

TEA

ITS HISTORY AND MYSTERY

JOSEPH M. WALSH



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TEA

—ITS—

HISTORY AND MYSTERY

—BY—

JOSEPH M. WALSH,

AUTHOR OF

“COFFEE: ITS HISTORY, CLASSIFICATION AND
DESCRIPTION.”



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PREFATORY.

Utility, not originality, has been aimed at in the compilation of this work. The obstacles and difficulties its author had met with in his endeavors to learn something of the article he was commissioned to sell when he first entered the Tea trade, the almost total lack of knowledge displayed by the average dealer in the commodity, allied to the numerous inquiries for a work containing "all about tea," first prompted the undertaking.

The material was collated at intervals, in a fragmentary manner, covering a period of over twenty years, and arranged amid the many interruptions incident to an active business life, subjected to constant revisions, repeated prunings and innumerable corrections, due mainly to the varying statements and conflicting opinions of admitted authorities in every branch of the subject. Still, as careful and judicious an arrangement of the data has been given as possible, a faithful effort being made to omit nothing that may prove useful, instructive or profitable to the expert, the dealer or general reader.

Aware that many facts have been omitted, and many errors committed in its preparation, he still trusts that the pains he has taken to avoid both have not been in vain, that the former may be few, and the latter of no great importance. The work was compiled under impulse, not under inducement, a single line not being intended originally for the market, and is now being published solely for the benefit of those "whom it may concern."

PHILADELPHIA, December, 1892.



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(Branch of Tea Plant.)

CHAPTER I.

EARLY HISTORY.

THE history of Tea is intimately bound up with that of China, that is, so far as the Western world is concerned, its production and consumption being for centuries confined to that country. But, having within the past two centuries become known and almost indispensable as an article of diet in every civilized country of the globe, it cannot but prove interesting to inquire into the progress, properties and effects of a commodity which could have induced so large a portion of mankind to abandon so many other articles of diet in its favor, as well as the results of its present enormous consumption.

Although now to be found in a wild state in the mountain-ranges of Assam, and in a state of cultivation through a wide range from India to Japan, the original country of Tea is not definitely known, but from the fact of its being in use in China from the earliest times it is commonly attributed to that country. Yet though claimed to have been known in China long anterior to the Christian era, and even said to have been mentioned in the *Sao-Pao*, published 2700 B. c., and also in the *Rye*, 600 B. c., the exact date or manner of its first discovery and use in that country is still in doubt. One writer claims that the famous herb was cultivated and classified in China 2000 B. c., almost as completely as it is to-day, and that it was used as a means of promoting amity between Eastern monarchs and potentates at this early period.

Chin-Nung, a celebrated scholar and philosopher, who existed long before Confucius, is claimed to have said of it: "Tea is better than wine, for it leadeth not to intoxication, neither does it cause a man to say foolish things and repent thereof in his sober moments. It is better than water, for it doth not carry disease; neither doth it act as a poison, as doth water when the wells contain foul and rotten matter," and Confucius admonishes his followers to: "Be good and courteous to all, even to the stranger from other lands. If he say unto thee that he thirsteth give unto him *a cup of warm Tea* without money and without price."

A Chinese legend ascribes its first discovery to one Darma, a missionary, famed throughout the East for his religious zeal, who, in order to set an example of piety to his followers, imposed on himself various privations, among which was that of forswearing sleep. After some days and nights passed in this austere manner, he was overcome and involuntarily fell into a deep slumber, on awakening from which he was so distressed at having violated his vow, and in order to prevent a repetition of allowing "tired eyelids to rest on tired eyes," he cut off the offending portions and flung them to the ground. On returning the next day, he discovered that they had undergone a strange metamorphosis, becoming changed into a shrub, the like of which had never been seen before. Plucking some of the leaves and chewing them he found his spirits singularly exhilarated, and his former vigor so much restored that he immediately recommended the newly discovered boon to his disciples.

Tradition, on the other hand, never at a loss for some marvelous story, but with more plausibility, claims that the use of Tea was first discovered accidentally in China by some Buddhist priests, who, unable to use the brackish

water near their temple, steeped in it the leaves of a shrub, growing in the vicinity, with the intention of correcting its unpleasant properties. The experiment was so successful that they informed the inhabitants of their discovery, subsequently cultivating the plant extensively for that express purpose. While another record attributes its first discovery about 2737 B. C. to the aforementioned Chin-Nung, to whom all agricultural and medicinal knowledge is traced in China. In replenishing a fire made of the branches of the Tea plant, some of the leaves fell into the vessel in which he was boiling water for his evening meal. Upon using it he found it to be so exciting and exhilarating in its effects that he continued to use it; imparting the knowledge thus gained to others, its use soon spread throughout the country.

These accounts connected with the first discovery of the Tea plant in China are purely fabulous, and it is not until we come down to the fourth century of the Christian era that we can trace any positive allusion to it by a Chinese writer. But, as the early history of nearly every other ancient discovery is more or less vitiated by fable, we ought not to be any more fastidious or less indulgent towards the marvelous in the discovery of Tea than we are towards that of fire, iron, glass or coffee. The main facts may be true, though the details be incorrect; and, though the accidental discovery of fire may not have been made by Suy-Jin in the manner claimed, yet it probably was communicated originally by the friction of two sticks. Nor may it be strictly correct to state that Fuh-he made the accidental discovery of iron by the burning of wood on brown earth any more than the Phœnicians discovered the making of glass by burning green wood on sand, yet it is not improbable that some such accidental processes first led to these

discoveries. Thus, also, considerable allowances are to be deducted from the scientific discoveries of Chin-Nung in botany, when we read of his having, in one day, discovered no less than seventy different species of plants that were poisonous and seventy others that were antidotes against their baneful effects.

According to some Chinese authorities, the Tea plant was first introduced into their country from Corea as late as the fourth century of the present era, from whence it is said to have been carried to Japan in the ninth. Others again maintaining that it is undoubtedly indigenous to China, being originally discovered on the hills of those provinces, where it now grows so abundantly, no date, however, being named. While the Japanese, to whom the plant is as valuable as it is to the Chinese, state that both countries obtained it simultaneously from Corea, about A. D. 828. This latter claim not being sustained by any proof whatever—Von Siebold, to the contrary—who, relying on the statements of certain Japanese writers to this effect, argues in support of their assertions, the improbability of which is unconsciously admitted by Von Siebold himself when he observes “that in the southern provinces of Japan the tea plant is abundant on the plains, but as the traveler advances towards the mountains it disappears,” hence inferring that it is an exotic. The converse of this theory holding good of China, a like inference tends to but confirm their claim that with them the plant is indigenous. That the Japanese did not originally obtain the plant from Corea but from China is abundantly proven by the Japanese themselves, many of whom admit that it was first introduced to their country from China about the middle of the ninth century. In support of this acknowledgment it is interesting to note, as confirming the Chinese origin

of tea, that there is still standing at Uji, not far from Osaka, a temple erected on what is said to have been the first tea plantation established in Japan, sacred to the traditions of the Japanese and in honor of the Chinese who first introduced the tea plant into the Island empire. Another more authentic account states that the Tea-seed was brought to Japan from China by the Buddhist priest Mi-yoye, about the beginning of the thirteenth century, and first planted in the southern island of Kiu-siu, from whence its cultivation soon spread throughout that country.

Some English writers go so far as to claim that Assam, in India, is the original country of tea, from the fact that *a species* has been discovered there in a wild state as well as in the slopes of the Himalaya mountains. But though found in both a wild and cultivated state in many countries of the East at the present time, all its Western traditions point to China, and to China *only*, as the *original* country of Tea, and that the plant is native and indigenous to that country is indisputably beyond question.

It was not known to the Greeks or Romans in any form; and that it could not have been known in India in very early times is inferred from the fact that no reference to the plant or its product is to be found in the *Sanscrit*. But that the plant and its use, not only as an agreeable and exhilarating beverage, but as an article of traffic worthy of other nations, must have been known to the Chinese as early as the first century of the Christian era, the following extract from an ancient work entitled the "Periplus of the Erythræn Sea," may serve to prove. The author, usually supposed to be Arryan, after describing "a city called Thinaë," proceeds to narrate a yearly mercantile journey to the vicinity of "a certain people

called Sesatæi, of short stature, broad faces, and flat noses"—evidently natives of China—adds "that the articles they bring for traffic outwardly resemble vine leaves, being wrapped in mats, which they leave behind them on their departure to their own country in the interior. From these mats the Thinæ pick out a haulm, called *petros*, from which they draw the fibre and stalks; spreading out the leaves, they double and make them up into balls, passing the fibre through them, in which form they take the name of *Malabathrum*, and under this name they are brought into India by those who so prepare them." Under any interpretation this account sounds like a remote, obscure and confused story. Still one of the authors of the able "Historical Account of China," published in 1836, has ventured to identify this Malabathrum of the Thinæ with the Tea of the Chinese. Vossius Vincent and other authors, while admitting the difficulty of understanding why it should be carried from Arracan to China, and from China back to India, unhesitatingly assert that Malabathrum was nothing more than the Betel-leaf, so widely used in the East at the time as a masticatory. Horace mentions Malabathrum, but only as an ointment. Pliny refers to it both in that sense and as a medicine. Dioscorides describing it as a masticatory only. While the author of the "Historical Account" prefers to consider the passage in the Periplous as a very clumsy description of a process not intelligently understood by the describer, but as agreeing far better with the manipulation of Tea than with that of the Betel-leaf, and his conjecture, unsupported as it is, merits citation if only for its originality.

The first positive reference to Tea is that by Kieu-lung in the fourth century, who not only describes the plant, but also the process of preparing it, of which the

following is a free and condensed translation: "On a slow fire set a tripod, whose color and texture show its long use, and fill it with clear snow-water. Boil it as long as would be sufficient to turn cray-fish red, and throw it upon the delicate leaves of choice Tea. Let it remain as long as the vapor arises in a cloud and only a thin mist floats on the surface. Then at your ease drink the precious liquor so prepared, which will chase away the five causes of sorrow. You can taste and feel, but not describe the state of repose produced by a beverage thus prepared." It is again mentioned by Lo-yu, a learned Chinese, who lived during the dynasty of Tang, in 618, who became quite enthusiastic in its praise, claiming that "It tempers the spirits, harmonizes the mind, dispels lassitude and relieves fatigue, awakens thought and clears the perceptive faculties," and according to the *Kiang-moo*, an historical epitome, an impost duty was levied on Tea as early as 782 by the Emperor Te-Tsing, and continued to the present day.

McPherson, in his "History of European Commerce with India," states that Tea is mentioned as the usual beverage of the Chinese by Solieman, an Arabian merchant, who wrote an account of his travels in the East about the year 850. By the close of the ninth century, however, Tea was found in general use among the Chinese, the tax upon it at that time being a source of considerable revenue as recorded by Abuzeid-el-Hazen, an Arabian traveler cited by Renaudot in a translation of his work. There is also independent evidence furnished by two other Arabian travelers in a narrative of their wanderings during the latter half of the ninth century, admitting their statements to be trustworthy as to the general use of Tea as a beverage among the Chinese at that period. Moorish travelers appear to have intro-

duced it into Mohammedan countries early in the tenth century, and other travelers in China in the seventeenth give most extravagant accounts of its virtues, which appears to have been in very general use throughout the greater part of Asia at that time.

Father de Rhodes, a Jesuit missionary, who entered China in 1633, states that "the use of Tea is common throughout the East, *and begins, I perceive, to be known in Europe.* It is in all the world to be found only in two provinces of China, where the gathering of it occupies the people as the vintage does us." Adding that he found it in his own case to be an instantaneous remedy for headache, and when compelled to sit up all night to hear confessions its use saved him from drowsiness and fatigue. Adam Olearius, describing the travels of an embassy to Persia in 1631, says of the Persians: "They are great frequenters of taverns, called Tzai Chattai, where they drink Thea or Cha, which the Tartars bring from China, and to which they assign extravagant qualities, imagining that it alone will keep a man in perfect health, and are sure to treat all who visit them to this drink at all hours." These strong expressions as to the use of Tea, applying as they do to a period not later than 1640, are sufficient to prove that the ordinary accounts place the introduction of that beverage as regards Europe, particularly the Continent, as too late.

INTRODUCTION INTO EUROPE.

The earliest European notice of Tea is that found in a work by Ramusio, first printed in 1550, though written several years prior to that year. In it he quotes Hazzi Mohamed in effect, "And these people of Cathay (China) do say that if these in our parts of the world only knew

of Tea, there is no doubt that our merchants would cease altogether to use *Ravino Cini*, as they call rhu-barb." Yet no accounts at present accessible establish the date of its first introduction into Europe, and it is also a difficult matter to determine to which of the two nations—Portugal or Holland—the credit of first introducing it belongs. Some writers claiming that the Dutch East India Company brought Tea to Amsterdam in 1600, while the Portuguese claim the honor of its first introduction prior to that year. An indisputable argument in favor of the latter is the notice given of it by Giovanni Maffei in his "History of India," published in 1559. "The inhabitants of China, like those of Japan," he writes, "extract from an herb called *Chia* a beverage which they drink warm, and which is extremely wholesome, being a remedy against phlegm, languor and a promoter of longevity." While Giovanni Botero, another Portuguese, in a work published in the same year, states that "the Chinese have an herb from which they press a delicate juice, which they use instead of wine, finding it to be a preservative against these diseases which are produced by the use of wine amongst us." Taxiera, also a native of Portugal, states that he saw the dried leaves of Tea at Malacca some years prior to 1600, and the article is also mentioned in one of the earliest privileges accorded to the Portuguese for trading in 1558; yet it was not until nearly a century from the beginning of that trade that we find the first distinct account from a European pen of the use of Tea as a beverage.

