- Drive-in restaurants in the 1930s & 1940s served french fries which popularized them even more
 - French fries could be served without a fork or a knife and could be eaten while driving, but were very time-consuming to prepare
- In the early-1950s, J.R. Simplot and Ray Dunlap devised a precooked frozen french fry that could be mass produced using the Russet Burbank potato

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In 1940, J.R. Simplot was the largest shipper of potatoes in the West, operating thirty-three warehouses in Oregon and Idaho. Simplot also shipped onions. In 1941, he started to wonder why the Burbank Corporation, an outfit in California, was ordering so many of his onions. Simplot went to California and followed one of the company's trucks to a prune orchard in Vacaville, where the Burbank Corporation was using prune dryers to make dehydrated onions. Simplot immediately bought a six-tunnel prune dryer and set up his own dehydration plant in Caldwell, Idaho. The plant opened on October 8, 1941. After the U.S. entered World War II, Simplot began selling dehydrated onions to the U.S. Army. It was a profitable arrangement. The dehydrated onion powder, he later recalled, was like "gold dust." Simplot's Dehydrating Company soon perfected a new method for drying potatoes and became one of the principal suppliers of food to the American military during World War II. In 1942, the company had a hundred workers at the Caldwell plant; by 1944, it had about twelve hundred. The Caldwell facility became the largest dehydrating plant in the world. J. R. Simplot used the profits earned as a military contractor to buy potato farms and cattle ranches, to build fertilizer plants and lumber mills, to stake mining claims and open a huge phosphate mine on the Fort Hall Indian Reservation. By the end of World War II, Simplot was growing his own potatoes, fertilizing them with his own phosphate, processing them at his factories, shipping them in boxes from his lumber yards, and feeding the leftover potato scraps to his cattle. After the war, Simplot invested heavily in frozen food technology (noting that the new postwar refrigerations that households were buying in droves now had freezer compartments) and assembled a team of chemists, led by Ray Dunlap, to develop a product that seemed to have enormous potential – the frozen french fry. By 1953, Simplot and Dunlap had developed a precooked frozen fry using the Russet Burbank potato that could be mass produced, and which when deep fried in hot oil, tasted as good as traditional french fries. Since busy housewives were not interested in deep frying french fries, sales lagged until Simplot started selling to restaurants and institutional customers. In 1965, Simplot met with Ray Kroc

French Fries - 3

- In 1965, Simplot met with Ray Kroc
 - Prior to meeting Simplot, McDonald's had been obtaining fresh potatoes from 175 different suppliers with restaurant crew members spending a lot of time and labor peeling and slicing potatoes
 - Kroc agreed to build a factory solely for the manufacture of McDonald's french fries and became the main supplier of french fries to McDonald's
 - The reduced cost of using frozen french fries made this item one of the most profitable items on McDonald's menu

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French fries & McDonald's -- "The french fry [was] ... almost sacrosanct for me," Ray Kroc wrote in his memoir, "its preparation a ritual to be followed religiously. The success of Richard and Mac McDonald's hamburger stand had been based as much on the quality of their fries as on the taste of their burgers. The McDonald brothers had devised an elaborate system for making crisp french fries, one that was later improved by the restaurant chain. McDonald's cooked thinly sliced Russet Burbanks in special fryers to keep the oil temperature above 325 degrees. As the chain expanded, it became more difficult — and yet all the more important to maintain the consistency and quality of the fries. Thus, the idea of switching to frozen french fries appealed to Kroc, as a means of ensuring uniformity and cutting labor costs. At the time Kroc switched to Simplot's frozen fries, McDonald's had about 725 restaurants in the U.S. Within a decade, it had more than 3,000. Simplot sold his frozen fries to other restaurant chains, accelerating the growth of the fast food industry and changing the nation's eating habits. Americans have long consumed more potatoes than any other food except dairy products and wheat flour. In 1960, the typical American ate eighty-one pounds of fresh potatoes and about four pounds of frozen french fries. Today the typical American eats about forty-nine pounds of fresh potatoes every year — and more than thirty pounds of frozen french fries. Ninety percent of those fries are purchased at fast food restaurants. French fries have become the most widely sold foodservice item in the U.S.

Impact of the Frozen French Fry

- Fostered the growth of the fast-food restaurant
- Led Idaho to replace Maine as the nation's chief grower of potatoes
- Turned the potato market into an oligopsony – a market of a small number of buyers and a large number of sellers
 - Result is diminished income for the farmers
- Gave a vast boost to the flavor industry

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Effects of oligopsony – Thus, out of a \$1.50 order of french fries, only 2 cents goes to the potato farmer. As a result, over the last 25 years, Idaho has lost half of its potato farmers.

Flavor industry - While the taste of McDonald's French fries has long been praised by customers and even food critics, their distinctive taste comes neither from the potato McDonald's buys or the restaurant equipment that fries them; instead it comes from the flavored cooking oil. Artificial and natural flavorings are added to food because the canning, freezing, and dehydrating techniques used to process food destroy most of its flavor. To make processed food palatable, a vast flavor industry has arisen since World War II. In the words of Eric Schlosser, author of *Fast Food Nation*. "Without this flavor industry, today's fast food industry could not exist."

Impact of McDonald's

- The expansion of McDonald's overseas has:
 - Led foreigners to see McDonald's as representing Americana and the promise of modernization
 - Driven many traditional native restaurants out of business in their own homelands
 - For example, the traditional German restaurant – serving schnitzel, knockwurst, sauerbraten & beer - is rapidly disappearing in Germany which McDonald's has over a thousand restaurants there
 - Has made McDonald's, instead of the American embassy, the most likely target of anti-American demonstrations

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McDonald's -- According to Chinese anthropologist Yunxiang Yan, Beijing consumers see McDonald's as representing "Americana and the promise of modernization." Thousands of people waited in line to eat at the city's first McDonald's in 1992. In 1994, when a McDonald's opened in Kuwait, the line of cars at the drive-through window stretched for seven miles. In Brazil, McDonald's has become the nation's largest private employer. Classes at McDonald's Hamburger University are now taught in more than two dozen languages.

The Impact of Coffee

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Coffee Trees



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Coffee Berries & Beans



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Coffee

- Coffee = a beverage made by percolation, infusion, or decoction from the roasted and ground seeds of a coffee plant b : any of several Old World tropical plants (genus *Coffea* and especially *C. arabica* and *C. canephora*) of the madder family that are widely cultivated in warm regions for their seeds from which coffee is prepared

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Notes on Coffee - 1

- Coffee trees produce berries that when ripe are ruby red in color. The skin and pulp are then removed from the berries, leaving the dark brown coffee beans which are washed and dried in the sun for 7-10 days
 - Coffee at this stage is called “green coffee”
- There are two major types of commercially-produced coffee
 - *Coffea arabica*
 - *Coffea canephora* (“robusta”)

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Coffee preparation – first stage -- After the flesh of the berry is removed, usually by machine, the seeds—usually called beans—are often fermented to remove the slimy layer of mucilage still present on the bean. When the fermentation is finished, the beans are washed with large quantities of fresh water to remove the fermentation residue, which generates massive amounts of coffee wastewater. Finally, the seeds are dried. The best (but least used) method of drying coffee is using drying tables. In this method, the pulped and fermented coffee is spread thinly on raised beds, which allows the air to pass on all sides of the coffee, and then the coffee is mixed by hand. In this method the drying that takes place is more uniform, and fermentation is less likely. Most African coffee is dried in this manner and certain coffee farms around the world are starting to use this traditional method. Next, the coffee is sorted, and labeled as green coffee. Another way to let the coffee beans dry is to let them sit on a concrete patio and rake over them in the sunlight.

Notes on Coffee - 2

- Arabica is more flavorful and less bitter than robusta
 - 75% of the world's cultivated coffee is arabica
- Robusta has about 40%-50% more caffeine
 - Is less susceptible than Arabica to disease and can be cultivated at lower altitudes and in warmer climates
 - Used as an inexpensive substitute in many commercial coffee blends
 - Used in many espresso blends to provide a full-bodied taste, a better foam head, and to lower cost

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Of the two main species grown, arabica coffee (from *C. arabica*) is generally more highly regarded than robusta coffee (from *C. canephora*); robusta tends to be bitter and have less flavor but better body than arabica. For these reasons, about three-quarters of coffee cultivated worldwide is *C. arabica*.^[13] Robusta strains also contain about 40–50% more caffeine than arabica.^[21] For this reason, it is used as an inexpensive substitute for arabica in many commercial coffee blends. Good quality robusta beans are used in some espresso blends to provide a full-bodied taste, a better foam head (known as *crema*), and to lower the ingredient cost. However, *Coffea canephora* is less susceptible to disease than *C. arabica* and can be cultivated in lower altitudes and warmer climates where *C. arabica* will not thrive.

Notes on Coffee - 3

- Coffee beans from different regions can be distinguished by differences in flavor, aroma, body, and acidity.
 - Differences reflect both the climate and soil in which the coffee is grown, the subspecies (varietals) of arabica or robusta coffee used, and the way the coffee is processed
 - Subspecies or varietals are known by the region where they are grown – Columbian, Java, Kona, etc

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Notes on Coffee - 4

- Coffee originated in Ethiopia, from whence it spread to Yemen and the Arab world in the early-1500s and from there to Europe in the 17th century
- Coffee appealed to the Islamic world since it was a non-alcoholic, non-intoxicating drink in a culture that forbade drinking of alcohol
 - Called the “wine of Islam”

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Origins of coffee - Coffee originated in the Ethiopian Highlands where natives chewed it. The earliest credible evidence of either coffee drinking or knowledge of the coffee tree appears in the middle of the fifteenth century, in the Sufi monasteries in Yemen. It was in the Arabian peninsula that coffee beans were first roasted and brewed, in a similar way to how it is now prepared. By the 16th century, it had reached the rest of the Middle East, Persia, Turkey, and north Africa. From the Islamic world, coffee spread to Venice, from where it was introduced to the rest of Europe. Coffee became more widely accepted after it was deemed a Christian beverage by Pope Clement VIII in 1600, despite appeals to ban the "Muslim drink." The first European coffee house opened in Italy in 1645. The Dutch were the first to import coffee on a large scale, and they were among the first to defy the Arab prohibition on the exportation of plants or unroasted seeds when Pieter van den Broecke smuggled seedlings from Yemen into Europe in 1616. The Dutch later grew the crop in Java and Ceylon. The first exports of Indonesia coffee from Java to the Netherlands occurred in 1711. Through the efforts of the British East India Company, coffee became popular in England as well. Oxford's Queen's Lane Coffee House, established in 1654, is still in existence today. Coffee was introduced in France in 1657, and in Austria and Poland after the 1683 Battle of Vienna, when coffee was captured from supplies of the defeated Turks.

Notes on Coffee - 5

- Before coffee is consumed, the coffee beans must be roasted
 - Roasting changes the color of the bean, breaks down starches in the bean, and produces an oil, *caffeol*, which is responsible for the coffee's aroma and flavor
 - Roasted beans are labeled from light to very dark, depending on the color of the bean

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Roasting - The next step in the process is the roasting of the green coffee. Coffee is usually sold in a roasted state, and with rare exceptions all coffee is roasted before it is consumed. It can be sold roasted by the supplier, or it can be home roasted. The roasting process influences the taste of the beverage by changing the coffee bean both physically and chemically. The bean decreases in weight as moisture is lost and increases in volume, causing it to become less dense. The density of the bean also influences the strength of the coffee and requirements for packaging. The actual roasting begins when the temperature inside the bean reaches approximately 200 °C (392 °F), though different varieties of beans differ in moisture and density and therefore roast at different rates.^[52] During roasting, caramelization occurs as intense heat breaks down starches in the bean, changing them to simple sugars that begin to brown, changing the color of the bean. Sucrose is rapidly lost during the roasting process and may disappear entirely in darker roasts. During roasting, aromatic oils and acids weaken changing the flavor; at 205 °C (401 °F), other oils start to develop. One of these oils is *caffeol*, created at about 200 °C (392 °F), which is largely responsible for coffee's aroma and flavor. Depending on the color of the roasted beans as perceived by the human eye, they will be labeled as light, medium light, medium, medium dark, dark, or very dark. Darker roasts are generally bolder because they have less fiber content and a more sugary flavor. Lighter roasts have a more complex and therefore perceived stronger flavor from aromatic oils and acids otherwise destroyed by longer roasting times.

Notes on Coffee - 6

- Coffee beans must be ground and brewed to produce a coffee drink
 - Brewing normally takes place by percolating (allowing water to pass through the ground coffee), infusing (steeping in water), or boiling the ground coffee in water
- Instant coffee is coffee ground and dried into a soluble powder or freeze-dried into granules that quickly dissolve in hot water

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Brewing - Coffee beans must be ground and brewed to create a beverage. Almost all methods of preparing coffee require the beans to be ground and mixed with hot water for long enough to extract the flavor, but without boiling for more than an instant; boiling develops an unpleasant "cooked" flavor. Finally, the spent grounds are removed from the liquid, and the liquid is consumed.

Boiling - Brewing coffee by boiling was the earliest method, and Turkish coffee is an example of this method.^[59] It is prepared by grinding or pounding the beans to a fine powder, then adding it to water and bringing it to the boil for no more than an instant in a pot called a *cezve*. This produces a strong coffee with a layer of foam on the surface and sediment (which is not meant for drinking) settling on the bottom of the cup.

Percolating – coffee percolators and automatic coffeemakers brew coffee using gravity. In an automatic coffeemaker hot water drips onto coffee grounds held in a coffee filter made of paper, plastic, or perforated metal, allowing the water to seep through the ground coffee while extracting its oils and essences. The liquid drips through the coffee and the filter into a carafe or pot, and the spent grounds are retained in the filter. In a percolator, boiling water is forced into a chamber above a filter by steam pressure created by boiling. The water then seeps through the grounds, and the process is repeated until terminated by removing from the heat, by an internal timer, or by a thermostat that turns off the heater when the entire pot reaches a certain temperature.

Steeping - Coffee may be brewed by steeping in a device such as a French press (also known as a *cafetière* or coffee press). Ground coffee and hot water are combined in a cylindrical vessel and left to brew for a few minutes. A circular filter which fits tightly in the cylinder fixed to a plunger is then pushed down from the top to force the grounds to the bottom. Because the coffee grounds are in direct contact with the water, all the coffee oils remain in the beverage, making it stronger and leaving more sediment than in coffee made by an automatic coffee machine.^[61] The coffee is poured from the container; the filter retains the grounds at the bottom.

Instant coffee – Instant coffee is dried into soluble powder or freeze-dried into granules that can be quickly dissolved in hot water. Originally invented in 1907, it rapidly gained in popularity in many countries in the post-war period, with Nescafe the most popular product. Many consumers determined that the convenience in preparing a cup of instant coffee more than made up for a perceived inferior taste. Paralleling (and complementing) the rapid rise of instant coffee was the coffee vending machine, invented in 1947 and multiplying rapidly through the 1950s.

Notes on Coffee - 7

- Caffeine in coffee acts as a central nervous system stimulant
 - It stimulates mental activity and speeds perception
 - For this reason, it is often consumed in the morning as a 'wake-me-up' and as a means of staying awake and alert when suffering fatigue

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Consequences of Coffee - 1

- Gave rise to the Coffeehouse
 - Coffee was drunk in the public coffeehouse long before it became a beverage of the home
- Replaced the morning beer or wine with a cup of coffee
- Gave rise to such serving implements as the coffee cup, the saucer, and the coffee service (with spoons & cups for sugar & cream)
 - Gave a boost to the newly-emerging china manufacturing industry

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Coffeehouse - When coffee first reached Europe, the middle class drank it only in the coffeehouses. It took a half century—and in Germany almost a full century—for coffee to enter the home, as a breakfast and afternoon drink. Thus it began its career in the public sphere, as a specifically *public drink*, and only later migrated into the private sphere to be served at home.” The coffeehouse took the Arab notion of the coffeehouse as a more respectable, intellectual, and above all nonalcoholic alternative to the tavern along with it. Early coffeehouses were well lit, and adorned with bookshelves, mirrors, pictures in gilt frames, and good furniture, in stark contrast to the gloom and squalor of the taverns

Replacing beer & wine for breakfast - The introduction of coffee into 17th century Europe was particularly noticeable since the most common beverages of the time, even at breakfast, were beer and wine. Both were far safer to drink than water, which in squalid and crowded cities was likely to be contaminated. Coffee, like beer, was made using boiled water and, therefore, provided a new and safe alternative to alcoholic drinks. In fact, coffee came to be regarded as the very antithesis of alcohol, sobering rather than intoxicating, heightening perception rather than dulling the senses and blotting out reality.