In a "Dissertation upon Tea, by Thomas Short," printed in London, in 1730, the author gives the following account of its first introduction into Europe: "The Dutch East India Company on their second voyage

to China carried thither a good store of Sage and exchanged it with the Chinese for Tea, receiving three to four pounds of the last for one pound of the first, by calling it a wonderful European herb possessed of as many virtues as the Indians could ascribe to their shrub-leaf. But because they exported not such large quantities of Sage as they imported of Tea they also bought a great deal of the latter, giving eight- to tenpence a pound for it in China. And when they first brought it to Paris they sold it for thirty livres the pound; but thirty years ago the Chinese sold it at threepence, and never above ninepence a pound at any time, frequently mixing it with other herbs to increase the quantity." Macaulay also states in the history of his embassy to China that "early in the seventeenth century some Dutch adventurers, seeking for such objects as might fetch a price in China, and hearing of a general use there of a beverage produced from a plant of the country, bethought themselves of trying how far a European plant of supposed great virtues might also be appreciated by the Chinese; they accordingly introduced to them the herb Sage, the Dutch accepting in exchange the Chinese Tea, which they brought back with them to Holland." These statements but tend to confirm the Portuguese claim, the efforts of the Dutch to open up trade with the Chinese in Tea being evidently made many years subsequent to its introduction by the former; in still further support of which the following may be noted:—

In 1662 CHARLES II. married the Portuguese princess, Catharine of Braganza, who, it is said, was very fond of Tea, having been accustomed to it in her own country. Waller, in a poem celebrating the event, ascribes its first introduction to her country in the appended lines:—

“Venus her myrtle has—Phœbus her bays ;
Tea both excels, which she vouchsafes to praise.
The best of Queens and *best of herbs we owe*
To that proud nation which the way did show.”

The earliest mention made of Tea by an Englishman is that contained in a letter from a Mr. Wickham, agent of the East India Company at Firando, Japan, and dated June 27, 1615, to a Mr. Eaton, another officer of the Company, resident at Macao, China, asking for “a pot of the best Cha.” How the commission was executed does not appear, but in Mr. Eaton’s subsequent account of expenditures occurs this item, “Three silver porringers to drink Tea in.” The first person, however, to advocate the use of Tea in Europe was Cornelius Bontrekoe, a professor of the Leyden University, who, in a treatise on “Tea, Coffee and Chocolate,” published in 1649, strongly pronounces in favor of the former, denying the possibility of its being injurious even when taken in immoderate quantities.

Tea was evidently known in England previous to its direct importation there, small quantities having been brought from Holland as early as 1640, but used only on rare occasions. The earliest mention made of it, however, is that contained in a copy of the “*Mercurius Politicus*,” at present in the British Museum, and dated September, 1658, in which attention is called to “that excellent, and by all Physitians approved, China drink, called by the Chineans Tcha, by other nations Tay, sold at the Sultanness Head, a Cophee-house by the Royal Exchange, London.” The most famous house for Tea at this early period, however, was Garway’s, more popularly known for upwards of two centuries as “Garra-way’s,” being swept away only a few years ago by the march of improvement. Defoe refers to it as being “fre-

quented only by people of quality, who had business in the city and the wealthier citizens"; but later it became the resort of speculators, and here it was that the numerous schemes which surrounded and accompanied the "Great South Sea Bubble" had their centre, and, appropriately enough, "Garraway's" was also the headquarters of that most remarkable but disastrous Tea speculation of 1842.

A singular handbill issued by its founder is still extant, being discovered by accident in a volume of pamphlets found in the British Museum, where it may still be inspected. Although the document bears no date, there is ample internal evidence to prove that it must have been printed about 1660. It is a quaint and extraordinary production, purporting to be "An exact description of the leaf Tea, made according to the directions of the most knowing merchants and travelers in those Eastern countries, by Thomas Garway," setting forth that:—

"Tea is generally brought from China, growing there on little shrubs, the branches whereof are garnished with white flowers of the bigness and fashion of sweetbriar, but smell unlike, and bearing green leaves of the bigness of myrtle or sumac, which leaves are gathered every day, the best being gathered by virgins who are destined for the work, the said leaves being of such known virtues that those nations famous for antiquity, knowledge and wisdom do frequently sell it among themselves for twice its weight in silver. That it hath been used only as a regalia in high treatments and entertainments, presents being made thereof to grandees."

Proceeding at considerable length to enumerate its "virtues," many of which are decidedly apocryphal, and attributing to the beverage, among its other properties, that of—

“Making the body active and lusty, helping the headache, giddiness and heaviness, removing the difficulty of breathing, clearing the sight, banishing lassitude, strengthening the stomach, causing good appetite and digestion, vanishing heavy dreams, easing the frame, strengthening the memory, and finally preventing consumption, particularly when drank with milk.”

Many other remarkable properties being credited to this wonderful “Chinese herb,” the advertiser closes his great encomiums by suggesting—

“That all persons of eminence and quality, gentlemen, and others who have occasion for tea in the leaf may be supplied. These are to give notice that the said Thomas hath the same to sell from sixteen to fifty shillings the pound.”

If the article had possessed but a tithe of the virtues and excellencies accorded to it by the celebrated Garway it must have been recognized at the time as the coming boon to man.

Up to 1660 no mention is made of Tea in the English statute books, although it is cited in an act of the first parliament of the Restoration of the same year, which imposed a tax of “eightpence on every *gallon* made and sold, to be paid by the maker thereof.” This was subsequently increased to five shillings per pound in the Leaf, which at the time was stated to be “no small prejudice to the article, as well as an inconvenience to the drinker.” Ever since that year the duty on Tea has been one of the hereditary customs of the Crown, though Parliament has at sundry times, by different acts, fixed divers duties upon it.

Pepys alludes to Tea in his Diary, under date of September 25, 1661, the entry reading: “I did send for a cup of Tee, a China drink, of which I never drank before”; and again, in 1667, he further mentions it. “Home, and there find my wife making of Tee, a drink which Mr.

Pelling, the Potticary, says is good for her cold." But that it still must have continued rare, is very evident, as in 1664, it is recorded that the East India Company made the king what was then considered "a brilliant present of 2 lbs. of Tea, costing forty shillings," and two years later another present of 22 lbs., both parcels being purchased on the Continent for the purpose.

It was not until 1668 that the East India Company is credited with the direct importation of Tea into England, which, although chartered in 1600, for the first time considered Tea worthy their attention as an article of trade. The order sent to their agents in that year was: "for 100 lbs. of the best *Tey* they could procure to the amount of £25 sterling." Their instructions must, however, have been considerably exceeded, as the quantity received was 4,713 lbs., a supply which seems to have "glutted the market" for several years after. Up to this time no alarm had been excited that the use of Tea was putting in peril the stalwarthood of the British race. But in the very year of this large importation we find Saville writing to his uncle Coventry, in sharp reproof of certain friends of his "who call for Tea, instead of pipes and wine," stigmatizing its use as "a base, unworthy Indian practice," and adding, with an audible sigh, "the truth is, all nations are getting so wicked as to have some of those filthy customs." Whether from sympathy of the public with these indignant reprehensions or other causes, the whole recorded imports for the six following years amounted to only 410 lbs., the quantities imported continuing small and consisting exclusively of the finer sorts for several years thereafter.

The first considerable shipment of tea reached London about 1695, from which year the imports steadily and rapidly increased until the end of the seventeenth cen-

tury, when the annual importations averaged 20,000 pounds. In 1703 orders were sent from England to China for 85,000 pounds of Green Tea and 25,000 pounds of Black, the average price at this period ranging from 16 to 20 shillings (\$4 to \$5) per pound. The Company's official account of their trade did not commence before 1725, but according to Milburn's "Oriental Commerce" the consumption in the year 1711 had increased to upwards of 142 million pounds, in 1711 to 121 millions, and in 1720 to 238 million pounds. Since which time there has been nothing in the history of commerce so remarkable as the growth and development of the trade in Tea, becoming, as it has, one of the most important articles of foreign production consumed.

For above a century and a half the sole object of the English East India Company's trade with China was to furnish Tea for consumption in England, the Company during that period enjoying a monopoly of the Tea trade to the exclusion of all other parties. They were bound, however, "to send orders for Tea from time to time, provide ships for its transportation, and always to keep at least one year's supply in their warehouses," being also compelled to "bring all Teas to London, and there offer them at public sale quarterly, and to dispose of them at one penny per pound advance on the gross cost of importation, the price being determined by adding their prime cost in China to the expenses of freight, insurance, interest on capital invested, and other charges." But in December, 1680, Thomas Eagle of the "King's Head," a noted coffee-house in St. James, inserted in the *London Gazette* the following advertisement, which shows that Tea continued to be imported independently of the East India Company: "These are to give notice to persons of quality that a small parcel of most excellent

Tea has, by accident, fallen into the hands of a private person to be sold. But that none may be disappointed, the lowest price is 30 shillings in the pound, and not any to be sold under a pound in weight." The persons of quality were also requested to bring a convenient box with them to hold it.

The East India Company enjoyed a monopoly of the trade in Tea up to 1834, when, owing to the methods of calculation adopted by the Company, and the heavier expenses which always attend every department of a trade monopoly, the prices were greatly enhanced. Much dissatisfaction prevailing with its management, this system of importing Teas was abolished, the Company being deprived of its exclusive privileges, and the Tea trade thrown open to all.

In all probability Tea first reached America from England, which country began to export in 1711, but it is claimed to have been previously introduced by some Dutch smugglers, no definite date being given. The first American ship sailed for China in 1784, two more vessels being dispatched the following year, bringing back 880,000 pounds of Tea. During 1786-87, five other ships brought to the United States over 1,000,000 pounds. In 1844, the "Howqua" and "Montauk" were built expressly for the Tea trade, being the first of the class of vessels known as "Clippers," in which speed was sought at the expense of carrying capacity, and by which the average passage was reduced from twenty to thirty days for the round trip. The trade in tea was entirely transacted at Canton until 1842, when the ports of Shanghai, Amoy and Foo-chow were opened by the treaty of Nankin, the China tea trade being mainly conducted at the latter ports. As late as 1850, all vessels trading in tea carried considerable armament, a necessary

precaution against the pirates who swarmed in the China seas during the first half of the last century.

The progress of this famous plant has been something like the progress of Truth, suspected at first, though very palatable to those who had the courage to taste it, resisted as it encroached, and abused as its use spread, but establishing its triumph at last in cheering the world, from palace to cottage, by the resistless effect of time and its own virtues only; becoming a beverage appreciated by all, as well as an agent of progress and civilization.

TEA
AND
AMERICAN INDEPENDENCE.

Although Tea may be claimed to be in all its associations eminently peaceful, growing as it does on the hill-sides of one of the most peaceful countries in the world, coming to us through the peace-promoting ways of commerce, until it reaches its ultimate destination, that centre of peace—the family table—and like peaceful sleep, “knitting up the raveled sleeve of care,” yet it has been the occasion of several wars and political problems, the latest of which is the precipitation of the great Chinese exodus, which at present threatens such vital results, not only to our own country, but possibly to the world at large.

It was destined—as in all social and political affairs, the greatest and most important events are curiously linked with the smallest and most insignificant—to be the final crisis of the American Revolutionary movement. Think of it! *The birth of the greatest nation of all time due to a three-penny tax on tea!* It was the article chosen above all others to emphasize the principles that

"*all men are born free and equal*," and that "*taxation without representation is tyranny*," and for the establishment of which principles a war was fought, that when judged by the law of results, proves to have been the most important and fruitful recorded on history's pages. Who, in looking back over the long range of events conserving to create our now great country, can fail to have his attention attracted to what has been termed, with a characteristic touch of American humor, "The Boston Tea Party of 1773"? Who could have then predicted the marvelous change that a single century of free government would have wrought? Who could have dreamed that Tea would have proved such an important factor in such a grand result? What a lesson to despotic governments! A dreary November evening; a pier crowded with excited citizens; a few ships in the harbor bearing a hated cargo—hated not of itself, but for the principles involved; on the decks a mere handful of young men—a few leaders in Israel—urged on by the fiery prescience of genius, constituting themselves an advance guard to lead the people from out the labyrinth of Remonstrance into the wilderness of Revolution.

It is true that previously other questions had been factors in the dispute, but a cursory glance at the history of the time will show that heated debates had been followed by periods of rest, and acts of violence by renewed loyalty. The "Navigation laws" had caused much indignation and many protests, but no violence to mention. As early as 1768 the famous "Stamp Act" was passed and repealed. The period intervening between its passage and repeal gave opportunity for public opinion to crystallize and shape itself. It sifted out of the people a modern Demosthenes, gifted with the divine power of draping the graceful garment of language round the firm body of

an IDEA! George III. would not profit by the example of Cæsar or of Charles, and while North had avowed his willingness to repeal the tax on all other articles, he promised the king that "*he would maintain this one tax on Tea to prove to the Colonists his right to tax.*"

The trade in Tea at this time was a monopoly of the English East India Company, which just then had acquired an immense political prestige, but lost heavily by the closing of the American market, the Company's warehouses in London remaining full of it, causing their revenue to decline. North was induced to offer them a measure of relief by releasing from taxation in England the Tea intended for America, but he still persisted in maintaining the duty of threepence to be paid in American ports, and on the 10th of May this farcical scheme of fiscal readjustment became a law. The Company obtained a license for the free-duty exportation of their Tea to America in disregard of the advice of those who knew that the Colonists would not receive it. Four ships laden with Tea were despatched to the ports of Boston, New York, Philadelphia and Charleston. The Colonists prepared for their expected arrival, public meetings being held in Philadelphia and Boston, at which it was resolved that *the Tea should be sent back to England*, and so notified the Company's agents at these ports. The Boston consignees refused to comply with the popular demand, all persuasion failing to move them. The matter was then referred to the Committees, who immediately resolved to use force where reason was not heeded. When the vessels arrived, a meeting was held in the Old South Church, at which it was resolved, "*come what will, the Tea should not be landed or the duty paid.*" Another appeal was made to the Governor, which was also denied! Upon this announcement Samuel Adams

arose, saying, "*This meeting can do nothing more to save the country.*" The utterance of these words was a preconcerted signal; the response, an Indian war-whoop from the crowd outside. A band of young men, not over fifty, disguised as, and styling themselves, "Mohawks," rushed down to the wharf where the vessels lay; the ships were boarded, the Tea chests broken open and emptied into the river. *From the moment that the first Tea-leaf touched the water the whole atmosphere surrounding the issues involved changed! In that instant, with the rapidity of thought, the Colonies vanished and America arose!*

When the news of these proceedings reached England, it provoked a storm of anger, not only among the adherents of the government, but also among the mercantile and manufacturing classes, they having suffered heavy losses by the stoppage of trade with America. The commercial importance and parliamentary influence of the East India Company swelled the outcry of indignation against which they termed the outrage of destroying its property. All united in the resolve to punish the conduct of Boston for its rejection of the least onerous one of an import duty on tea. What followed has been told in song and story—Lexington and Concord, Bunker Hill, Valley Forge and Yorktown. A new nation sprang into existence, taking its stand upon the pedestal of "EQUAL RIGHTS FOR ALL," under a new government "OF THE PEOPLE, FOR THE PEOPLE, BY THE PEOPLE."

CHAPTER II.