Coffee accessories - Neither the Chinese teacup nor the Arabic coffee cup had either a handle or a saucer. These were European additions. Originally, they filled a practical function. The handle was to protect the drinker from being burned by the hot drink. The saucer was used to cool off the drink. As late as the 18th century, it was common to drink out of the saucer rather than the cup. Eventually, the original function of the handle and saucer was soon abandoned and forgotten, acquiring a purely aesthetic character. Cup and saucer henceforth were considered a pair and used in more formal settings. Coffee in a mug is weekday coffee -- coffee without ceremony.

China – In 1708, Ehrenfried Walther von Tschirnhaus created the first European hard-paste porcelain, duplicating what the Chinese had accomplished centuries earlier. After his death that October, Johann Friedrich Böttger, continued his work and brought porcelain to the market, and he has often been credited with the invention. The production of porcelain at Meissen, near Dresden, started in 1710 and attracted artists and artisans to establish one of the most famous porcelain manufacturers, still in business today as *Staatliche Porzellan-Manufaktur Meissen GmbH*. Its signature logo, the crossed swords, was introduced in 1720 to protect its production; the mark of the crossed swords is one of the oldest trademarks in existence. It dominated the style of European porcelain until 1756.

Consequences of Coffee - 2

- Replaced the tavern's communal rites of alcohol consumption with the coffeehouse's largely solitary consumption
 - With coffee (or tea), there was no clinking of glasses, no toasting, no reciprocal treating to rounds of drinks
 - Instead, coffee (and tea) drinkers sat at a table either alone or with one or two friends
 - Often people sat alone at a table reading a newspaper

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Impact of the Coffeehouse - 1

- The Coffeehouse was a public place similar to a tavern that served coffee (and later also tea and chocolate) instead of alcoholic beverages.
- The coffeehouse served as a public meeting space and served as both a center of communication and a news exchange
 - It was the site for public life in the 18th centuries where the bourgeoisie and intellectuals developed new forms of commerce and culture

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According to Wolfgang Schivelbusch *Tastes of Paradise*, “the coffeehouse of the 17th and 18th centuries served as a center of communication. In a period that still had no daily newspaper in the modern sense, it functioned as sort of a news exchange. Lloyd’s is an example of the coffeehouse serving as a commercial communication center. But the coffeehouse was also equally important for two other middle-class bourgeois activities: journalism and literature. In the 17th and 18th centuries, people frequented coffeehouses not only to conduct business but also to discuss political and literary topics -- and to read the newspapers that were available there. There was hardly a writer in the 18th century who did not frequent coffeehouses more or less regularly. The association of the coffeehouse with journalism and writers would last into the 20th century. The coffeehouse functioned as a social setting, a place for communication and discussion, while the coffee served in it no longer played any discernible role. On the other hand, the coffeehouse owed its origin precisely to the serving of coffee. It owed its name, its very existence, to the beverage.” Thus, Europe's coffeehouses functioned as information exchanges for scientists, businessmen writers, and politicians. Like modern Web sites, they were vibrant and often unreliable sources of information, typically specializing in a particular topic or political viewpoint. They became the natural outlets for a stream of newsletters, pamphlets, advertising free-sheets, and broadsides.

Impact of the Coffeehouse - 2

- Coffeehouses became associated with specific trades and lines of business and endeavor
 - In 1687, Edward Lloyd opened a coffeehouse which soon became a meeting place for persons in maritime occupations – ships' captains, shipowners, merchants, & insurance brokers
 - Coffeehouses became the first sites with addresses, since they often served as places where people could pick up their mail

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Coffeehouses & lines of business - Depending on the interests of their customers, some coffee-houses displayed commodity prices, share prices, or shipping lists on their walls; others subscribed to foreign newsletters filled with news from other countries. Coffeehouses became associated with specific trades, acting as meeting places where actors, musicians, or sailors could go if they were looking for work. Coffeehouses catering to a particular clientele, or dedicated to a given subject, were often clustered together in the same neighborhood. This was especially true in London, where hundreds of coffeehouses, each with its own distinctive name and sign over the door, had been established by 1700. Those around St. James's and Westminster were frequented by politicians; those near St. Paul's Cathedral by clergymen and theologians. The literary set, meanwhile, congregated at Will's coffeehouse in Covent Garden, where for three decades the poet John Dryden and his circle reviewed and discussed the latest poems and plays. The coffeehouses around the Royal Exchange were thronged with businessmen, who would keep regular hours at particular coffeehouses so that their associates would know where to find them, and who used coffeehouses as offices, meeting rooms, and venues for trade. Books were sold at Man's coffeehouse in Chancery Lane, and goods of all kinds were bought and sold in several coffeehouses that doubled as auction rooms. So closely were some coffeehouses associated with certain topics that the *Tatler*, a London magazine founded in 1709, used the names of coffeehouses as subject headings for its articles.

Lloyd's coffeehouse - Lloyd's Coffeehouse soon evolved into a meeting place for people in the maritime occupations: ship captains, shipowners, merchants, insurance brokers. People went to Lloyd's to hear the latest trade news. From time to time, Lloyd himself ran a news service providing this sort of information, "Lloyd's News." This news-reporting venture flourished, its profits soon surpassing those derived from serving coffee. One sector of Lloyd's clientele in particular continued to expand—the insurance brokers. In the course of the eighteenth century Lloyd's completely shed its role as a coffeehouse and became the world-famous institution we know today, the largest insurance brokerage in the world. This transformation began in the early eighteenth century when insurance agents would meet their clients in Lloyd's Coffeehouse to transact business. As the century advanced, the underwriters began to rent regular booths in Lloyd's, much as brokers conduct their business on the stock exchange. When at the end of the 18th century, Lloyd's actually moved to London's Royal Exchange, its transformation was complete. The former coffeehouse became

Impact of the Coffeehouse - 3

- Unwittingly triggered the publication of the greatest book of the Scientific Revolution – Isaac Newton's *Principia*
- Was the place where Adam Smith wrote much of *The Wealth of Nations* and circulated chapters of the book for comment
- Was the place where Denis Diderot and Jean d'Alembert compiled the 28-volume *Encyclopedia*

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Newton's *Principia* -- On a January evening in 1684, a coffeehouse discussion between Robert Hooke, Edmund Halley, and Christopher Wren turned to the theory of gravity, the topic of much speculation at the time. Between sips of coffee, Halley wondered aloud whether the elliptical shapes of planetary orbits were consistent with a gravitational force that diminished with the inverse square of distance. Hooke declared that this was the case, and that the inverse-square law alone could account for the movement of the planets, something for which he claimed to have devised a mathematical proof. But Wren, who had tried and failed to produce such a proof himself, was unconvinced. Halley later recalled that Wren offered to "give Mr Hook or me 2 months time to bring him a convincing demonstration thereof, and besides the honour, he of us that did it, should have from him a present of a book of 40 shillings." Neither Halley nor Hooke took up Wren's challenge, however, and this prize went unclaimed. A few months later Halley went to Cambridge, where he visited another scientific colleague, Isaac Newton. Recalling his heated coffeehouse discussion with Wren and Hooke, Halley asked Newton the same question: Would an inverse-square law of gravity give rise to elliptical orbits? Like Hooke, Newton claimed to have proved this already, though he could not find the proof when Halley asked to see it. After Halley's departure, however, Newton devoted himself to the problem. In November he sent Halley a paper which showed that an inverse-square law of gravity did indeed imply elliptical planetary orbits. But this paper, it turned out, was just a foretaste of what was to come. For Halley's question had given Newton the impetus he needed to formalize the results of many years of work, and to produce one of the greatest books in the history of science: *Philosophiæ naturalis principia mathematica* (Mathematical principles of natural philosophy), generally known as the *Principia*. In this monumental work, published in 1687, Newton demonstrated how his principle of universal gravitation could explain the motions of both earthly and celestial bodies, from the (probably apocryphal) falling apple to the orbits of the planets. With the *Principia*, Newton at last provided a new foundation for the physical sciences to replace the discredited theories of the Greeks.

Adam Smith – *The Wealth of Nations* described and championed the emerging doctrine of laissez-faire capitalism, according to which the best way for governments to encourage trade and prosperity was to leave people to their own devices. Smith wrote much of his book in the British Coffee House, his base and postal address in London, and a popular meeting place for Scottish intellectuals, among whom he circulated chapters of his book for criticism and comment. So it was that London's coffeehouses were the crucibles of the scientific and financial revolutions that shaped the modern world.

Diderot - Diderot actually compiled the *Encyclopédie* in a Paris coffee-house, the Cafe de la Regence, which he used as his office. He recalled in his memoirs that his wife used to give him nine sous each morning to pay for a day's worth of coffee. The first volume of the work appeared in 1751. Its contributors included Voltaire, along with other leading French thinkers such as Jean-Jacques Rousseau and Charles-Louis de Secondat Montesquieu who, like Voltaire, had been greatly influenced by Locke. With such a lineup of contributors, it is hardly surprising that the *Encyclopédie* came to be seen as the definitive summary of Enlightenment thinking. It promoted a rational, secular view of the world founded on scientific determinism, denounced ecclesiastical and legal abuses of power, and infuriated the religious authorities, who successfully lobbied for it to be banned. Diderot quietly continued his work even so, and the *Encyclopédie* was eventually completed in 1772, with each of its twenty-eight volumes delivered to subscribers in secret.

Coffeehouses & Revolution - 1

- In the coffeehouses of 18th century Paris, the seeds of the French Revolution were planted
 - Parisian coffeehouses, unlike French society, were egalitarian – anyone might enter and drink coffee
 - French coffeehouse discussions made apparent the contrast between an enlightened France that could be and the France that was

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Paris coffeehouses - In Paris, coffeehouses abounded—six hundred had been established by 1750—and, as in London, they were associated with particular topics or lines of business. Poets and philosophers gathered at the Cafe Parnasse and the Cafe Procope, whose regular patrons included Rousseau, Diderot, d'Alembert, and Benjamin Franklin. Voltaire had a favorite table and chair at the Procope, and a reputation for drinking dozens of cups of coffee a day. Actors gathered at the Cafe Anglais, musicians at Cafe Alexandre, army officers at the Cafe des Armes while the Cafe des Aveugles doubled as a brothel. Unlike the salons frequented by the aristocracy, the French coffeehouses were open to all, even to women.

Alienation from the *ancien regime* -- French coffeehouses highlighted the paradox that despite the intellectual advances of the Enlightenment, progress in the social and political spheres had been hindered by the dead hand of the *ancien regime*. The wealthy aristocracy and clergy, a mere 2 percent of the population, were exempt from taxes, so the burden of taxation fell on everyone else: the rural poor and the wealthier members of the bourgeoisie, who resented the aristocracy's firm grip on power and privilege. In coffeehouses the contrast between radical new ideas about how the world might be and how it actually was became most apparent. As France struggled to deal with a mounting financial crisis largely caused by its support for America in the Revolutionary War, coffeehouses became centers of revolutionary ferment.

Coffeehouses & Revolution - 2

- Press censorship and government spies led to the emergence of handwritten newsletters of Paris gossip – most of which originated in the coffeehouses
 - These were hand-copied and mailed to subscribers who often had them surreptitiously printed and distributed
 - Many of these newsletters were the so-called *Libelles* which contained accounts of the alleged sexual misdeeds of the royal family, often in pornographic detail

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Newsletters & *Libelles* - With tight curbs on freedom of the press and a bureaucratic system of state censorship, there were far fewer sources of news than in England or Holland. This led to the emergence of handwritten newsletters of Paris gossip, transcribed by dozens of copyists and sent by post to subscribers in Paris and beyond. (Since they were not printed, they did not need government approval.) The lack of a free press also meant that poems and songs passed around on scraps of paper, along with coffeehouse gossip, were important sources of news for many Parisians. Many of these newsletters were so-called *Libelles*. Conor Cruise O'Brien in his *On the Eve of the Millennium* notes, "Much ink has been spilt on the intellectual origins of the French Revolution. Much less has been heard about that revolution's *pornographic* origins. The intellectual origins were, it is true, extremely important in the long run, as Burke had seen. But on the eve of the revolution itself, in the 1780s, the business end of the pre-revolutionary process was in the hands of the pornographers. The favourite reading of Parisians in those years consisted of *les libelles*. These were pornographic pamphlets, clandestinely published or illegally imported, but widely available and delusively directed at the supposed sex-life of the French royal family, and of Marie Antoinette in particular. These fascinatingly smutty little booklets which could be read aloud to the illiterate — did much to shape the attitudes of the Paris mob towards the royal family: a major factor at various stages of the revolution."

Coffeehouses & Revolution - 3

- A coffeehouse, the Café du Foy, was the site of a speech that touched off a key turning point event of the French Revolution – the storming of the Bastille

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Firing of Necker & the Storming of the Bastille - On July 11, 1789, the king dismissed Jacques Necker, a popular reform-minded finance minister, and called out the army. At the Cafe de Foy, on the afternoon of July 12, 1789, a young lawyer named Camille Desmoulins set the French Revolution in motion. Crowds had gathered in the nearby gardens of the Palais Royal, and tensions rose as the news of Necker's dismissal spread, since he was the only member of the government trusted by the people. Revolutionaries stoked fears that the army would soon descend to massacre the crowd. Desmoulins leaped onto a table outside the cafe, brandishing a pistol and shouting, "To arms, citizens! To arms!" His cry was taken up, and Paris swiftly descended into chaos; the Bastille was stormed by an angry mob two days later.

Coffee in the 19th Century - 1

- In the 18th Century, Europeans began producing coffee in their own colonies and in South America (especially Brazil and Columbia)
 - Coffee played a major role in the development of Brazil
- Coffee drinking in the U.S. became popular in the 1820s when coffee became relatively cheap due to ramping up of Brazilian coffee production
 - The combination of coffee along with sugar and Borden's canned condensed milk made coffee drinking universal among Union soldiers and Confederate soldiers (when they could get it)

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European-organized production - Although indigenous to Africa, extensive cultivation of coffee for the European market began with the Dutch in Ceylon in the late-17th Century and in Java about 1712. Coffee-growing was introduced by the Portuguese into Brazil near Rio de Janeiro in 1774 where it was grown on large plantations dependent initially on slave labor and later upon European immigrant labor. One effect of coffee blight in Ceylon was to establish Brazil as the world's most important coffee grower, although the British started coffee cultivation in Malawi in 1878, Kenya in 1895, and Uganda in 1900 on European-owned estates using African labor. Today, coffee covers 44% of the arable cropland in Northern South America. The cultivation of coffee played an enormous role in the development of Brazil and Central America. In Brazil, coffee cultivation came to dominate agriculture and commerce. Coffee cultivation fueled economic growth for Brazil as railways were built from coffee-growing regions to major ports. When slave labor vanished with the abolition of slavery in 1888, thousands of new immigrants, mostly poor Italians, arrived to work on the coffee plantations, thus changing the ethnic and cultural face of the country. Continued coffee growing has radically changed Brazil's environment. Grown as a monoculture, the coffee tree quickly exhausts soil fertility, constantly requiring new land to be developed as the old becomes less and less productive..

American coffee drinking - Coffee drinking became popular in the U.S. in the 1820s when large-scale Brazilian coffee production made coffee relatively cheaper than other caffeinated beverages. By the beginning of the 1830's Brazil was the world's largest producer with some 600,000 bags a year, followed by Cuba, Java and Haiti, each with annual production of 350 to 450,000 bags. World production amounted to some 2.5 million bags per year. The rapid expansion of production in Brazil and Java, among others, caused a significant decline in world prices. These bottomed out in the late 1840's, from which point a strong upward movement occurred, reaching its peak in the 1890's. Meanwhile, the upward movement of prices encouraged the growth of coffee cultivation in other producing regions in the Americas such as Guatemala, Mexico, El Salvador and Colombia. Per capita American consumption of coffee rose from 3 lbs per year in 1820 to 8 lbs per year in 1859

Coffee Innovations - 1

- 1865 – Coffee percolator
- 1886 – Maxwell House coffee
- 1900 – Vacuum packed coffee
- 1901 – Instant coffee invented
- 1906 – First mass-produced instant coffee
- 1910 – Electric coffee percolator

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Percolator - Prior to the percolator, coffee beans were ground with a mortar and pestle and the resulting grains boiled with water. This led to coffee with coffee grounds in the cup. With the percolator, the boiling water was filtered through the percolator cup holding the coffee grains which largely prevented the coffee grounds from mixing with the brewed coffee

Maxwell House - Former wholesale grocer Joel Cheek names his popular coffee blend "Maxwell House," after the hotel in Nashville, TN where it's served.

Hills Bros vacuum packed coffee - Hills Bros. begins packing roast coffee in vacuum tins, spelling the end of the ubiquitous local roasting shops and coffee mills

Instant coffee - The first soluble "instant" coffee is invented by Japanese-American chemist Satori Kato of Chicago. George Constant Washington, an English chemist living in Guatemala, notices a powdery condensation forming on the spout of his silver coffee carafe. After experimentation, he creates the first mass-produced instant coffee (his brand is called Red E Coffee).