GEOGRAPHICAL DISTRIBUTION.

BESIDES the character of the different varieties of tea and other information connected with the plant and its product, we have to notice the different parts of the world in which it is now or may be grown in the future, as many practical questions of considerable importance are dependent on the subject.

For upwards of two centuries and a half the world's supply of tea was furnished exclusively by China, and it was not until well into the middle of the nineteenth century that China and Japan were the only two tea-producing countries in the world, their product reaching the western markets through the narrowest channels and under the most oppressive restrictions. Its cultivation however, has in that time been extended to other countries, most notably into Java, India and Ceylon.

Tea is more or less cultivated for local consumption in all the provinces of China, except the extreme northern. But to what exact degree of latitude it is difficult to be precise, as we are without definite information from those regions, and the vast empire of China not being sufficiently explored by botanists to warrant the assertion that the plant is not to be found in other parts of the country, at least in a wild state. So far, however, it has not been discovered there, except in a state of cultivation, or as having evidently escaped from cultivation on roadsides or other out-of-the-way places.

We know that it is cultivated in Tonquin and Yunnan, but only to a limited extent, the product of these

provinces being also of a very inferior quality. It is grown in Cochin-China and the mountain ranges of Ava, but only for local consumption, and that, while it is indigenous to the mountains, separating China from Burmah, it is not cultivated there for either export or profit, and although claimed by some authorities to be grown all over the Chinese empire, its cultivation for commercial purposes is confined to the region lying between the 24th and 35th degrees of north latitude, the climate between these parallels varying to a considerable extent, being much warmer in the southern than in the northern provinces. The districts in which it is chiefly cultivated, however, and from which it is principally exported, are embraced in the southwestern provinces of Che-kiang, Fo-kien, Kiang-see, Kiang-nan, Gan-hwuy Kwang-tung, some little being also produced for export in the western province of Sze-chuan.

It is cultivated for commercial purposes all over the Japanese islands, from Kiu-siu, in the south, to Nippon, in the extreme north, but the zone found most favorable to its most profitable production in these islands is that lying between the 30th and 35th degrees, more especially in the coast provinces of the interior sea. It is also grown to some extent in Corea, from which country—although claimed by some to be the original country of tea—none is ever exported.

In the year 1826 some tea seeds were sent from Japan to Java and planted as an experiment in the residency of Buitzenorg, where they were found to succeed so well that tea-culture was immediately commenced on an extensive scale in the adjoining residencies of Cheribon, Preanger and Krawang, the number of tea trees in the former district amounting to over 50,000 in 1833. The several other districts of the island to which it had been

extended, now containing upwards of 20,000,000 trees from which over 20,000,000 pounds of prepared tea are annually delivered to commerce, tea-culture forming one of the chief industries of the island at the present day.

A species of the tea plant has been found growing in a truly wild state in the mountain ranges of Hindostan, particularly on those bordering on the Chinese province of Yunnan, from which fact it is claimed by some writers as probable that these mountains are the original home of tea. Recent explorations also show that the tea plant is to be found growing wild in the forests of Assam, Sylhet and the Himalaya hills, as well as over the great range of mountains extending thence through China to the Yang-tse river. At an early period the British East India Company, as the principal trade intermediary between China and Europe, became deeply interested in the question of tea cultivation in their eastern possessions, but without much success until in 1840, when the Assam Tea Company was formed, from which year the successful cultivation of tea in India has been carried on, the tea districts of that country including at the present time, in the order of their priority, Assam, Dehradun, Kumaon, Darjeeling, Cachar, Kangra, Hazarila, Chittagong, Burmah, Neilghery and Travancore.

Various efforts were made to introduce tea-culture into Ceylon, under both Dutch and British rule, no permanent success being attained until about 1876, when the disastrous effects of the coffee-leaf disease induced the planters to give more serious attention to tea. Since that period tea cultivation has developed there with marvelous rapidity, having every prospect at the present time of taking first rank among Ceylon productions.

Dr. Abel highly recommends the Cape of Good Hope as furnishing a fitting soil and climate for the beneficial

production of tea, stating that "there is nothing improbable in a plant that is so widely diffused from north to south being grown there." Tea of average quality being now shipped from Natal to the London market.

Besides Java, India and Ceylon, where tea culture has been introduced and profitably demonstrated, numerous attempts have and are being made to colonize the plant in other countries than these of the East, but beyond the countries above enumerated, the industry has so far never taken root, for while the cultivated varieties of the tea-plant are comparatively hardy, possessing an adaptability to climate excelled alone among plants only by that of wheat, the limits of actual tea cultivation extend from the 39th degree of north latitude in Japan, through the tropics to Java, Ceylon, India and China, and while it will live in the open air in many of the countries into which it has been introduced and withstand some amount of frost when it receives sufficient summer heat to harden its root, but comparatively few of those regions are suited for practical tea-growing.

As far back as 1872, some tea plants were sent from China to the Kew gardens in England, for the purpose of testing the possibility of its growth in that country. The attempt, however, ended in failure, the seeds never germinating, later efforts under more careful training meeting with the same fate. Considerable success attended its introduction into the islands of Bourbon and Mauritius, in 1844, the tea produced being pronounced as "excellent in flavor, but lacking in that strength and aroma so characteristic of the Chinese variety."

Its cultivation has been recently attempted in the Philippines by the Spanish, in Sumatra and Borneo by the Dutch, and by the French in Cochin-China, nearly all of which experiments so far proving failures,

the only success reported being from the latter country, where the soil is good and moisture equable. Tea plantations have also been lately opened up in Malay, Singapore, and other of the Straits settlements by the English; some teas of fair quality, but insufficient quantity, having already produced in many of them. Its cultivation forms one of the industries of the Fiji islands at the present time; the soil and climate of the latter being found eminently adapted to its successful propagation, land and labor, the chief difficulties in other countries, being particularly available there. Extraordinary efforts are now also being made to introduce the plant into the warmer parts of Australia.

Some ten years ago specimens of the Chinese tea-plant were introduced into the Azores, where they soon became acclimated, expert Chinese tea-makers being sent there specially a few years later to teach the natives how to manipulate the leaves. The industry has made such rapid progress there that regular shipments of "Madeira tea" are now being made to the London market, where it is affirmed that in strength and flavor it closely approaches that of China tea. But while it has been found to flourish luxuriantly on the hilly parts of St. Helena, the quantity and quality are insufficient to justify its cultivation for either profit or export on that island.

The Economic Society of St. Petersburg warmly advocates its cultivation in the Caucasus, while French and German naturalists declare that there is no region more suitable for the profitable cultivation of tea than the shores of the Black Sea, the climate being warm, moist and equable, and tea of more than average quality have already been produced between Batoum and Kiel, samples of which were exhibited at the exhibition recently held in Tiflis, the report on which was so

encouraging that the society ventures the opinion "that in time Russia may compete with China and India in supplying the Western nations with tea." Efforts are also being made to introduce it into southern Italy, but while the soil and climate of those countries may be found admirably adapted for the purpose, there is no skilled labor to prepare it properly.

The cultivation of tea was attempted in the warmer parts of Brazil in 1850, some tea of very fair quality being produced in the vicinity of Rio Janeiro, and while the plant was found to flourish exceedingly well in the adjoining province of Sao Paulo, the tea when prepared for use was found to be entirely too bitter and astringent for practical purposes. The lack of skilled labor and high cost of manufacture preventing its cultivation for profit, it was inferred that with everything else in its favor, tea as produced in Brazil would never be able to compete with that of China even for home consumption.

Some few years since plantations were opened for the cultivation of tea in Mexico, Guatemala, and in some of the West India islands, but to the present no reports favorable or otherwise, have been received regarding its progress in these countries. Still, in the face of all drawbacks, with the example of the many failures and final success achieved in India and Ceylon, much may yet be accomplished in Brazil and other South American countries by intelligent cultivation, modern machinery and perseverance in solving the problem of growing at least their own tea.

With regard to the efforts to introduce the tea-plant into the United States, the earliest notice which comes under observation is that contained in the *Southern Agriculturist*, published in 1828, and in which it is stated that "the tea-tree grows perfectly in the open air near

Charleston, where it has been raised for the past fifteen years, in the nursery of M. Noisette. But as imported from China it would cost too much to prepare for commercial use." Another historical effort was that made in 1848, by Dr. James Smith, at Greenville, S. C., but although commenced with great enthusiasm the plantation never was increased to any appreciable extent. Neither was it brought to a condition, as far as can be ascertained, to warrant the formation of any reliable opinion as to the practicability of tea-culture in this country as an industry. Nevertheless, the circumstances of its failure are quoted as a proof that tea cannot be produced for commercial purposes or even for home consumption in this country. While the truth is that as a test for the purposes named, the attempt was of no value whatever, and never was so considered by those conversant with its cultivation or management.

But while the plant barely survives the winter north of Washington, it has been found to thrive successfully a little south of that district. It bears fruit abundantly on the Pacific coast, where the soil and climate are especially favorable to the growth of broad-leaved evergreens, both native and exotic, and will flourish much further north there than in the Eastern states.

Still the progress of these efforts to grow tea in other countries than China, Japan and India, must necessarily prove interesting as being calculated to make the world more independent of these countries for its supplies. Yet it is an established fact that the finest varieties of tea are best cultivated in the warmer latitudes and on sites most exposed to air and sunshine.

CHAPTER III.

BOTANICAL CHARACTERISTICS AND FORM.

THESE are few subjects in the vegetable kingdom that have attracted such a large share of public notice as the tea plant. Much error for a long time existed regarding its botanical classification, owing to the jealousy of the Chinese government preventing foreigners from visiting the districts where tea was cultivated; while the information derived from the Chinese merchants at the shipping ports, scanty as it was, could not be depended on with any certainty. So that before proceeding to discuss the question of the species which yield the teas of commerce it may be well to notice those which are usually described as distinct varieties in systematic works.

Tea is differently named in the various provinces of China where it is grown. In some it is called *Tcha* or *cha*, in others *Tha* or *thea*, in Canton *Tscha*, and finally *Tia* by the inhabitants of Fo-kien, from whom the first cargoes are said to have been obtained, and so pronounced in their *patois* as to give rise to the European name TEA. By botanists it is termed *Thea*, this last name being adopted by Linnæus for the sake of its Greek orthography, being exactly that of *Oex*—a goddess—a coincidence doubtless quite acceptable to those who use and enjoy the beverage as it deserves.

The species of the genus *Thea* are few in number, some botanists being of opinion that even these are of a

single kind—*Camillia*—and is by them classed as *Thea-Camillia*. Others asserting that no relation whatever exists between these two plants, maintaining that the *Thea* and '*Camillia* are widely different and of a distinct species. Yet, though the *Camillia* bears the same name among the Chinese as *Thea* and possesses many of its structural characteristics, distinctions are made between them by many eminent botanists, who hold that they differ widely and materially and are mostly agreed in the statement that the true Tea-plant is distinguished from the *Camillia* in having longer, narrower, thinner, more serrated and less shiny leaves, and that a marked difference is also noticeable in the form and contents of the fruit or pod.

Davis argues that they constitute two *genera*, closely allied but yet different, the distinctions consisting principally in the fruit or seed. The seed-vessel of the *Thea* being a three-lobed capsule, with the lobes strongly marked, each the size of a currant, containing only a single round seed, the lobes bursting vertically in the middle when ripe, exposing the seed. The capsule of the *Camillia* is triangular in shape, much larger in size, and though three-celled is but single-seeded. Bentham and Hooker, who have thoroughly revised the "*genera plantatum*," say they can find no good reason by which they can separate the Tea-plant as a genus distinct from the *Camillia*, and so class it as *Thea-Camillia*. While Cambesedes contends that they are widely separated by several intervening genera, the difference being entirely in the form of the fruit or pod; and Griffin, who is well qualified to form a correct opinion, states that, from an examination of the India Tea-plant and two species of the *Camillia* taken from the Kyosa hills, he found no difference whatever. The dehiscence in both

plants is of the same nature, the only noticeable difference really existing being of a simply specific value. The fruit of the Tea-shrub is three-celled and three-seeded while that of the Camillia is triangular in form and single-seeded only.

Linnæus, while recognizing the Tea-plant as belonging to the same family as the Camillia, Latinizes its Chinese name, classing it as *Thea Sinensis*, and dividing it into two species—*Thea Viridis* and *Thea Bohea*; DeCandolle, while indorsing Linnæus' classification, adds that "in the eighteenth century when the shrub which produces tea was little known Linnæus named the genus *Thea Sinensis*, but later judged it better to distinguish two species which he believed at the time to correspond with the distinctions existing between the Green and Black teas of commerce." The latest works on botany, also, make *Thea* a distinct genus—*Thea Sinensis*—divided into two species—*Thea viridis* and *Thea bohea*—these botanical terms having no specific relation to the varieties known to commerce as Green and Black teas. It having also been proven that there is but one species comprehending both varieties, the difference in color and character being due to a variation in the soil, climate, as well as to different methods of cultivation and curing, from either or both of which Green or Black tea may be prepared at will according to the process of manufacture.

In a wild state is large and bushy, ranging in height from ten to fifteen feet, often assuming the proportions of a small tree. While in a state of cultivation its growth is limited by frequent prunings to from three to five feet, forming a polyandrous, shrub evergreen with bushy stem and numerous leafy branches. The leaves are alternate, large, elliptical and obtusely serrated, varied and placed in smooth short-channeled foot-stalks, the calyx being small,

and divided into five segments. The flowers are white, axillary and slightly fragrant, often three together in separate pedicels, the corolla having from five to nine petals, cohering at the base with filaments numerous and inverted at the base of the corolla. The anthers are large,



Thea Sinensis.
(Chinese Tea Plant.)

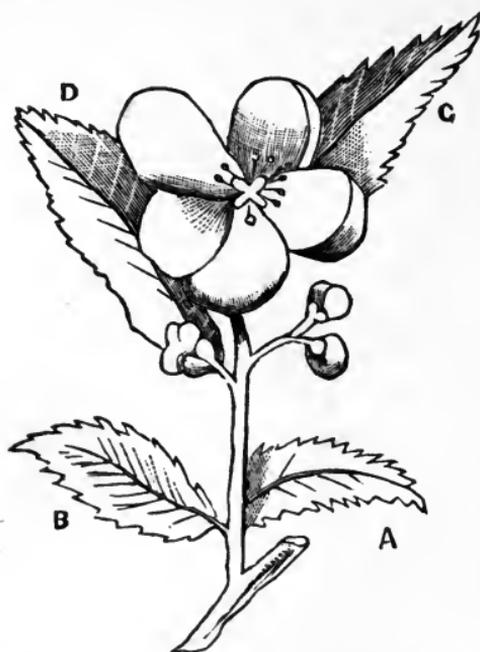
yellow and tre-foil, the capsule three-celled and three-seeded; and like all other plants in a state of cultivation, it has produced marked varieties, two of which *Thea viridis* and *Thea bohea* are critically described as distinct species, distinguished from each other in size, color, form and texture of the leaves, as well as other peculiarities.



a—Gunpowder. *b*—Young Hyson. *c*—Imperial. *d*—Hyson. *e*—Twankey.