Electric percolator - The electric percolators, which came out around 1910, were very popular with the day's busy housewife because the coffee maker could now "watch itself" and be trusted not to boil over on the stove. Coffee percolators could also be scaled to very large sizes, making large pots of coffee all at one time

Coffee Innovations - 2

- 1923 – Sanka decaffeinated coffee
- 1938 – Nescafe freeze-dried coffee
- 1946 – Espresso machine
 - Cappuccino named for its likeness to the color of the robes of the Capuchin order monks
- 1960 – Drip coffee maker
- 1980s – Automobile cup holder

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Decaffeinated coffee - In 1903, German coffee importer Ludwig Roselius turn a batch of ruined coffee beans over to researchers, who perfect the process of removing caffeine from the beans without destroying the flavor. He markets it under the brand name "Sanka." Sanka is introduced to the United States in 1923.

Freeze-dried coffee - Having been asked by Brazil to help find a solution to their coffee surpluses, Nestle company invents freeze-dried coffee. Nestle develops Nescafe and introduces it in Switzerland.

Espresso - In Italy, Achilles Gaggia perfects his espresso machine. Cappuccino is named for the resemblance of its color to the robes of the monks of the Capuchin order.

Drip coffee maker - Drip coffee makers came on to the scene in the 1960s. They used a method similar to a percolator, drawing hot water up a tube and spraying it over the coffee, but they didn't re-circulate the coffee, the hot water dripped through ground coffee and into a waiting pot. The result was a much better tasting coffee than the percolator as well as an easier to clean appliance.

Travel mugs & auto cup holders – Initially, drivers actually stopped to enjoy their coffee, which would soon change as drivers wanted to be able to take their coffee with them. Auto cup holders and Coffee Travel Mugs were a natural progression. The drive-in restaurant and cinema encouraged the development of built-in tray tables; often, the inside of the glove compartment lid, when folded down, had indentations to hold cups and cans, and were found in cars as early as the 1957 Chevrolet Bel Air. These were sufficient to hold beverages when the car was stopped, but not while in motion. Built-in cupholders began to be available in the 1980s. Minivans were pioneers in their availability, and they still offer the greatest number of them. Over time, automotive cupholders have become larger and more sophisticated, so that they can hold a variety of different cup sizes securely. The installation of cup holders

20th Century Social Innovations

- Kaffeeklatch
 - In Germany c1900, afternoon gatherings of women for coffee and conversation became fairly common
- Coffee Break
 - Began during WWII in war production factories to give workers a brief rest and a jolt of caffeine
- Starbucks
 - First store was opened in Seattle's Pike Place public market in 1971

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Kaffeeklatch - In Germany, afternoon coffee becomes a standard occasion. The derogatory term "KaffeeKlatsch" is coined to describe women's gossip at these affairs. Since broadened to mean relaxed conversation in general.

The Coffee Break - The British may have invented "Tea Time" but America invented the "Coffee Break". The practice began in WW II era war effort factories to give workers a brief rest and a jolt of caffeine. Thanks to a clever advertising campaign in the mid 1950s by the Pan American Coffee Bureau, 70-80% of American workers were taking a coffee break – both factory and office workers. General Eisenhower used the coffee break idea for "Operation Coffee Cup" during his presidential campaign to meet with voters, which continued to spread the social trend of the coffee break.

Starbucks - Starbucks opens its first store in Seattle's Pike Place public market, creating a frenzy over fresh-roasted whole bean coffee.

The Impact of Tea

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Tea Leaves



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Tea

- Tea = a : a shrub (*Camellia sinensis* of the family Theaceae, the tea family) cultivated especially in China, Japan, and the East Indies
b : the leaves, leaf buds, and internodes of the tea plant prepared and cured for the market, classed according to method of manufacture into one set of types (as green tea, black tea, or oolong), and graded according to leaf size into another (as orange pekoe, pekoe, or souchong)

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Notes on Tea - 1

- Tea is simply dry tea leaves infused in hot water. The quality of tea comes from essential oils that leach flavor and caffeine into a cup of hot water.
- **Tea** is the product of the leaves, leaf buds, and internodes of the *Camellia sinensis* plant, prepared and cured by various methods.
 - Tea also refers to the aromatic drink prepared from the cured leaves by infusion in hot or boiling water
 - Tea is also the common name for the *Camellia sinensis* plant itself.

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Tea oils - These oils are secondary compounds. Secondary chemicals help plants in many different respects, such as defending them against pests, infections, and fungus, and aid-ing them in their fight for survival and reproduction. Tea, like other green plants, has several defense systems against predators: Caffeine, for instance, is a natural insecticide. Almost all of tea's thick waxy leaves, apart from the topmost shoots, are bitter and leathery and difficult to bite through. Tea also has hard, fibrous stalks to discourage animal incursion. Clumsy pickers can compromise the quality of tea by including a leaf farther down the stem and even some of the stem itself; this will make for a harsher, more tannic brew, and in China it will be qualified by names sug" gesting crudeness, such as dust.

Notes on Tea - 2

- Tea (*Camellia sinensis*) is an evergreen plant that grows mainly in tropical and sub-tropical climates
 - The Tea plant requires at least 50" of rain a year and is best grown in low mountains of up to 4,900'
 - A tea plant will grow into a tree if left undisturbed, but cultivated tea are pruned to waist-high level
- Herbal "teas" are teas made of plant material that contain no *Camellia sinensis*
 - Herbal teas, unlike regular teas, contain no caffeine

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Tea an evergreen plant - is an [evergreen](#) plant that grows mainly in [tropical](#) and [sub-tropical](#) climates. Nevertheless, some varieties can also tolerate [marine climates](#) and are cultivated as far north as [Pembrokeshire](#) in the British mainland^[7] and [Washington](#) in the United States. Tea requires at least 50" of rainfall a year and prefer [acidic soils](#).^[9] Traditional Chinese Tea Cultivation and Studies believes that high-quality tea plants are cultivated at elevations of up to 1,500 metres (4,900 ft): at these heights, the plants grow more slowly and acquire a better flavour.

Herbal teas - The term "[herbal tea](#)" usually refers to an [infusion](#) or [tisane](#) of leaves, [flowers](#), [fruit](#), [herbs](#), or other plant material that contains no *Camellia sinensis*.^[6] The term "red tea" refers to an infusion made from either black tea (mainly in Chinese, Korean, Japanese and other [East Asian languages](#)) or the [South African rooibos](#) plant (containing no *Camellia sinensis*).

Notes on Tea - 3

- There are at least six varieties of tea
 - The most common are green, black & oolong
 - Green tea is tea that has not undergone the oxidation process
 - Oolong tea is tea that has undergone partial oxidation
 - Black tea is tea whose leaves are allowed to sit in the sun to oxidize and wilt – this develops the tea's tannins which gives the tea its dark color

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There are at least six varieties of tea: [white](#), [yellow](#), [green](#), [oolong](#), [black](#), and [puerh](#) of which the most commonly found on the market are [white](#), [green](#), [oolong](#), and [black](#). All teas are made from the same species of plant, though different varieties may be used, and the leaves are processed differently, and, in the case of fine white tea, grown differently. [Pu-erh tea](#), a post-fermented tea, is also often used medicinally.

Oolong tea - Oolong is a traditional Chinese [tea](#) (*Camellia sinensis*) somewhere between [green](#) and [black](#) in oxidation. It ranges from 10% to 70% [oxidation](#).^[1] It is among the most popular types of teas served in typical Chinese restaurants.

Black tea - Black tea is oxidized; green tea is not. To make black tea, the leaves are allowed to sit in the sun for an entire day to oxidize and wilt—essentially to spoil a little. After the first twelve hours of stewing, black tea is turned, the liquor is stirred around, and the mixture is left to cure for another twelve hours. This longer curing process develops black tea's tannins, its strong bitter flavor, and its dark color. Black tea is cured or ripened.

Notes on Tea - 4

- Tea , like coffee, is a stimulant since it contains both caffeine and theanine – an amino acid that like caffeine is a stimulant
- Per cup, black tea has about half the caffeine of a cup of coffee
 - Green tea has 1/3rd the caffeine of black tea
- Tea contains phenolics (such as tannic acid) which can kill the bacteria that cause cholera, typhoid, and dysentery

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Tea vs Coffee - It is worth considering which drink, tea or coffee, is the most stimulating. The answer is black tea—but with certain caveats Per pound, black tea has more caffeine than coffee—but where one pound of tea brews some two hundred cups, a pound of coffee yields barely forty. By the cup, black tea actually contains roughly half as much caffeine as coffee. Green tea, meanwhile, has one-third the caffeine of black, or one-sixth that of a cup of coffee. Medically, it takes about 200 milligrams of caffeine—or about two cups of coffee—to combat drowsiness and fatigue. That amounts to about four cups of black tea and twelve cups of green. Few of us have that amount of time or bladder capacity.

Tea & Phenolics – Tea’s antiseptic properties meant that it was safer to drink than water or the millet beer that was common in China before tea became popular. Demographers and doctors had long noticed a drop in the mortality rate as the taste for tea became increasingly popular. With the growth of cities in the eighteenth and nineteenth centuries came a rise in levels of pollution and disease. Cholera, which had long plagued the Indian subcontinent, made its first !! appearance in England in the 1830s when infected sailors drinking water from ships' barrels filled in India, returned to their home port and spread the deadly bacteria through local sewers. By midcentury, cholera epidemics were repeatedly wiping out Londoners by the tens of thousands; the outbreak of 1848-49 alone claimed fifty thousand lives—all from drinking water. The combination of boiled water plus tea (with its phenolics) along with better sanitation ended urban epidemics of cholera, typhoid, and dysentery.

Notes on Tea - 5

- Tea had its origin in southwestern China
 - The earliest unambiguous reference to tea is in the 1st Century BC
 - A book of that period, *Working Rules of Servants*, describes the proper way to buy and serve tea
 - By the 4th Century AD, the Chinese began the deliberate cultivation of tea rather than simply harvesting the leaves from wild bushes
 - By the Tang dynasty (618-907 AD), tea became the national beverage of China

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Earliest reference to tea - The earliest unambiguous Chinese reference to tea is from the first century BC. Having started out as an obscure medicinal and religious beverage, tea first seems to have become a domestic drink in China at this time. A contemporary book, *Working Rules of Servants*, describes the proper way to buy and serve it. Tea had become so popular by the 4th century AD that it became necessary to begin the deliberate cultivation of tea, rather than simply harvesting the leaves from wild bushes. Tea spread throughout China and became the national beverage during the Tang dynasty (618-907 AD), a period that is regarded as a golden age in Chinese history. During the Tang period, China was the largest, wealthiest, and most populous country in the world. Its overall population, between 630 and 755, tripled to exceed 50 million, and its capital Changan (modern Xi'an) was home to around two million people.

Europeans & Tea

- The first European mention of tea occurs in the 1550s in reports of European sailors
 - Tea reached England in the 1650s
 - In 1659, the East India Company began to import tea into England
 - The queen of Charles II, Catherine of Braganza, popularized tea drinking at court and among the aristocracy

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First European notice of tea - Tea is first mentioned in European reports from the regions in the 1550s. It was not until 1610, however, that a Dutch ship brought the first small commercial consignment of tea to Europe, where it was regarded as a novelty. From the Netherlands, tea reached France in the 1630s and England in the 1650s. The first tea to reach Europe was green tea, the kind consumed by the Chinese. Black tea, which is made by allowing the newly picked green leaves to oxidize by leaving them overnight, only appeared during the Ming dynasty. !! It came to be regarded by the Chinese as suitable only for consumption by foreigners and eventually dominated exports to Europe.

Catharine of Braganza - Tea got its start in England when it became fashionable at the English court following the marriage in 1662 of Charles II to Catherine of Braganza, daughter of King John IV of Portugal. Catherine was a devoted tea drinker and brought the custom with her. Sipping tea from small cups caught on immediately with the English aristocracy.

England & Tea

- Because of its expense, tea drinking did not become popular among the English middle class until near the end of the 18th Century
 - By the end of the 18th Century, the price was 1/20th of what it had been at the beginning
- In the 19th Century, the combination of cheap Indian-grown tea, the Industrial Revolution, and Victorianism made tea-drinking universal among the British, even among the newly-emerging working classes

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18th Century tea drinking - Almost nobody in Britain drank teas at the beginning of the 18th century; !! nearly everybody did by the end of it. Official imports grew from six tons in 1699 to 11,000 tons a century later, and the price at the end of the 18th century was 1/20th of the price at the beginning. By the mid-18th century, Great Britain won dominance over the Indian Ocean carrying trade and had established trading posts in China so that the East India Company was able to supply the British market with a steady supply of Chinese tea.

The Industrial Revolution & tea-drinking - Just as deskbound clerks, businessmen, and intellectuals had taken to coffee in the seventeenth century, the workers in the new factories of the eighteenth century embraced tea. Prior to widespread tea drinking, factory workers obtained much of their calorie intake from beer and ale, which made for a less than ideal workforce. Beer drinking could be tolerated in workers doing primarily manual labor, as was the case in preindustrialized economies, but it posed a serious problem in the industrialized sectors of Britain's economy, where fine motor skills were required. A drunk worker was a danger around the fast-moving looms and needles of Manchester's textile industry. But by drinking sugared tea and eating bread, plus meat on Sunday, Britons could get all the calories they needed without the risk of intoxication. Indeed, tea had a stimulant effect; it focused the minds of the workforce, helping them to concentrate better on their demanding job. Tea kept workers alert on long and tedious shifts and improved their concentration when operating fast-moving machines. It was the beverage best suited to these new working arrangements and helped industrialization along in a number of ways. Mill owners began to offer their employees free "tea breaks" as a perk.

Consequences of Tea - 1

- Led to the large-scale importation of Chinese porcelain
 - Created a European fad for *chinoiserie* – a European fad for Chinese porcelain and a strong tendency to adopt Chinese artistic styles in art and architecture
 - Influenced many Rococo artists such as Francois Boucher and Antoine Watteau
 - Led to the construction of many Chinese arches , pagodas, and other structures

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Chinese porcelain - Tea's light weight meant that a merchant ship transporting it needed ballast to stay trim, and for most of the early years of the tea trade, that ballast consisted of blue and white Chinese porcelain. Although this merchandise tended to be undervalued by traders, who could make larger profits on more desirable commodities such as silk, it was considered useful as "kedge," the ballast padding between layers of tea crates, and it had the added benefit of ensuring against leaks when it lined the hull and keel !! Luxury items such as tea were high risk: They were vulnerable to water damage, and a ship was always in jeopardy of being lost at sea, so porcelain helped spread the risk around. Porcelain also protected the more valuable cargo from dirty bilgewater

Chinoiserie – In architecture, small [pagodas](#) appeared on chimneypieces and full-sized ones in gardens. [Kew](#) has a magnificent garden pagoda designed by Sir [William Chambers](#), a replica of which was built in [Munich's Englischer Garten](#).

Artistic Chinoiserie

- Chinoiserie by Francois Boucher



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Artistic Chinoiserie

- Chinoiserie wallpaper



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Architectural Chinoiserie

- Sir William Chamber's pagoda at the Royal Botanic Gardens in Kew



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Architectural Chinoiserie - 2

- Entrance to the Tiergarten in Berlin



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Consequences of Tea - 2

- Stimulated the development of the German and English porcelain industries
 - The presence of imported Chinese porcelain led Meissen in Germany and Josiah Wedgwood in England to discover how the Chinese made “China” porcelain and begin manufacturing it on their own
 - Wedgwood not only duplicated what the Chinese were able to do, but also industrialized the process of fine “china” manufacture

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Meissen - In 1708, Ehrenfried Walther von Tschirnhaus created the first European hard-paste porcelain, duplicating what the Chinese had accomplished centuries earlier. After his death that October, Johann Friedrich Böttger, continued his work and brought porcelain to the market, and he has often been credited with the invention. The production of porcelain at Meissen, near Dresden, started in 1710 and attracted artists and artisans to establish one of the most famous porcelain manufacturers, still in business today as *Staatliche Porzellan-Manufaktur Meissen GmbH*. Its signature logo, the crossed swords, was introduced in 1720 to protect its production; the mark of the crossed swords is one of the oldest trademarks in existence. It dominated the style of European porcelain until 1756.

Wedgwood - Josiah Wedgwood's company produced tea services so efficiently that it could compete with Chinese porcelain, imports of which declined and eventually stopped in 1791. Wedgwood was a pioneer of mass production and an early pioneer of steam engines to grind materials and drive stamping machinery. No longer did individual craftsmen in his factories make each item from beginning to end; instead, they specialized in one aspect of production and became particularly skilled at it. Items moved in a continuous flow from one worker to the next. This division of labor enabled Wedgwood to use the most talented designers for his tea services, without requiring them to be potters too.