Thea Viridis,
(Green Tea Plant),

Is a large, hardy, strong-growing shrub, with spreading branches and leaves one to two inches long, thin, veiny and almost membraneous, broadly lanceolate, but irregularly serrated and light-green in color. The flowers are large, white, solitary and mostly confined to the upper axil, having five sepals and seven petals, the fruit or pod being purple, nodding and three-seeded. It thrives without protection in the open air during winter, and is undoubtedly the species yielding the bulk of the Green teas of commerce.



a—First. b—Second. c—Third. d—Fourth.

Thea Bohea,
(**Black Tea Plant**),

Is a much smaller variety, with branches stiff, straight and erect, the leaves are also smaller, flat, oblong and coriaceous, but evenly serrated and dark-green in color. The flowers or blossoms are usually two to three, situated at the axils, having from five to seven sepals and petals, and possessing a slight fragrance. It is more tender and prolific than the green variety, not standing near as cold a climate, and yields the Black teas of commerce principally.

Considerable mystery and confusion for a long time existed regarding the species yielding the varieties known to commerce as Green and Black teas, many authorities claiming that the former were produced from the green tea-plant exclusively, and the latter solely from the black

tea variety. While, again, it was erroneously held by others that both were prepared at will from a single species, the difference in color, flavor and effect was due entirely to a disparity in soil, climate, age and process of curing; also, that Green teas were produced from plants cultivated on the plains or low lands, in a soil enriched with manure, and Black teas from those grown on hill sides and mountain slopes. Later and more careful investigation disprove these "opinions," the eminent botanical traveler, Robert Fortune, having satisfactorily and definitely set this much-vexed question at rest by examining the subject on the spot, finding that in the district of Woo-e-shan, where *Black teas are principally prepared*, the species *Bohea* only is grown; and that in the province of Che-Kiang, where *Green teas are exclusively prepared*, he found the species *Viridis* alone cultivated. But that the Green and Black teas of commerce may be produced at will from either or both species he found to be the case in the province of Fo-kien, where the black tea-plant only is grown, but that both the commercial varieties were prepared therefrom at the pleasure of the manufacturer and according to the demand. Yet while it is admitted now even by the Chinese themselves, that both varieties may be prepared at will from either species, it is a popular error to imagine that China produces the two commercial kinds in all districts, the preparation of the greater proportion of the respective varieties being carried on in widely separated districts of the empire, and from the corresponding species of the tea-plant, different methods being pursued in the process of curing; from the first stage, Green teas being only distinguished from Black in such instances by the fact that, the former are not fermented or torrifed as high by excessive heat, or fired as often as the latter.

It was also a commonly received opinion at one time that the distinctive color of Green teas was imparted to them by being fired in copper pans. For this belief there is not the slightest foundation in fact, as copper is never used for the purpose, repeated experiments by unerring tests having been made, but in not a single case has any trace of the metal been detected.



a—Pekoe. b—Souchong. c—Congou. d—Souchong-Congou,

Thea Assamensis,
(India Tea Plant),

Which has lately attracted so much attention, partakes somewhat of the character of both the foregoing varieties. Some botanists, however, claim that it is a distinct species, while others who recognize but one genus, contend that the India plant is but a wild type of the Chinese variety, and that any difference existing between them is the result of soil, climate and special culture. Planters on the other hand distinguish many points of difference between the China and India tea-plants. The leaf of the latter when full grown measures from three to five inches in length, while that of the former seldom exceeds three; again, the leaf of the India species does not harden as quickly during growth, which is an important consideration in picking. The inflorescence of the latter also varies from that of the Chinese variety, its usual state being to have the flower solitary, and situated in the axils of the leaves, the number varying from one to five. In general, it is more prolific and matures quicker, which renders it more profitable, as it affords a greater number of pickings during the season; but it is still doubtful if it is a true tea. In its geographical distribution, so far as latitude is concerned, the India tea-plant approximates most to the Black tea species of China, yet in its botanical characteristics and general appearance as well as in the size and texture of its leaves, it approaches nearer to the Green tea variety.

Two other species described by Loureiro, but unknown to commerce, are classed as *Thea Cochinchinensis*, found in a wild state in the north of Cochin-China, where it is also extensively cultivated, but used medicinally by the natives as a diaphoretic. And *Thea Oleosa* (oil tea), grown in the vicinity of Canton, the seeds of which yield an oil used for illuminating purposes as well as an article of diet by the inhabitants. In addition to these there

are also two doubtful species, known as *Cankrosa* and *Candata*, referred to by Wallach, as growing in Silhet and Nepaul.

SUBSTITUTES IN USE FOR TEA.

Previous to the seventeenth century it had long been the custom in many countries of Europe to make hot infusions of the leaves of various plants, most notably those of the *Salvia* (sage), which had at one time a high reputation as a "panacæ," being greatly extolled by the Solieman school of physic, as a potent factor for the preservation of health, and it is the custom at the present time in many other countries where it is difficult or impossible to obtain China tea, to use the seeds or leaves of other plants as substitutes, the active principle of which, in many instances, is analagous, and in others identical with it. Among the former are the leaves of plants destitute of *theine* (the active principle of tea), but which possesses some other stimulating properties, and among the latter the leaves and seeds of other plants containing that principle, and consequently producing the same exciting effects, these include Coffee, Cocoa and

Yerba Maté—or "Paraguan tea," a species of *Ilex*, or holly, the leaves of which yield the same active principle (*theine*) characteristic of the China tea-plant. So closely does it resemble the latter in effect that many authorities claim it to be a species of that shrub, upwards of forty million pounds being annually produced and consumed in Paraguay and other South American countries.

Coca Tea—used extensively in Peru and Bolivia, composed of the dried leaves of the Coca tree, but though generally chewed, is more frequently prepared as a tea by the natives. In the infusion it possesses

somewhat similar properties to China tea, and forms an important article of international trade among the various tribes, not less than thirty million pounds being annually consumed there.

Guarana—or “Brazilian tea,” prepared from the seeds of the guarana by the inhabitants of the interior of that country, and so rich are they in *theine* that they have lately been adopted for the purpose of obtaining that principle in larger quantities for medicinal purposes.

Ugni—or “Chilian tea,” produced from the leaves of that plant, but though generally used as a medicine, is as often prepared as a beverage.

Cenopodium—or “Mexican tea,” made from an infusion of the leaves and seeds of that plant, but used only as a remedy in the treatment of asthma and bronchitis by the natives of that country.

Pimento—or “Trinidad tea,” prepared from a decoction of the leaves of the pimento, and is in common use in that and other of the West India islands both as a beverage and a medicine.

Bun-fullup—or “Jungle tea,” found in the Naga range in eastern Assam, and used by the Singphos in the same manner as the Chinese species and also as a medicine.

Khat—or “African tea,” produced from an extract of the Khola nut, the active principle of which has recently been ascertained to be identical with that of the tea of commerce, is much used among the nomad tribes of Somali, the Soudan and other African countries.

Cathadules—or “Arabian tea,” prepared from the leaves of that shrub in the same manner as ordinary tea, and extensively cultivated there for that purpose, as much attention being bestowed on it by the natives as on coffee. The leaves are also chewed, when green, like

those of the Coca in South America, being highly intoxicating in effect, particularly in the wild state.

Saxifraga—or “Siberian tea,” produced from a decoction of the leaves of that plant, but used only as a beverage in the same manner as those of China tea.

Epilobium—or “Russian tea,” is prepared from the dried leaves of the common willow, and are also extensively used for mixing with the regular teas of commerce, commanding as high as four roubles a pound in the dried state, for that purpose; being also in common use among the poorer classes of that country as a substitute for China tea.

Buxifolium—or “Labrador tea,” is made from an infusion of the leaves of that plant, and used extensively as a beverage by the natives of that country and adjoining provinces.

Appalachian—or “Pennsylvania tea,” is prepared from an infusion of the *Punos* plant found growing in a wild state on the Allegheny mountains, and used as a beverage as well as for the purpose of imparting heat; and while very closely resembling the tea-plant of China in its structural character, of its merits or drinking qualities as a tea nothing definite has as yet been ascertained.

Ceanothus—or “New Jersey tea,” known to the Indians as “pong-pong,” is prepared from the leaves of Red-root, and was at one time in general use and very popular among the natives of Virginia and the Carolinas, and was also extensively used in Revolutionary times as a substitute for China tea when refusal was made to pay the tax upon the latter.

Chimonanthus—or “English tea,” recently obtained from the leaves of that plant, and used as a substitute for China tea, as well as for mixing with it. Originally a native of China and Japan, it has been acclimatized in that

country, where it is at present extensively used alone and as an adulterant.

Coffee-leaf Tea—in use in many of the Coffee-growing countries, most notably in Arabia, Sumatra and the West India islands. It is prepared from the roasted leaves of the coffee-tree in the same manner as China tea, the natives of these countries particularly preferring it to any decoction made from the berries of the latter.

Strawberry-leaf Tea—obtained from the leaves of the common strawberry shrub, carefully dried and cured after the manner of the China plant. They are prepared and used in Germany particularly as a tea; they yield a very close imitation of the liquor and flavor of the regular tea of commerce, so much so that quite an industry has sprung up in their cultivation and preparation as a substitute for tea in that country. The celebrated "Faham tea" of the Mauritius being still another remarkable substitute for the tea of China. But as with many of the foregoing should be regarded in the light of medicine rather than that of a regular beverage.

That this characteristic element *Theine* should be present not only in the Tea-plant of China and Coffee-plant of Arabia, but also in so many others widely differing, so remote in situation, and so unlike in appearance, and from which millions of people in all parts of the world draw a refreshing and exhilarating beverage, is a striking and beautiful fact in nature. *Under such a fact there may be more significance than science has yet elicited.*



CHAPTER IV.

CULTIVATION AND PREPARATION.

THE Chinese, from time immemorial, have been accustomed to raising their tea on every available space of ground ; on barren hill-side, marshy plain and other patches of land unsuited for other purposes. Most of the gardens are, however, situated in hilly districts, but in almost all of them the soil is poor and sandy, varying considerably, even in districts alike famous for the perfect growth of the plant.

The soil of the gardens situated on the hills is composed chiefly of a brownish clay, containing large proportions of vegetable matter intermixed with fragments of slate, quartz and sand-stone, held together by a calcareous basis of granite. A soil, in fact, very similar to that which produces pine and scrub-oak, while on the plains it is darker, but containing a still greater proportion of vegetable matter, enriched by sewerage but invariably well underdrained by natural declivities. Yet while many of the gardens are situated on the tops of mountains, among pine trees in some districts, and along river banks on others, the Chinese, as a rule, prefer ground that is only moderately elevated, in sunny sites, everything else being favorable. Many of the latter yield more abundantly, but the product of the former is invariably the finest in quality.

With regard to climatic essentials the plant endures a tropical temperature well, at the same time accommodating itself to the cold of winter without injury. But when cultivated for commercial uses in such latitudes the seasons are found too short for its profitable production there, and while it is successfully grown at zero cold in some districts, it is nevertheless most lucratively cultivated in climates where the thermometer rarely falls more than six degrees below the freezing point. The climate varies to a considerable extent in the different districts of China where tea is grown, being excessively warm in the southern, and intensely cold in the northern provinces, snow being on the ground for days together in the latter or green tea producing districts. And though it has been proved by experiment that this variety will bear a greater degree of cold than the black, considerable snow falls annually in the province of Fo-kien, where Black teas are grown. The most important climatic consideration, however, is the amount of rain-fall, a dry climate being altogether unfit for tea cultivation; a hot, moist or damp one being proved the best. The rain-fall in the most profitable tea districts ranges from 80 to 100 inches per annum, the more falling in the spring months the better, and that too must be equally diffused. But where irrigation can be systematically introduced, this is of less importance.

PLANTING AND PICKING.

Tea is invariably raised from seed, in China, collected in the fall after the last crop has been gathered and placed in sand to keep them fresh during the winter months, and sown the following spring in nurseries. In sowing the seed from six to eight are put in pots about an inch below the surface, usually four feet apart, and covered with

rice-husks or parched earth. In growing, many of the seeds prove abortive, scarcely one in five germinating. When the nurslings have attained a height of from four to six inches they are transplanted to the beds of the gardens in which they are to grow four to five feet apart. The plants are never manured in China, nor does it appear to be customary to prepare the ground for their reception, it being claimed by many authorities that manure, while it increases the yield, invariably spoils the flavor of the tea. Chinese growers in general asserting that teas produced without the aid of manure are always the most fragrant and aromatic.

The plantations are laid out in the early spring, and being well watered by the copious rains which fall during this season, the young plants establish themselves, requiring very little care thereafter. Until they have attained a height of about 18 inches, the weeds are pulled regularly, not raked, and the leading shoots pinched to induce them to become numerous and bushy. When the season is dry they are saturated with rice-water and the roots covered, and if severely cold they are protected by a wrapping of straw, rising up in a cluster when the rains come and become firmly established, after which they require very little more attention except occasional weeding, until they are three years old. In some districts the branches are periodically pruned, the constant abstraction of the foliage having a tendency to reduce the height and expand laterally, making them resemble a collection of plants rather than single shrubs, the size of the leaves in such cases being smaller than when the plants are suffered to grow at will, but covering the branches so thickly as to prevent the hand being thrust through. An eastern exposure is avoided when near the sea, and care is also taken not to overshadow them by huge trees

or noxious plants, certain notions prevailing concerning the injurious influence of such trees when growing too near the tea plants. When the soil is good and the season favorable the leaves can be picked when the plants are two years old, but if poor and dry, three years are usually required for them to mature. On the larger plantations three years are generally allowed before beginning to gather the first crop or picking. A tea plantation at this age when seen at a distance resembles a shrubbery of evergreens, the view being very picturesque, the gardens representing a series of terraces descending to the plain, and the rich dark-green leaves affording a pleasing contrast to the strange and oft-times barren scenery with which they are so frequently surrounded. There is a close analogy between the tea plantations of China and the vineyards of France, the quality of the tea varying according to the situation of the sites, the nature of the soil and their exposure to climatic changes. Thus, there are in China plantations of tea enjoying reputations equal to those of the best vineyards of Burgundy, Champagne and Bordeaux.