Wedgwood's Innovations

- Brought the division of labor to the manufacture of porcelain
- Use of steam engines to grind raw materials and to power stamping machines
- Use of brand names
- Use of celebrity endorsements
- Turning tea service pieces into a status symbol
- Popularized the use of saucers & cups with handles

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Wedgwood - Josiah Wedgwood's company produced tea services so efficiently that it could compete with Chinese porcelain, imports of which declined and eventually stopped in 1791. Wedgwood was a pioneer of mass production and an early pioneer of steam engines to grind materials and drive stamping machinery. No longer did individual craftsmen in his factories make each item from beginning to end; instead, they specialized in one aspect of production and became particularly skilled at it. Items moved in a continuous flow from one worker to the next. This division of labor enabled Wedgwood to use the most talented designers for his tea services, without requiring them to be potters too

Marketing - Wedgwood also pioneered the use of celebrity endorsements to promote his products: When Queen Charlotte, the wife of George III, ordered "a complete set of tea things," he secured her permission to sell similar items to the public under the name "Queen's ware." He took out newspaper advertisements and staged special invitation-only exhibitions of his tea services, such as the one he produced for Empress Catherine II of Russia.

Status marketing – In the words of historian James Burke, Wedgwood invented "keeping up with the Joneses"

Saucers - Neither the Chinese teacup nor the Arabic coffee cup had either a handle or a saucer. These were European additions. Originally, they filled a practical function. The handle was to protect the drinker from being burned by the hot drink. The saucer was used to cool off the drink. As late as the 18th century, it was common to drink out of the saucer rather than the cup. Eventually, the original function of the handle and saucer was soon abandoned and forgotten, acquiring a purely aesthetic character. Cup and saucer henceforth were considered a pair and used in more formal settings. Coffee in a mug is weekday coffee -- coffee without ceremony

Consequences of Tea - 3

- Played a major role in touching off the American Revolution
 - Tea Act of 1773
 - Boston Tea Party
 - Continental Congress
 - Lexington & Concord
- Promoted the development of clipper ships
 - The profits of the tea trade fostered the development of faster sailing ships

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Boston Tea Party - In May 1773, the Tea Act came into effect, which imposed a duty of three pence per pound on all tea imported into America. This tax was intended to help the British East India Company through a flat patch of low prices, demonstrating once again that a London-based commercial organization carried more political clout than several million subjects on the other side of the Atlantic. Before it was singled out for a special duty, tea had been a popular drink in the colonies. However, as soon as tea was selected to carry duty, it became a symbol of oppression, and when three East India tea clippers arrived !! in Boston Harbor, the colonists resolved to take action. Notices were posted through the town to meet at the Green Dragon coffeehouse dressed as Indians. The Indians, went to the wharf, boarded the ships, and dumped 342 chests of tea into Boston Harbor. The British countered this outrage with the Coercive Acts of 1774, which closed the port of Boston and filled the town with troops. Various Sons of Liberty, including Paul Revere, were dispatched posthaste to other colonies to inform them of the "rash, impolitic, and vindictive measures of the British Parliament." This led first to the convening of the Continental Congress in Philadelphia and later to the attempt of British troops to seize weapons and ammunitions stored at Concord – the event that led to the Battles of Lexington and Concord and the beginnings of the Revolutionary War.

Clipper ships - The American clipper ships, modeled after the finer hull lines of the swift privateers from the War of 1812, could make the run between New York and Canton in under a hundred days. In a matter of twenty years, these three factors—the end of Napoleon, the end of the East India Company's monopoly in China, and the entrance of the Americans into China shipping— accelerated the delivery of tea and revolutionized navigation under sail. The new ships, called tea clippers, were immediately recognizable by their long, low hulls that had a "fish head" stern hanging sharply over the water. They were square-rigged and triple-masted, "a perfect beauty to every nautical man," as one captain remarked. The tea clippers remain the fastest sailing ships in the world, in part because they were marvels of engineering and enterprise, and in part because there was never again a need for a big, fast sailing boat.

The Opium War

- A major balance of payments problem between Britain and China
 - While Britain wanted tea and other products from China, China wanted very little from Britain
 - The one problem for which there was a potential demand in China was opium
 - Led to the illegal importation of opium into China

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Balance of payments - The only problem was that the Chinese merchants supplying the tea insisted on being paid in gold and silver bullion.⁹⁵ Since the only English goods to sell successfully on the Chinese market were chiming watches, clocks and music boxes, a serious trade deficit soon developed. In 1793 Lord Macauley went to China as ambassador, carrying samples of other British industrial goods, only to be told by Emperor Ch'ien Lung, "Strange and costly objects do not interest me. ... We possess all things. I set no value on strange and ingenious objects, and have no use for your country's manufactures." But some way to pay for the tea had to be found, because the deficit was hurting the British economy. The situation got steadily worse. Between 1761 and 1800 the British bought goods worth £34,000,000 in Canton (90 percent of it tea), but in return sold only £13,000,000 of British goods. For a while, sales of Indian cot-ton helped, but then in 1823 China began to produce her own. Fortunately for the British, who at the end of the eighteenth !! century were busy fighting a war with Napoleon⁹⁶ (and were therefore extremely short of bullion with which to buy tea), an alternative was at hand. In India there was one particular product used as an intoxicant by the aristocracy, taken by soldiers before battle to give them courage and consumed by many ordinary people simply to give them energy and endurance in their daily toil. The product in question was opium,⁹⁷ and the poppies from which it was extracted grew in profusion all over India (at this time controlled by the British).

Opium - In China the drug had been known for some time as a medicine but because of its addictive properties, its use was strictly controlled by the Chinese government. Imports were illegal, and the British East India Company (which had a trading monopoly) was warned that it would lose its trading privileges if it brought opium into the country. So the company simply found intermediaries to do the job. Sometimes they labeled their cargo "saltpeter," and sometimes they met offshore with Chinese smugglers who transferred the opium to their junks. Whatever the case, the British could plausibly deny their involvement. Early in the nineteenth century so much Indian opium was entering China that the earlier bullion drain had been reversed.

The Opium War - 2

- Large scale opium imports led to:
 - Large-scale opium addiction (with its consequent addiction and social problems)
 - An outflow of silver stemming from a reversal of the balance of payments
 - A resulting decision by Chinese authorities to stop the opium trade by seizing opium imports
- Result: War between Britain & China

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Origins of the Opium War - Exports of opium to China increased 250-fold to reach 1,500 ton a year in 1830. Its sale produced enough silver to pay for Britain's tea; more than enough, indeed, since the value of China's opium imports exceeded those of its tea exports from 1828. The Chinese government's best efforts to stop the trade with new laws had little effect, since the Canton bureaucracy had been utterly corrupted. Eventually, in December 1838, the emperor sent Commissioner Lin Tze-su to Canton to put an end to the opium trade once and for all. The atmosphere was already highly charged when Lin arrived: Ever since the end of the company's monopoly in 1834, local officials had been bickering with the British government's representative about trade rules. Lin immediately ordered the Chinese merchants and their British associates to destroy their stocks of opium. They ignored him, since they had been given such orders before and had ignored them impunity. So Lin's men set fire to the stocks of opium, burning the entire year's supply. When the smugglers treated this as !! a temporary setback and resumed their business as usual, Lin arrested them, British and Chinese alike. Then, after two British sailors murdered a Chinese man in a brawl and the British authorities refused to hand them over, Lin expelled the British from Canton. This caused outrage in London, where representatives of the company and other British merchants had been putting pressure on the British government to force China to open itself up to wider trade, rather than forcing everything to pass through Can-ton. The volatile situation in Canton had to be addressed, the merchants argued, in the interests of free trade in general, and to protect the tea trade (and its associated opium trade) in particular. The government did not want to endorse the opium trade openly but instead took the position that China's internal ban on opium did not give Chinese officials the right to seize and destroy goods (that is, opium) belonging to British merchants. On the pretext of defending the right to free trade, war was declared

The Opium War - 3

- The Opium War (1839-1842) resulted in a one-sided British victory
 - Chinese with medieval weapons were no match for British troops armed with state-of-the-art muskets
 - By mid-1842, British troops had seized Hong Kong, occupied Shanghai and several other cities, and took control of the major river deltas

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The Opium War of 1839-42 was short and one-sided, due to the superiority of European weapons, which came as a complete surprise to the Chinese. In the first skirmish alone, in July 1839, two British warships defeated twenty-nine Chinese ships. On land, the Chinese and their medieval weapons were no match for British troops armed with state-of-the-art muskets. By the middle of 1842 British troops had seized Hong Kong, taken control of the key river deltas, and occupied Shanghai and several other cities. The Chinese were forced to sign a peace treaty that granted Hong Kong to the British, opened five ports for the free trade of all goods, and required the payment of reparations to the British in silver, including compensation for the opium that had been destroyed by Commissioner Lin.