There are three regular pickings in the course of a year. The first known as the *Shon-cheun* or "Early spring," occurring about the middle of April or beginning of May, according to the district, the product of which is termed *Taou-cha* or "head tea," a very superior kind, consisting of the youngest, tenderest, and most delicate leaves and leaf-buds just expanding. The quantity obtained from this picking is limited in quantity but simply superb in quality, the very finest teas known to commerce, being prepared from them. The leaves are selected with the greatest care and picked with the utmost caution, such pains being taken to insure its excellence that for weeks before the harvest commences,

the packers, who have been previously trained are prohibited from eating fish or other food considered unclean, lest by their breath they should contaminate the leaves, being also compelled to bathe two or three times daily in the picking season, as well as wear gloves during the operation.

The second picking, called *Er-chuen* or "Second spring," takes place between the end of May and beginning of June, when the branches are literally covered with leaves, and yielding what is known in China as *Tzu-cha* or "filial tea," from the fact of its producing the largest quantity, constituting the most important crop of the season and forming the principal one exported, but being greatly inferior to the first in point of quality.

The *San-chuen*, or "third crop," is gathered in July when the shrubs are searched for leaves, and the product converted into what is termed *Wu-kua-cha* or "tea without aroma," and though still more inferior to the preceding ones in quality and quantity, is nevertheless an important one commercially, forming the bulk of that exported as well as for blending with and reducing the cost of the preceding crop. A few leaves of the first picking will support five successive immersions, yielding five cups of moderately strong tea; the second supplying only two and the third but one of the same strength to a like quantity.

A fourth picking or rather "gleaning," termed the *Chiu-lu* or "Autumn dew," is made in the more prolific districts in September and October, the product of which is known as *Ta-cha* or "old tea," but of little value commercially. The leaves being large, coarse and almost sapless, are generally retained for home consumption by the poorer Chinese or for dyeing purposes, and still another grade is sometimes made by chopping

up the stems and twigs of the foregoing with a shears, a practice, however, much to be condemned. The operation of picking is one of the greatest nicety, only women and children being employed in its performance. A small basket is strung by a cord around the neck of each picker, in such a manner as to leave the hands free, a larger basket being placed near for general use. The branch is held by one hand while the leaves are carefully plucked with the other, for, except in the latter gatherings, no portion of the stem or stalk must be broken off with the leaves.

The quality of the tea largely depends on the exact time of picking, as the choicest leaves may be changed into an inferior grade of tea on a single night if the exact proper time to pick them be neglected. The practice of picking the young leaf-buds just as they are beginning to unfold would also prove greatly injurious to the plants, were it not for the copious rains that fall during the season of picking, causing fresh leaves to sprout out and elaborate the sap necessary to constitute the further growth of the shrub. The weather also exerts a great influence upon the character of the tea, as, for instance, when the rains fall equably and a bright sun appears after heavy showers, the plants become thick and flourishing, the leaves bright green in color, elastic in texture and much richer in flavor. Whereas, when too much falls at one time, they become mildewed, broken and less flexible and limited, stunted and sapless when too little falls during the season of growth.

The product of single plants vary so much that it is difficult to estimate the average quantity. A plant of three years' growth yielding only about 8 ounces of green leaves to a picking, equivalent to about 80 pounds per acre, while at five years' growth the same plant will

produce five times that quantity, but the quality of the tea will not be near so good. One Chinese authority states that 2 catties, about 2 pounds, of green leaves are obtained from the more celebrated trees, but that the average quantity was between 10 taels and 1 cattie, or from 1 pound to 22 ounces annually, adding that a single *mou* (acre) of land contained from 300 to 400 plants. From these varying statements it is evident that no definite amount can be fixed on as an average product per plant, per acre or per annum. The average collection for each picker is from 14 to 16 pounds of raw leaves per diem, the average wages varying from four to eight cents per day, according to the skill of the picker.

CURING AND FIRING.

As a general rule in China the small growers do not prepare the tea for market, simply curing them up to a certain point in which condition they dispose of it to the merchant or commission man, locally known as "tea-men," who send agents into the country and who buy it in small quantities from the growers and carry it to *hongs* or warehouses established at different points in the tea districts. In this preliminary preparation the leaves when first collected by the grower are spread out in light layers on straw mats and exposed to the sun until they are thoroughly withered, when they are gathered up and placed on bamboo trays and triturated until a large portion of the sap or juice is pressed out. After this operation they are again exposed to the sun and then dried in rattan cylinders, separated in the middle by a partition, covered on top, and underneath of which is a chafing vessel of ignited charcoal. The leaves when thrown into

this concavity are constantly agitated until the process is completed, finishing the cultivator's work, the leaves being delivered to the merchant or factor in this state. The quantity for a "chop" or shipment being selected according to the quality of the leaf and the district producing it. The merchant or factor has them picked over by women and children to remove the stems and fibre which still remain attached to the young sprouts before completing its final preparation for the foreign market. The drying, buying and transporting of the leaves from the gardens to the hong occupies considerable time, during most of which the but partially prepared tea is very much at the mercy of the elements.

Tea leaves, when first picked, possess none of the color, odor or flavor of the tea of commerce, these properties being developed by the numerous processes to which they are subjected in the operation of curing and firing, and for which the Chinese have a long vocabulary of technical terms. The definition of which, as vouchsafed to the "outside barbarians," are intended more to mystify rather than elucidate the art. The operations of Tea manufacture may, however, be classified in the following sequence: Evaporating—Fermenting—Sunning—Firing—Rolling; each process having to be carried to a certain specific point, or if under or overdone, the leaf is spoiled and the tea correspondingly injured.

The partially withered leaves are packed in small cotton bags, loosely tied at mouth, and placed in open wooden troughs or boxes perforated at the sides with numerous holes, in which they are pressed and kneaded by the feet, to expel all superfluous moisture, the object being to extract all excess of tannin the principle to which tea owes its bitterness and astringency. If

leaves be fermented without previously going through this process, the tea will be too pungent and bitter. The fluid driven out through the holes is of a greenish, semi-viscid nature, the quantity expelled from the leaves being considerable. Properly evaporated, the leaves when pressed in the hand return to their regular shape, the stem bending double without breaking.

The process of fermentation is accomplished by next emptying the leaves into bamboo baskets and covering them with cotton or felt mats, to cause a retention of heat and hasten the fermentive changes. Having been allowed to stand in this condition, the time requisite for this process, being learned only by experience, being more rapid in dry, warm weather than in cool and damp. If the leaves be allowed to remain in a heap after evaporating, so that heating by natural fermentation should occur, the tea will be greatly injured. The process is stopped by emptying the leaves and spreading them out on large mats, exposed to the sun's rays. The effect of proper fermentation is to make the tea richer, smoother and more pleasing in flavor. Tea in this respect being like tobacco, which if dried over a fire when first cut, becomes so sharp and bitter as to sting the tongue.

During the process of "sunning" the leaves are tossed up and turned over repeatedly, so that the whole may be diffused and thoroughly permeated by the sun. With bright sunshine one hour's exposure is sufficient, after which they are ready for the final processes of firing and curling. One of the results of the sunning process is to evaporate in a greater degree the properties that produce nervousness or wakefulness in the tea.

As in the case of its botanical classification, much error and confusion for a long time existed with regard to the production of the varieties known to commerce as Green

and Black teas. It was claimed at one time that the former were prepared exclusively from the species botanically termed *Thea Viridis*, and the latter came from *Thea Bohea*. It was also stated that the difference in color was due to a variation in the soil, climate and methods of cultivation, and again that Black teas were prepared only from plants grown on hilly sites, and Green teas solely from those cultivated on the plains in a soil enriched by manure. These botanical names and groundless conjectures have for a long time misled the public, later and more careful investigation fully disproving such erroneous impressions. But while it is now admitted that the greater portion of the respective commercial varieties known as Green and Black teas are prepared from the corresponding botanical species in their respective districts, it is more from custom, convenience or demand than from any other cause. The manufacturers cater to the latter, the workmen also preferring to make that kind best with which they have the most experience. Chinese tea men now admitting that both kinds are prepared at the will or pleasure of the manufacturers in the Black and Green tea districts. At Canton and other treaty ports in China it is an open secret that both varieties are prepared from either species according to the demand, the difference in color being entirely due to the different methods of preparation from the first stage. In the

PREPARATION OF GREEN TEAS.

When the leaves are brought in from the gardens, they are spread out thinly on flat bamboo trays, where they are allowed to remain exposed from one to two hours, in order to evaporate any superfluous moistures,

the time depending much on the state of the weather, after which they are removed to terraces or verandahs built expressly for the purpose of firing and curling, and containing from ten to twenty small furnaces about three feet high, each having at the top a series of shallow pans, termed *Kuo*, built into brick-work, low in front, but rising gradually at the sides and back, having a flue beneath and a fireplace at one end. The pans are heated to a certain degree by a charcoal fire made in the furnaces underneath. Charcoal being used exclusively for the purpose, as smoke of any kind would injure the flavor of the tea. A limited quantity of raw leaves are thrown into the *Kuo* at a time, rapidly moved about and shaken up with both hands until they become affected by the heat, making a cracking noise and give out considerable vapor, the freshest and juiciest cracking first.

The operators meantime continue to stir them rapidly as possible with their bare hands until they become too hot to be endured, the object being to expose them equally to the action of the heat, and at the same time prevent them from burning or scorching. When the heat becomes too intense they are lifted rapidly above the *Kuo* and allowed to fall gradually to cool them, any burned leaves being instantly removed. After being allowed to remain in this state from four to five minutes, during which they become moist and flaccid, they are quickly removed with a shovel resembling a fan and transferred to a long, low table made of split bamboo and covered with matting and surrounded by several *Sai-hoos*, who divide the leaves among them, each taking as many as he can hold in his hands, rolling them from left to right with a circular motion into the form of a ball, which is compressed and rolled upon the table, to rid them of any excess of sap or moisture, and at the same

time curl or twist the leaves. During this process they are frequently shaken out and passed from hand to hand with a rapid motion, until they reach the head workman, who examines them carefully to see if they have attained the requisite twist, after which they are separated and spread out in bamboo trays until the remainder have undergone the same process. A second set of operatives now collect them and turn them over and over, toss and retoss them in the air to a considerable height, while a third keeps fanning them in order that they may cool more speedily and retain their curl longer, those containing the most sap curling quickest, tightest and retaining it the longer. When the firing and curling operations are completed, the leaves are again exposed to the action of the air, so as to admit the passing away of the expressed moisture and at the same time impart a crisp appearance.

When a sufficient quantity of leaves has been rolled they are again placed in the *Kuos*, under which a slow but steady charcoal fire has been kept burning and stirred with a rapid motion by the hands of the *Saihoo* until they become thoroughly dried and the green color permanently fixed, that is, until there is no longer any danger of them turning black. At this stage the leaves are of a dull-green color, becoming brighter as they cool, in which state they are termed by the Chinese *Mao-cha* or "Cat tea." The next and last process consists of winnowing or passing the leaves through sieves of varying sizes to free them from stems, dust and other extraneous matter, and separate them into the different kinds of Green Tea known to commerce. After which they are again refired, the coarser leaves once and the finer grades three to four times in order to bring out the color more fully and make them retain their curl longer. In the

PREPARATION OF BLACK TEAS.

The leaves undergo the same process of evaporation and fermentation as with the green, but for a much longer period. They are spread out thinly on large mats and allowed to lie in this condition for at least twenty-four hours, after which they are gathered up and thrown in the air and allowed to fall back again in order to separate them. They are next turned and returned for a considerable time, being slightly beaten or patted with the hands meantime until they become soft and pliable, when they are again heaped and allowed to lay in this state for about an hour, and when examined, at the end of this time they are found to have undergone a slight change, becoming darker in color, moist and flaccid in texture and emitting a sweet, fragrant odor. At this stage they are placed in the *Kuos* and fired for about five minutes, rolled on bamboo tables and shaken out thinly on sieves placed outside the "hong" and exposed to the oxidizing action of the atmosphere for about three hours, during which the operatives are employed in going over the sieves, turning and separating the leaves from each other.

After the leaves have lost considerable sap and become correspondingly reduced in size they are next removed into the factory and placed a second time in the pans for three or four minutes, rolled as before and put into tubular bamboo baskets, narrow in the middle and wide at both ends, and suspended over charcoal fires for from five to six minutes, during which they are carefully stirred and watched until they begin to assume a dark color, the operations of heating and twisting being repeated from three to four times, the heat being gradually reduced at each operation, and during which the operators make holes with their hands through the centre of the leaves in order to equally diffuse the heat and give vent to any

smoke or vapor from the charcoal. They are then covered up, placed aside until they become perfectly dry and their black color firmly established, improving in appearance as they cool. When there is no longer any danger of their becoming green, the final processes of sifting, sorting and grading is performed at the convenience of the workmen.

With four *Kuos* and six *Sai-hoos* only from 400 to 500 pounds of prepared tea can be cured in a single day, it requiring 400 pounds of raw leaves to produce 100 pounds of cured tea. The leaves of the earlier pickings being smaller, more tender and juicy, the yield is correspondingly less, the leaves containing the most sap curling quickest, tightest and retaining it longer.

It may here be observed in regard to the preparation of Green and Black teas that the leaves intended for conversion into the latter variety are allowed to lie exposed to the action of the sun and air for a considerably longer time than those of the former, that they are raked and tossed about until they become more soft and pliant, and that they are allowed to ferment longer before firing. And, again, that after firing and curling they are exposed to the oxydizing influence of the atmosphere in a moist state for hours previous to being fired a second time and finally dried in baskets over a slow fire. While the leaves intended for Green teas are immediately fired and curled after being picked, and dried as quickly as possible after the rolling process has been completed. The differences in the methods of preparation are therefore most marked, and satisfactorily accounts for the difference in their color, flavor and aroma, as well as for the effects—nervousness and wakefulness—produced in some constitutions by Green teas, due to the greater amount of sap contained in the leaves.

But, for the at one time commonly-received opinion that the distinctive color of Green teas was imparted by curing in copper pans, there is not the slightest foundation in fact, since copper is never used for the purpose, repeated experiments by unerring tests having failed to find a single trace of that metal in any Green teas.

Later investigations proving that the hue of Green teas is due as much to their manipulation as to the degree of heat at which they are fired. It has been found that at equal temperatures the leaves of both will turn black if allowed to lie as long before or during firing, the green color being retained only by the excessive motion, the latter tending to accelerate the power of evaporation of the juices, and which is further augmented by incessant fanning.

GRADING AND PACKING.

The final grading of Green teas also differs from that of Black, there being two distinct styles or "makes" of the tea—rolled and twisted. They are first separated and then sifted, in which operation four sieves are used, two to separate the small from the large round or rolled leaves, and two for the curled or twisted. After being sorted or separated they are again fired into deeper pans at a much higher temperature, and winnowed while hot in large circular bamboo trays, to free them from any remaining chaff or dust, the choicer grades being hand-picked previous to being sent to the *Twa-tu-tia* (Tea market), which is held in the nearest town or village to the district of production. The inferior grades are generally disposed of in an unassorted condition to the native factors or foreign merchants, who afterwards sort, grade and pack them for export.

The grading or classing of Black teas for their first market is performed differently in the different districts. The most common custom, however, is to sort the dried leaves at the Hong, according to their size, style and quality, by collecting them in heaps or large layers, and rake them down so as to mix them well together and make them uniform in grade and average cost; the leaves being more often the product of different plantations, and even districts. The product of each plantation is brought by coolies in cotton bags or bamboo baskets to the tea market, and when disposed of are removed to the "Go-downs," or warehouses, situated in the adjacent villages, where the teas of a district are stored until they are disposed of to the native factors or foreign agents, who travel through the country in the interest of commission houses or merchants at the treaty ports, and by whom they are again fired, graded and winnowed to free them from any remaining impurities. When the orders are filled the teas are transported across the country on the shoulders of coolies, or sent down by river or canal in "junks" to the shipping ports, the time occupied in transit varying according to means, being usually from six to eight weeks.

Previous to being packed for export in the lead-lined chests in which they are received in this country, the teas are again subjected to a still further firing, with the object of totally evaporating any moisture they may have absorbed in transit from the interior or by laying exposed in the storehouses, as well as to better fit them for the long sea voyage, after which the tea is weighed in "catties," and placed in the chests, the packer pressing it down with his hands. When another cattie is put in he steps on top, places his hands behind his back and throwing his head forward goes through a sort of a

tread-mill dance, until the leaves are tightly compressed into the smallest possible compass. More tea is then put in and pressed down in the same manner until the chest is filled, when the leaden lid is put on and soldered, the chest being nailed, clamped, matted and rattaned later, numerous hands, men and women, being employed in its final packing.

Before matting a Chinese character termed a "Chop-mark" is placed on the side of each chest, ostensibly to denote the packer or picking, but although the same "crop" or brand is received year after year from the same shipper it does not necessarily follow that the grade or quality will be the same or even equal to that of the preceding ones.

The term "chop" in Chinese means contract, and does not, as is claimed, refer to the crop or picking of any particular garden or season. In trade it is applied to a quantity of tea frequently composed of the product of different gardens, or piens (localities) and even districts averaged or made uniform in the piens of the Twa-tu-tia by the factors before forwarding to the shipping ports. When a sufficient quantity of a certain specified grade has been secured from several growers to make up a chop, it is carried to a warehouse in the adjacent village, where it is all mixed together, averaged, refired and packed for the foreign market. The quantity for a chop being selected according to the quality of the leaf and the district producing it, and considering how chops are made up—a few piculs from several gardens, often widely apart, they are wonderfully uniform in grade. Still, although year after year the same "chops" are received from the same shippers, it does not follow that the chops of one year or season will be as fine as those of the preceding or of equal quality. It being by no means an

unusual practice for the packers in the interior to leave the chests unmarked until they reach the shipper, who, knowing the chops must be in demand at that particular season in the consuming countries, supplies them to order, or, at least, not to use one of bad repute.

The average cost of medium to fine grades of tea is 40 taels (about \$20) per picul (133 $\frac{1}{3}$ pounds) laid down at the port of shipment is as follows at the present time: The refiring, packing, leading, chests, matting and rattaning varying from \$3 to \$4 per picul more.

CHAPTER V.

CLASSIFICATION

AND

DESCRIPTION

TEA as it occurs in commerce is the dried leaves of the tea-plant, and is generically classified as Green and Black under, which names it is best known to the public. Commercially, they are classed as China, Japan, India, Ceylon, and Java teas, but are again divided into numerous varieties and grades, having terms derived from the districts and localities of production, or indicative of age, form, or quality, from the delicate product of the young leaf-bud up to that of the large, old, and fully expanded leaf. These numerous appellations which distinguish the commercial qualities of tea being almost entirely of Chinese origin.

CHINA TEAS.

Tea and China are almost synonymous terms. It is indisputably the "Land of tea." Its cultivation forms the chief industry of that country, and has been the largest contributor to the revenue of the government for centuries, its export being the principal feature of all her foreign dealings. The welfare of the inhabitants of her fairest provinces depend on its production. It has been in universal use among them from time immemorial, forming not only the regular beverage of the people, but also administering to the luxury of the epicure. They drink it

at all times and under all circumstances from early morning until late at night, in sickness or in health, working or playing, traveling or resting, all business being transacted there between two cups of tea. In brief, it is the natural beverage of the country constituting what wine is to the French, beer to the German and ale to the English, and but without which no Chinese family could live or thrive.

Considering all this, the claim under the circumstances that any other country is the "home of tea," as is attempted at the present time by some English writers, is about as futile and absurd as the endeavor to substitute Americus for Columbus, or Bacon for Shakespeare. And not only is China the original home of tea, but in addition, *China Tea is the only true tea, surpassing that of all other countries in every property and quality constituting and distinguishing tea, and possessing certain distinctive characteristics peculiar to and contained in no other variety grown or known.* Yet while grown to a greater or less extent all over that vast empire, its cultivation for commercial purposes appears to be chiefly confined to the eastern provinces of Che-kiang, Kiang-see, Gan-hwuy and Fo-kien, some little also being produced for export in the western province of Sze-chuan.

China Green Teas

are produced principally in the provinces of Che-kiang, Gan-hwuy and Kiang-see, and are known to trade as Sunglos, Moyunes, Hychows, Fychows, Tienkes, Táyshings, Pingsueys, Cantons, and Country green teas, district terms and grading in the order named. These varieties being again subdivided into Gunpowders, Imperials, Hysons, Young Hysons, Hyson-Pekoes, and Hyson-Skin—appellations denoting age, size, style, or form of make.

Sunglo—Famous in China at one time as the district where Green teas were first produced, and which were for centuries the finest grown in that country. Latterly, however, it has greatly declined as a tea-producing district, the quality also degenerating at the same time, much of that now sold as “true Sunglo” being only so in name. They are what is known to trade as “Hill” or high-district tea, natural green in color, exceedingly well made and prepared, yielding a rich, straw-colored liquor, clear and sparkling in the cup, fragrant and aromatic in flavor. The infused leaf is small, symmetrical and uniform to a high degree, in fact almost perfect in shape, an invariable indication of youthfulness, fineness and tenderness.

Mo-Yuen—Known to trade as “Moyune,” now produces the bulk of the best Green teas received from China. Grown principally on the plains or lowlands adjacent to Sunglo from which fact they are sometimes termed “Garden teas” in contradistinction to the upland or “hill teas,” and to which they are inferior in make, liquor, and flavor. They are of three kinds—“Nankin,” “Pakeong,” and “Oochaine”—so named from the “*piens*” or localities in which they are raised.

Nankin Moyune—Is the most valuable, intrinsically and commercially, being superior to the others in make, color, draw and drink. The dried leaf is firmly rolled or curled according to “make,” rich, natural green in color, and extremely uniform in general appearance. The infusion of the finer grades is light golden in tint, brisk, and pungent in body, and possessing a flavor peculiar to itself, technically termed “toasty.” It is deceptive in drink owing to its light color in the cup, the body being full and heavy, the infused leaf is small, but regular and well-shaped and of a light-green hue.

Pakeong—Differs from Nankin in many respects, though grown in the same district. The dry leaf is larger and more open, being what is termed "loosely made," duller in color and not as highly fired. The finer grades, however, yield a rich, ripe liquor, comparatively light in color and delicate in flavor, but lacking in that "toastiness" for which the former are so much admired.

Oochaine—Is a small leaf tea, generally darker in color, heavier in body and more pungent in flavor, but owing to its small size and imperfect preparation not as well appreciated as it deserves.

Hy-chows—Though raised in the adjoining district to Moyune are nevertheless much inferior to them in both leaf and liquor. The dry leaf, while firmly made and regular in form, silvery-green in color and considered attractive in appearance, is still very deceptive and lacking in cup qualities. The infusion, although darker in color and fairly pungent, is light in body and devoid of fragrance, the infused leaf being dark, coarse and irregular.

Fy-chows—Are bold and rough in general appearance, dull in color, dark and heavy in liquor, and somewhat astringent in flavor, and on the whole an undesirable sort.

Tien-kes—While large and coarse in make are pleasing in the hand, being chiefly sold on style, as they will not stand the cup test in comparison with Moyunes. The liquor is dark and thick, astringent and frequently "smoky" in flavor, due to the high firing in the effort to make them roll or curl tighter.

Tai-pings—Like Tien-kes, look well in the hand, being fairly well-made and stylish-looking, but of a leaden-blue hue, the result of the "facing" or coloring-matter used in their preparation in order to enhance their

appearance. The infusion is dark and muddy in the cup, flat and frequently "earthy" in taste, the infused leaf being large, coarse, dark and irregular.

Pingsueys—Termed by the Chinese *Mien-pan-cha* or "Bastard tea," possess no intrinsic value really as a tea, many experts contending that they are not even allied to the tea plant, but prepared from the leaves of some shrub remotely resembling it. The dry leaf is very stylish and firmly made, but of a leaden-blue color and "greasy" in appearance, gypsum and Prussian blue being extensively used in their manipulation. The liquor is dark and heavy, bitterly astringent and "brassy" or metallic in flavor, while the infused leaf is large, coarse and irregular in shape, dark-brown in color, and recognizable from its dissimilarity to the true tea-leaf.

Canton—Called by the Chinese *Tchaw-cha* or "Lie-tea," is another spurious variety, manufactured in that city from "spent" or exhausted tea leaves, that is, from leaves once used and from which the vital properties have been extracted. They are made by first grinding and mixing them with a gluey compound to make them adhere, and then rolled into the form of Imperials and Gunpowders, as they cannot be curled or twisted, after which they are artificially colored or faced with a preparation of Prussian blue, kaolin and tumeric. They are smoothly rolled and leaden-blue in color, having a peculiar greasy external appearance in the hand, due to the mineral matter used in their preparation. They do not possess a single physiological property of tea, yielding only a greenish viscid substance, dark and muddy in color, the so-called leaves disintegrating and settling in a pasty consistency at the bottom of the cup, the liquor being devoid of every semblance of tea.

Country Greens—Are uncultivated teas gathered in outlying districts, rough and uncouth in appearance, bitter and astringent in liquor, wild or “grassy” in flavor. The leaves when infurled are exceedingly large, rough and uncouth in the cups, having every appearance of a wild or uncultivated tea-leaf.

Sub-Varieties of Green Teas.

Gunpowder—Termed by the Chinese *Choo-cha* or “Pearl tea,” so named from its small, round and “shotty” form. It is generally prepared from the smallest and youngest leaves of the tea plant, its quality corresponding to the picking and district of growth. The product of first crop is sometimes known as “Pinhead,” from its extremely small, globular and granulated appearance. That prepared from the second crop is larger and not as hard rolled, while the third and fourth pickings are respectively still larger and more irregular in form, but, while darker and heavier in liquor, they are not near as delicate or fragrant in flavor.

Imperial—Derives its trade name from being the make or style of tea used in the Imperial household and the wealthier Chinese. That exported is prepared from the larger and older leaves of the respective pickings and rolled in the same manner as the former, from which fact it is sometimes called “Big Gunpowder” and “Pea-leaf.” But while larger and bolder in make it possesses much the same drawing and drinking qualities, excepting that it is heavier and darker in liquor and not as delicate or aromatic in flavor.

The true Imperial tea, known in China as “Flower tea,” not because it is prepared from the flower or blossom of the tea-plant, as is erroneously supposed, but from its being considered the “perfection of tea.” This variety

is never exported owing to its limited production and being also very lightly fired in curing, it is very susceptible to moisture, the damp of a sea voyage tending to greatly impair its delicate properties.

Young Hyson—Is a corruption of the Chinese term, *Yu-he-t sien* or “Early spring,” from being picked early in the season. In make the leaves of the finer grades are extremely small, firmly, if not artistically twisted, and almost wiry in texture, being prepared from the youngest and tenderest leaves just expanding. The leaves of the later pickings are correspondingly larger and looser in make and appearance, and relatively inferior in drawing and drinking qualities to the earlier pickings.

Hyson—Known to the Chinese as *He-t sien*, “Flourishing spring,” from being gathered in the full spring-time is a large, loosely-curved leaf, prepared from the older leaves of the respective pickings which cannot from their size and lack of succulence be either rolled or curled. They bear the same relation to Young Hysons that Imperials do to Gunpowder, and preserving the same characteristics in a relatively minor degree.

Hyson-Pekoe—Called by the Chinese “*Loung-t sien*” literally “Tea-of-the-wells-of-the-Dragon,” a term used to describe an exceedingly rare, peculiar and expensive variety of green tea, which, owing to its extreme tenderness and delicacy and very light firing is never exported. It has a small, evenly-curved leaf, rich, natural green in color, with whitish, downy or silvery ends. The infusion is of a pale or light-golden yellow tinge, clear and sparkling as champagne in the cups and possessing what the connoisseur would term a simply exquisite aroma or “bouquet.”

Hyson-Skin—Termed by the Chinese *Twankay* or “Refuse tea,” is composed of the largest and oldest leaves, screenings or “fannings” of the foregoing varieties, that cannot, owing to their coarse or broken condition, be rolled or curled. It is large, loose and flat in appearance, varying in color, liquor and flavor according to the grade from which it is separated in screening. Many of them, however, draw and drink exceedingly well, making very useful teas for blending purposes.

China Black Teas

comprise Oolongs, Congous, Souchongs and Scented teas, and are principally produced in the south-eastern provinces of Fo-kien and Kiang-nan.

Oolong Teas.