The Opium War - 4

- War ended with the Treaty of Nanking (August 29, 1842)
 - Britain acquired Hong Kong
 - 5 Chinese ports (including Canton & Shanghai) opened to foreign merchants and missionaries
 - Chinese tariffs on imported goods limited to 5% ad valorem
 - China paid a £21,000,000 indemnity

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The Opium War - 5

- The Opium War and the Treaty of Nanking
 - Greatly weakened the authority of the Manchu dynasty in China
 - The weakness and revealed military backwardness of China paved the way for subsequent European incursions
 - China became an arena in which Britain, France, Germany, Russia, Japan, and the United States played out their imperial and commercial rivalries

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The Opium War - 6

- The Opium War and the Treaty of Nanking
 - Opened China's internal market to Western textiles and other manufactured goods
 - This undermined the economic position of China's poorer peasants and agricultural laborers

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Often lacking the land needed to grow the food to feed their families and buy needed items, poorer peasants and landless agricultural laborers earned their living by making and selling handicraft items on the side. Western manufactured imports undermined the handicraft economy, throwing many millions of rural Chinese into extreme poverty. This, in turn, led to many revolts and was instrumental (along with the Japanese invasion in 1937) in turning large sections of the Chinese peasantry toward support of the Communists, leading to the eventual triumph of the Communists in 1949.

Consequences of Tea - 4

- Led Europeans to seek to break China's monopoly over tea production by developing tea cultivation elsewhere
 - A Scottish gardener, Robert Fortune, brought plant and seed samples to India, which marked the beginnings of the Indian tea industry
 - Fortune found out that Chinese green tea producers were adding Prussian blue and gypsum to green tea to make it look green
 - This led British consumers to begin drinking black tea in place of green tea

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Royal Horticultural Society - Founded in 1804 by John Wedgwood, Charles Darwin's maternal uncle, the Royal Horticultural Society was in the process of naming, describing, and classifying every plant according to the plant classification system of Linnaeus. No longer confined to China's southernmost coast, the Opium War gave Britain greater access to the areas where tea was cultivated and processed. If the manufacture of tea elsewhere was to be successful, Britain would need healthy specimens of the finest tea plants, seeds by the thousand, and the centuries-old knowledge of accomplished Chinese tea manufacturers. Acquiring the necessary plants, seeds, and knowledge required a plant hunter, a gardener, a thief, and a spy -- Robert Fortune was the man. Robert Fortune was a self-taught horticulturalist from the Scottish borderlands who had worked at the Botanic Garden in Edinburgh and later at the Royal Horticultural Society's gardens in Chiswick. Based upon his skills at cultivating Oriental ornamentals, he was the Royal Horticultural Society's first choice to be dispatched to explore China at the close of the First Opium War.

Green Tea - Fortune found out that the Chinese were adding "Prussian blue [iron ferrocyanide], a pigment used in paints" to the tea along with calcium sulfate dehydrate [gypsum], a common component of plaster. !! "At low doses, cyanide leads to weakness, giddiness, confusion, and light-headedness. Exposure to even low doses of cyanide over long periods of time can lead to permanent paralysis. Fortunately for the tea drinkers of Britain, Prussian blue is a complex molecule, so it is almost impossible to release the cyanide ion from it and the poison passes harmlessly through the body. ... Gypsum produces hydrogen sulfide gas as it breaks down. While the gas is produced naturally by the body in low doses, in high doses it acts as a broad-spectrum poison, affecting many of the body's systems simultaneously, particularly the nervous system. At lower concentrations, gypsum acts as an irritant; it reddens the eyes, inflames the throat, and causes nausea, shortness of breath, and fluid in the lungs. Consumed over the long term, it might produce fatigue, memory loss, headaches, irritability, and dizziness. It can even induce miscarriage in women, and failure to thrive in infants and children. Fortune estimated that more than half a pound of plaster and Prussian blue was included in every hundred pounds of tea being prepared. The average Londoner was believed to consume as much as one pound of tea per year, which meant that Chinese tea was effectively poisoning British consumers. The additives were not included maliciously, however, for the Chinese simply believed that foreigners wanted their green tea to *look* green

Consequences of Tea - 5

- As a result of the acquisition by Europeans of Chinese tea plants, seeds, and knowledge, the Europeans were able to create tea cultivation industries in India, Java, Ceylon, and Africa
 - In 2008, the world's leading tea producers were China, India, Kenya, Sri Lanka, Turkey, Vietnam, and Indonesia.
 - Turned India, the Middle East, Australia, New Zealand, and Ireland into nations of tea drinkers

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Indian Tea - Starting around 1850, the British began growing tea in the Darjeeling Mountains. "Today, Darjeeling is considered the champagne of black teas. It has the finest brew, the most delicate floral nose, the richest liquor, and the most opulent amber color. At auction, Darjeeling teas fetch some of the highest prices in the world. Within a generation, India's nascent Himalayan tea industry would outstrip China's in quality, volume, and price.

Tea consumption - In the global ranking of tea consumption per capita, Britain's imperial influence is still clearly visible in the consumption patterns of its former colonies. Britain, Ireland, Australia, and New Zealand are four of the top twelve tea-consuming countries, and the only Western nations in the top twelve: apart from Japan, the rest are Middle Eastern nations, where tea, like coffee, has benefited from the prohibition of alcoholic drinks. The United States, France, and Germany are much farther down the list, each consuming around a tenth of the amount of tea per head that is drunk in Britain or Ireland, and favoring coffee instead.

Consequences of Tea Drinking

- Led to the decline of urban mortality rates
 - Drinking boiled water in the form of tea was safer than drinking polluted water
- Stimulated a demand for sugar
 - Having sugar with tea (a beverage drunk every day) stimulated an increased demand for sugar
- Gave rise to such social innovations as
 - Tea Time
 - Tea parties
 - Tea gardens

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Mortality rates - Demographers and doctors had long noticed a drop in the mortality rate as the taste for tea became increasingly popular. With the growth of cities in the eighteenth and nineteenth centuries came a rise in levels of pollution and disease. Countries such as England, where tea was preferred to coffee that was steeped in hot but not boiling water, reaped immediate health benefits from their drinking habits because boiling water killed the microorganisms that spread contagion at close quarters. Even under normal circumstances London's drinking water was far from sanitary, owing to the density of the city's population and lack of proper waste removal. A nation of tea drinkers was more likely than one of coffee drinkers to survive the repeated infestations that were a product of the global economy of the Victorian era. Cholera, which had long plagued the Indian subcontinent, made its first appearance in England in the 1830s when infected sailors drinking water from ships' barrels filled in India, returned to their home port and spread the deadly bacteria through local sewers. By midcentury, cholera epidemics were repeatedly wiping out Londoners by the tens of thousands; the outbreak of 1848-49 alone claimed fifty thousand lives—all from drinking water.

Sugar - Sugar was another key commodity in the economy of Barbados, Jamaica, and the Virgin Islands. Britain had a glut of sugar, and tea gave Britain somewhere to dump it. Tea with sugar provided Britons with a convenient source of calories. The urbanization of Britain meant that the poor no longer had easy access to farm products, and while tea was not inherently nutritious, it could be drunk with milk, a protein, and sugar, a cheap and dense source of energy.

Social innovations - In addition to tea parties, there emerged tea gardens – the first of which was Vauxhall Gardens in 1732 – a park with lit walkways, bandstands, performers, and stalls selling food and drink. The appeal of tea gardens was that they provided an elegant, respectable public venue that was a good place to meet members of the opposite sex. Tea gardens were especially popular with women, who had always been excluded from coffeehouses, which were in decline by the mid-18th century.

Consequences of Tea - 6

- Encouraged the French to build the Suez Canal to cut sailing/steaming distances between Europe and the areas of Asia where tea was grown

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Trade with the Far East became so valuable that the French undertook the building of the Suez Canal. Although clippers couldn't sail in the waterway—the Red Sea's winds were too challenging—a steamship could reach China in half the time of a clipper. With well-placed fueling stations, the journey to China and India grew ever easier. By 1869, when the Suez Canal was complete, all the improvements in navigation brought on by tea would become a thing of the past. The ambitions of the British merchant fleet could be fueled by reliable and steady coal, not fickle wind.