The term Oolong is derived from the Chinese word *Ou-loung*, signifying “Green dragon,” and is applied to a variety of tea having a small greenish-yellow leaf permeating through it. They are divided into six different kinds—Amoys, Foochows, Formosas, Ankois, Saryune, Padrae and Pekoe-Oolong teas, possessing as many distinct flavors and characters caused by the variations in soil, climate and mode of preparation.

Amoy Oolongs—Are divided into Kokews, Mohea and Ningyong from the localities where grown, and differ much in size, style and character.

Kokew—Is a large, dark, coarse-leaf tea, rough and unsightly in the hand, but pungent and “grippy” in the cup. The poorer grades possess a wild or “herby” flavor—a quality, strange to say, appreciated by some few tea-drinkers, but strongly objected to by the majority of consumers.

Mohea—Is a large, light and somewhat “chaffy” leaf tea, light-colored and light-bodied in the cup, but withal smooth and pleasant in flavor. But, although lacking in strength, it is a serviceable tea for blending purposes, particularly in combination with a heavy Congou or Assam, in the proportion of one of the latter to four parts Mohea, being too thin when used alone.

Ning-yongs—Are light in weight, greenish-yellow in color and stylish-looking in the hand, though not well made or twisted. They are also very pleasing in the cup, possessing a sort of “hickory-nut” flavor for which they are much admired, but are thin in body and lacking in “snap.” It is contended by some experts that if this variety were converted into a green tea it would rank with a light drawing Moyune in drinking qualities.

Amoy at one time was the greatest Tea mart in the world, exporting as much as 500,000 half-chests per annum, but which has now fallen to less than 50,000, due in part to careless cultivation and indifferent curing. The lower grades are stemmy, dusty and frequently adulterated with spurious or exhausted leaves. Many of the finer grades, however, still turn out splendidly in the cup, rivalling the lower grades of Foochow and Formosa, being frequently faced and sold for the latter when these grades are scarce or high. It does not require an expert, however, to detect the substitution, as they are totally devoid of the fragrant and “nosey” flavor that so distinguish the latter.

Foo-chow Oolongs—Are produced in the province of Fo-kien, and are, without exception, the truest and finest variety of the genus tea grown in any country, China not excepted. They are usually put up in “chops,” quantities bearing the brand or chop-mark of the grower or packer, which are again divided. “Lines,” termed in

trade, "Firsts," "Seconds," "Thirds," "Fourths," and sometimes "Fifths," denoting the various pickings and grading in the order named.

The dried leaf of the "Firsts" or finer grades is black and almost "silky" in texture, exceedingly well twisted and crispy, but not brittle, yielding rather than breaking when pressed in the hand. While the infusion is dark-golden in color, rich, round and full bodied, very mellow and fragrant in flavor, the infused leaf medium in size, very regular in form and of a rich brown color.

The "Seconds" are somewhat larger in leaf, looser in make, not being quite as finely or evenly twisted but possessing excellent "cup qualities," being the favorite with consumers who prefer full body, to delicate flavor. The "Thirds" are still looser in make, bolder in style and darker in liquor, heavier in body, and though not near as high or fragrant in flavor are, nevertheless useful and serviceable, particularly when they are composed of what is known as "high district teas."

The "Fourths and Fifths," when there are any, are correspondingly inferior in quality, the dried leaf of the latter being especially large, coarse and rough in appearance, brittle and chaffy in the hand, and frequently dusty or stemmy, dark in draw but thin in body, lacking in flavor, deteriorating rapidly after infusion, and devoid of the high character that so distinguishes the former grades of this variety. The principal "chops" now known to trade comprise the "Tong-mow," "Tong-lee," "Tong-shing," "Chun-fah," "Chun-fat," "Sun-kee," "Cheong-kee," "Com-wo" and "Com-wo-kut chops."

Formosa Oolongs—Also known to trade as "Tamsuis," from being shipped from that port, are unique in leaf, and flavor differing widely in character, possessing a rich, natural bouquet entirely unknown to any other variety.

The dried leaf is dark greenish-yellow in color, evenly and artistically curled, crisp and "crapy" in texture, small, shapely, uniform, and green when infused, generally "tipped" with a brownish edge, the result of fermentation. The liquor is bright, clear, and golden in the cup, body round and mellow, ripe and rich and aromatic in flavor. A really choice Formosa tea when drawn will fill a room with a delightful aroma peculiar to itself, difficult to describe, but variously pronounced as "jessamine," "cowslip" or "primrose" odor, but still totally unlike that of any other plant or flower in the vegetable kingdom, having a "Formosa flavor" pure and simple, attributed to the soil, and absorbed by the plants during growth, and to preserve which it has to be continually cultivated in new places. Unlike other varieties the later pickings of Formosa teas are heavier and stronger than the earlier gatherings; though sweet and fragrant, are light-bodied and evanescent. The medium and lower grades are dark-brown in color, somewhat rough in style, not being as well cured or curled as the finer sorts. The infusion is also darker in draw, fuller in body, but not near as fragrant or aromatic in flavor, the finer grades improving as it cools, the former deteriorating under the same circumstances and revealing a slightly "herby" taste.

Formosa Oolongs are cultivated by native farmers who have small gardens, some of whom do not raise over one hundred pounds at a picking, but have from three to five pickings in a season. Unlike other varieties, the first picking of Formosa is the poorest, the second crop being better and the last or autumn crop is best of all. This inversion is due to climatic causes, the island being visited with heavy rains during August, after which the warm weather of September causes the plant to grow

luxuriantly, filling the leaf with sap, added to which the moisture of the atmosphere causes the leaves to ferment quickly during the process of curing, allowing the manufacturers to cure the leaf without exposing it to the sun. The great strength of the leaf enables the manufacturer to fire the leaves longer; the longer they are fired the longer they will keep, the third crop, or "Autumn teas," that have been well-fired improving with time after exposure to the air, the action of the atmosphere bringing out the fragrance of the tea, the toasty flavor at the same time disappearing.

Ankoi-Oolongs—Are a doubtful species of the genus tea, said to be prepared from the leaves of a shrub closely resembling yet widely distinct in structure and character from those of the true plant, found growing in a wild state on the range of mountains known as the Anke hills, separating the district of Amoy from Foo-chow. The leaf, in a dried state, is rough, coarse and reddish-brown in color, poorly curled and ragged in general appearance. In the infusion it is dark-brown, large and irregular in form, notably dissimilar from that of a genuine tea-leaf in all respects, while the liquor is dark-red, oily or "earthy," and bitterly astringent to the taste, qualities contracted from the presence of oxides in the soil in which they grow. Intrinsically, this variety possesses no value really as tea, bearing the same relation to Oolongs that Pingsueys do to Green teas, and although known to the Chinese as "Bastard tea," it is extensively used by them in the reduction of Amoys, to which it imparts a wild, rank or weedy flavor readily detected in the cup.

Padrae-Oolong—Is a scarce sort prepared in the Bohea district from a species that is unsuited for conversion into plain Oolong. The leaf is long, black,

flattish, but finely made, after the manner of a Souchong, and closely approximating to the latter in color, liquor and flavor. They are chiefly exported to the Russian market, where they are much esteemed for their unique but superb drinking qualities.

Pekoe-Oolongs—Are what is known to trade as a "Made tea," that is, prepared from leaves which, from their nature or quality, cannot be converted into an Oolong or Green tea, or from leaves spoiled by imperfect fermentation, smoke or fire in curing, flavored or scented with Pekoe in order to disguise or conceal their defects. The dried leaf is generally long, flat and very black, being over-fired, while the liquor is dark-wine color, sharp, pungent, but burnt to the taste, and approaching to that of Tienke green in flavor.

Saryune—Is a bold, dark-leaved variety, rather loosely made and curled. The liquor is heavy, dark, rich and pungent, brisk, but somewhat burnt in flavor, the result of too high firing. The infused leaf is medium in size, regular in form, dark-brown in color, with darker edges, approximating to that of a Congou leaf in color and style.

CONGOU, SOUCHONG AND SCENTED TEAS,

known to trade in this country as "English Breakfast teas," from having at one time formed the staple shipment to that country, are produced in the province of Kiang-see, and are a distinct variety, differing in color, liquor and flavor from the Oolong sorts. They are cultivated chiefly on the *Bou-iu* (Bohea) mountains, in the district of Woo-e-shan, which, though very sterile in some parts, are literally covered with tea plantations. More of these varieties are produced than of all others combined, the product of the Pa-ta-shan range being classed among the finest grown.

CONGOU TEAS.

The term Congou is a corruption of the Chinese term *Kowng-foo*, meaning "laborious" or "assiduous sort," more time and labor being expended on their manipulation than on the other varieties, and are commercially divided into Kaisows or "Red-leaf" and Monings or "Black-leaf Congou teas."

KAISOW

OR

RED-LEAF CONGOUS

include Chingwos, Seumoo, Suey-kut, Sin-chune, Saryune, Cheong-soo, Cheong-lok, Cheong-syke, So-how, Yung-how, Wang-hung and Yung-tong Congou teas.

Chingwos—Are the finest of all the red-leaf sorts, particularly when the crop is good; the dry leaf is well curled or twisted, keeping well up to a certain point and improving as it matures. The lower grades, however, deteriorate very rapidly, and in proportion to the openness or looseness of the leaf on arrival. Its special feature is its delicate and, to a degree, fragrant flavor which it imparts to other teas in combination, provided the other teas are not too strong and coarse. The liquor is not, as a rule, very dark, but reddish in hue, and possessing a round, mellow flavor, for which it is more esteemed than for its body or color in the cup.

Seumoo—Is a long, bold, somewhat rough-leaved tea, dark-red in color and "coarse" in flavor. The finer grades are, however, fairly thick and strong in liquor, many of them although round and full are frequently dull and flavorless, but combining well with strong Assams. Seumoos make an excellent base when combined with the latter, the pungency of the Assam imparting the briskness and body which it lacks when used alone.

Suey-kut—Is a brisk but mostly burnt variety, being as a rule, too highly fired. The dry leaf of the first pickings is evenly twisted, black and stylish in the hand, its strength and flavor is but average, and quality generally only fair in the cup. The commoner grades, though usually well-made and pleasing in appearance, are frequently stemmy or dusty.

Sin-chune—Is neither a large or greatly valued sort, the dry leaf being loose in make, mixed and ragged in appearance, and objectionably dusty, while the liquor is hard and dry to dullness, lacking both in flavor and aroma.

Saryune—Is the reddest of the Red-leaf teas, and while one of the most serviceable of this variety, is not a fine sort by any means, though often ripe and juicy. The liquor is almost invariably strong and brisk, but burnt in flavor, the result of too high firing, and with the exception of a few of the finer grades the leaf is rarely well curled, being generally open, red and rough in appearance, the second and third crops being usually very dusty or stemmy.

Cheong-soo—Is a scarce sort, varying in quantity and quality from year to year, but quite a desirable one, particularly when the crop is good; but fine Cheong-soos are rarely seen in this market.

Cheong-lok—Is a tea of negative character, the liquor possessing little or no strength and the leaf having a rough, red, unsightly appearance in the hand.

Cheong-syke—Is also best described by negatives, the dry leaf being dark-brown and coarse, the liquor lacking the strength of Sin-chune and the briskness of Saryune.

So-how—Is small and well made in leaf, dark, but rich in liquor, and smooth and mellow in flavor for this variety of tea.

Yung-how—Closely approaches Suey-kut in appearance, drawing and drinking qualities, but is less burnt in taste and rather stronger, and more flavory in the infusion.

Wang-hung and Yung-tong—Are both high-fired, brisk, but burnt varieties, dark-red in leaf and liquor, and not, as a general rule, either useful or valuable sorts to the dealer.

MONING

OR

BLACK-LEAF CONGOUS

comprise Ning-chows, Oonfas, Oopacks, Oonams, Kin-tucks, Kee-muns, Kiu-kiangs, Panyong, Hapyong, Paklin and Paklums, and constitute the true Black teas of China.

Ning-chow—Is a small, evenly-curved leaf, greyish-black in color and very stylish in general appearance, the finer grades being "Pekoe-tipped" and flavored. The infusion is dark red or wine-colored but delicate and aromatic, more so than that of any tea of this variety, while the infused leaf is small, tender, symmetrical and of a bright brown or reddish tendency. The lower grades are fairly thick and strong, making a useful tea for the retailer, as they keep well and combine advantageously with most other varieties, less regular and uniform, browner and given to "choppiness" and dust. The liquor, though of good color, is not as clear and bright, the infused leaf being more markedly red than that of the former sorts. The medium and lower grades are fairly thick in the cup; but have a tendency to become over-ripe, and while not keeping, still blend well with a pungent Assam or light-bodied Oolong tea.

Oonfa—While not as finely twisted or as handsome as Ning-chow, is still the next most important of the

Black-leaf Congous. The dried leaf of the finer grades is bold in make, yielding a dark, heavy liquor, lacking in fragrance, but proving a desirable sort where body and strength is required. The medium grades are rough and open, the liquor, though mostly strong, is often "tarry," and frequently sour when kept too long, while the lower grades are thin in body and coarse in flavor, having nothing to recommend them but their leaf, which is generally free from dust.

Oopack—Grown on the banks of the Yang Tse, a little above Hankow, is a "crapy" black leaf tea, evenly curled, but somewhat bold in style. When freshly fired they are flavory and aromatic, but become dull and "brassy" as the firing wears off, for which reason it is not a good tea to keep. If used quick, however, it blends well with broken Assam, when thick and heavy, the commoner grades being fairly smooth and sweet in the cup, though coarse and rough in the hand.

Oonams—Are a class of tea somewhat resembling Oopacks in style and draw, but preferable to the latter approximating closer to Ning-chow in flavor. The dry-leaf is also more evenly twisted, smaller and greyer and the infusion fuller and stronger.

Kin-tuck—Is comparatively a new variety, but is rapidly becoming one of the most important of the Congou sorts, the quality of the choicer grades being especially good, rivalling the finest Ning-chows, particularly when the crop is good.

Kee-mun—Is another of the newest descriptions of China Congou teas, possessing many of the characteristics of Kin-tuck, to which it is closely allied. The dried leaf varies considerably in style and appearance, some lots having an evenly-curled and handsome leaf, while others again are brownish and irregular; some of the earlier

pickings possess a peculiar flavor termed "chocolate," for which they are much prized.

Kiu-kiang—Comes from Hohow, one of the most northern of the Moning districts, the quality of the finest first pickings being simply superb. The dry leaf, is black, uniform and free from dust, while the infused leaf is bright-brown and very regular; but, with all these advantages, they are lacking in strength or "snap" and consequently are not of such value as their character on first appearance would seem to indicate. They deteriorate very rapidly, more so than any other of this variety, and while the medium grades are a little fuller in body, from the highest to the lowest the same want of strength is found.

Panyong—Is an exceedingly black, "silky" and stylish leaf tea, rich, strong and mellow in the cup. The finer grades corresponding in value and quality with those of the same grades of Ning-chow, for which kind it may be freely substituted in any emergency.

Hapyongs—Are medium in size, fairly made and pleasing in the hand, heavy, dark, smooth and fragrant in the cup. While the infused leaf is dark, regular and uniform, it is liable to be coarse and dark.

Paklin—Is a large and important variety, not very dissimilar to Ning-chow, but lacking in that roundness and delicacy in the cup, for which the latter is so highly valued. The dry-leaf of the finer grades is smaller, more evenly twisted, and blacker than that of any other grown in China. The infused leaf is bright-red, regular and tender; the liquor is dark-red, and though lacking in fulness the general cup qualities of the infusion is of a very superior order.

Paklum—While fuller and rounder in body than Paklin, yields a sweet and pleasant liquor, but is inferior

to that of the latter variety in flavor and aroma. The dried leaf is also very black, fairly made and often "tippy" in the hand.

Some Congou teas are also produced in other districts of China, being known to trade as Amoy, Ankoï, Qui-fa, Padrae, Pekoe and Canton Congou teas.

Amoy Congou—Known to trade also as "Swat-how," is invariably burnt in flavor, but when the crop is good, is brisk and strong in the cup. The dry-leaf being coarse and loosely folded, they deteriorate very rapidly, becoming wild or "weedy" in flavor as they mature.

Qui-fa—Is a "tarry" tea, allied to Amoy, but more evenly curled and blacker in color. The liquor is strong and brisk, and not quite as rank or bitter as that of the former. The infused leaf is very coarse and irregular in form, often broken and very dark in color.

Ankoï Congou.—The difference between Ankoï and Amoy Congou is not very wide, the former being ranker, if anything. They are generally rougher in make, dull-black in color, thick and muddy in the cup, bitter and astringent in flavor, more particularly the commoner grades, which are in addition broken, stemmy and dusty.

Padrae-Congou—Is a strong, high-fired tea, large in leaf, black and "crispy" in style, and useful only for its great strength and pungency in the cup. The lower grades are frequently "soapy" or "mousey" in flavor, and invariably dusty,

Pekoe-Congou—Approximates closest to Chingwo in make and general appearance, but are more artistically twisted and darker in color and "Pekoe-tipped," the flavor being sacrificed to style and finish. The infused leaf is medium sized, regularly formed and reddish in color, while the liquor is fairly rich, fragrant and pekoe-flavored to a high degree.

Canton Congous—Are principally manufactured teas, being composed of exhausted leaves, re-fired and faced with plumbago, or other coloring-matter, and do not contain the semblance of tea in the cup.

Campoi.—A corruption of the Chinese term *Chien-pei*, or “Kampoey,” meaning “selected for firing;” is a particular variety of Congou, smaller in leaf, darker in color and much better curled, but not as dark in the infusion. It possesses a more delicate flavor, is not as strong in body, and being limited in quantity, but little is ever exported.

Bohea—Is a term applied in China to a sort composed of old, broken and inferior leaves, and the refuse of the Congou kinds. It was formerly largely exported to England, but is now retained chiefly for home consumption, from its cheapness, by the poorer Chinese.

NEW DISTRICT CONGOUS

comprise “Hoyunes,” “Tayshans,” “Cantons,” “Macaos,” and many others new to commerce. The finer Hoyunes are a brownish-grey leaf tea, varying in length and curl, the finer grades of which are round and pungent, yielding a deep-red liquor and bright-brown infused leaf. The lower grades, however, are rough and irregular in make, brownish in color and dull and harsh in flavor. Tayshans and Macaos are among the newest makes of Congous lately introduced, the former being prepared in imitation of Moning and the latter of a Kaisow. Many of the new makes, while flavory, are lacking in strength; others again are strong almost to rankness. “Ho-how” is the commonest of these descriptions of Congous, the leaf being large and ragged and form “earthy,” and may be termed the “Pingsuey” of this variety. There is still another called “Kut-oan,” recently prepared as an experiment from the leaf of a Green tea plant grown in

the Nankin district and said to be equal in every respect to the finest Kaisow in leaf, liquor and flavor.

SOUCHONG TEAS

are among the finest and richest of the Black tea sorts, being known to the Chinese as *Saou-cheong*, "Little," or "scarce sort," and are limited in supply. They are chiefly prepared from the youngest leaves of the earliest pickings, gathered only in the finest weather, and dried in the shade to protect them from the direct rays of the sun. The dry leaf is longer but thinner than that of the Congou sorts; folded rather than curled or twisted, but possessing somewhat similar drinking qualities. They are classed in trade as Lapsing, Tong-quam, Padrae, Pekoe, Oolong, and Canton Souchongs.

Lapsing—Prepared in the district of Foo-chow, is also known to trade as "Foo-chow-Souchong," is a large, handsome, crapy leaf, finely made and lightly fired, possessing a rich, wine-colored liquor with fragrant flavor, entirely peculiar to itself, described as "tarry flavor," which when not too pronounced adds rather than detracts from its worth. The product of the later pickings are of less strength and flavor, but are still very smooth and pleasant in liquor and flavor, and generally shipped to the Russian market, where they are held in high esteem for their intrinsic qualities.

Oolong-Souchong—Is another variety of the foregoing, prepared from the leaves of a plant that cannot well be made into either sort, the greatest care being taken in its manipulation. It is stylish in leaf, closely approximating to Foo-chow Oolong in the dried state, very clear, rich and translucent in the infusion, but though light in weight and color is yet very deceptive, being full of snap and sparkle, fragrant and aromatic.

Tong-quam—Is a long, flat, black-leaf Souchong tea carefully folded, but little understood by the general trade, owing to the liquor possessing nearly the same flavor and pungency as that of a Red-leaf Congou, usually more round and fuller, the dry leaf being slightly bolder and blacker in appearance.

Padrae-Souchong—Is a jet-black leaf, small and “crapy” in texture, usually prepared from the youngest and tenderest leaves of the Congou order, and which it closely resembles in general character and flavor. The dry leaf is, however, much smaller, flatter and darker, but greatly excelling them in the delicacy and fragrance of the infusion.

Pekoe-Souchong—Is prepared from the leaves that have developed too much to be converted into the former kind, which is small in size. The dry leaf is medium-sized, very black and moderately “tipped” at the ends with a whitish-downy substance termed “pekoe.” In liquor they are strong, dark, pungent and fragrant in flavor and aroma.

Canton Souchongs—Are prepared from old and exhausted leaves collected in a careless manner, exposed in the sun to dry, and packed in baskets until they reach that city, where they are refired, colored and scented in order to disguise their bitter, rank and astringent properties.

SCENTED TEAS

form a special class of the Chinese product comprising Capers, Pekoes and Pouchong teas, being known to trade as Foochows, Cantons and Macaos.

Caper—Known to the Chinese as He-choo-cha, “Black pearl,” or Gunpowder, from its small, round or spherical appearance, resembling capers. It is prepared from the largest but most succulent leaves of the first

pickings, and cured by a series of brisk firings and rollings, after which it is placed in moulds, in order to make it retain its globular shape. The dried leaf is small, round and "shotty" in appearance, reddish-black in color, glossy and highly scented. The infusion is wine-colored, piquant and aromatic, possessing what is technically termed a rich "bouquet," the infused leaf, when uncurled, being very symmetrical in form and dark-brown in color.

Pekoes—From the Chinese *Pai-ho*, or *Pak-ho*, signifying "white down," is applied to a variety of tea having a whitish downy or "silvery" tip at the end of the leaves. It is usually prepared from the youngest and tenderest leaf-buds first expanding, and was at one time claimed to be composed of the flower or blossom of the tea plant, hence its French name, "*fleur de thé*," an error long since corrected, as the tea blossom possesses none of the properties of the leaf, though frequently used for scenting purposes.

Orange-Pekoe—Recognized by its long, flat, even and artistically folded leaf, jet-black color, and yellowish downy tips at the ends. It is highly scented, yielding a rich wine-colored liquor, piquant, pungent and aromatic in the cup, the infused leaf being small, bright and closely resembling that of choicest Oolong variety.

Flowery-Pekoe—Is a smaller but more evenly folded leaf, greenish-black or olive-colored, with ends ornamented by whitish, "velvety" tips, being also very highly scented. The infusion is lighter in color and body but piquant and aromatic in flavor, the infused leaf small, dark and perfectly formed.

Hung-muey—Is still another variety of Pekoe rarely exported, having a plain black leaf lightly tipped and lightly scented, and yielding an infusion dark in color, thin in body, but very fragrant and aromatic in flavor.

Pouchong—Derives its trade name from *Paou-cheong*, meaning “wrapped sort.” The leaf is rough and bold in style, dull-black in color and peculiar in scent. The latter being imparted by the admixture of the seeds of the *Lan-hoa*, or Chulan flower, the finer grades of which are deep red, rich and pleasing, but the lower ones are often abominable.

Pouchong-Pekoe—Is usually prepared from the undeveloped leaves or just expanding buds of the tea plant, and is a small, glossy-black leaf with yellowish-golden tips, yielding an intensely rich liquor very piquant and highly aromatic in flavor.

Padrae-Pouchong—Is a medium-sized leaf, exceedingly black in color and well folded. The liquor is dark, full, round and aromatic in flavor, but light and thin in body.

Canton Scented Teas—Known to trade as *Congee*—“Lic” or “made teas,” to a large extent being purchased in the natural state, converted into Capers and Pekoes at will, and doctored or scented up to a certain standard by contract. They are much higher scented than Foochows, but lacking in the properties of true tea, less pungent in liquor and devoid of character or flavor.

Macao Scented Teas—Known also as “New district,” are closely allied to Cantons in make, appearance and character of scent. The dry leaf is somewhat larger and darker in color, the flavor being dull and peculiar in the infusion.

The fragrance of Scented teas is not, as is generally supposed, natural to them, but imparted by the admixture of the flowers, blossoms, leaves, or oils extracted from the seeds or roots of other plants, such as the Orange, Jessamine, Chlorantus, Gardenia, and Oleo-fragrans. The leaves and blossoms of the Iris, Curcunia, and oil of Bixa

orelana being also extensively used. In some districts the scenting material is added to the tea during the firing process, and afterwards separated by sifting. It is, however, more generally introduced into the tea after it is prepared and ready for packing; one pound of leaves or blossoms being the usual proportion to each hundred pounds of tea. They are spread over the top of the tea in the chest and allowed to remain for at least a day, or until it becomes strongly impregnated by absorbing their moisture, and then removed, the duration depending on the character of the scenting employed, the scent increasing after the tea is packed for export. But though scenting in general is supposed to be confined to the choicer grades of tea it is as often applied to the inferior sorts, with the object of disguising or concealing their defective or damaged condition, and imparting a pleasant odor, a much larger quantity being used in the latter. The scenting greatly modifies and improves the flavor, however, without adding any pernicious or deleterious substance to the tea.

Consumers not accustomed to using these varieties erroneously imagine, from the dark color of the leaf and liquor, that they are much stronger and more exciting than that of the Oolong or Green tea sorts. While the contrary is the case, it requiring one-third more leaf of corresponding quality to yield an infusion of equal strength than of Oolong or Green tea sorts. The "smoky" and "tarry" flavors possessed by many of them, and for which this variety is so remarkable, is due in a great measure to the use of ill-made charcoal in firing and the use of soft woods containing tar or pitch, such as fir and pine, in its preparation. The worst feature about which is that this "smokiness" and "tarriness" does not develop until long after the teas have left China, and

are offered for sale. It is also a noticeable fact that certain waters serve to bring out these peculiarities more prominently than others, American waters in particular.

OTHER CHINESE VARIETIES.

Besides these numerous ordinary teas of commerce, there are several other varieties cultivated in China, but principally for home consumption and rarely if ever exported, among which may be mentioned:—

Suen-cha—Or “Sweet tea,” made from the leaves of a slender shrub growing in the western province of Szechuan, and peculiar only to that section. The leaf is large, thick and odorless in the green or natural state, but when cured exhales a rare and peculiar odor, and possesses a sweet, liquorice-like taste in the infusion, not altogether pleasant.

Peh-Yuen-cha—Or “White cloud tea,” prepared from another rare species of the tea shrub found near the summit of Mount Ombei in the same province and most dissimilar in character and flavor from that of the regular teas of commerce. It yields an aromatic infusion, peculiar but palatable, and is chiefly used by pilgrims and travelers in that country.

Mandarin Tea—Is still another rare variety, seldom if ever exported, its use being confined to the Mandarins and aristocracy of China. The leaf is exceeding small, dark, crisp and tender, lightly fired and highly scented, commanding as high as fifteen dollars per pound in the home market.

Brick Tea—Is composed of the old leaves, stems, siftings and sweepings of the Chinese tea hong, ground fine, moistened and compressed into shapes somewhat larger than regular building bricks. It has nothing to recommend it as a tea, being sold chiefly to the Mongols,

Tartars and other tribes of Central Asia, among whom it also serves as a currency.

Tablet Tea—Is a “new make” of tea recently introduced in China, appearing for the first time in the trade returns last year. It is prepared by machinery from the best quality of tea-dust, formed by pressure alone into small cakes in the form of tablets perfectly hard and solid, resembling chocolate in make and appearance. It is not, like “brick tea,” moistened by steam before being compressed, and the flavor is not in any way impaired by the process of manufacture. One of the chief advantages claimed for this form of tea is that, being subjected to heavy hydraulic pressure, all the cells are broken and the properties of the tea are more easily and completely extracted by the boiling water, thus effecting a considerable saving in the quantity required for a given amount of the beverage. Its principal market is Russia, which took from China last year over 500,000 pounds in the form of tablets.

Medicine Tea—Is prepared from the coarse leaves and stems of the ordinary tea plant, ground and mixed with medicinal herbs, packed in bundles and used for medicinal purposes among Asiatic tribes.

Log-tea—Is also prepared from the ordinary teas of commerce. It is a very inferior grade, prepared from the stalks, packed in the shape of logs, weighing from 8 to 10 pounds, and wrapped in the leaves of the bambusa, and packed in this manner from motives of economy and freight.

The total production of tea in China is unknown, and can at best be only roughly estimated, and while we have no certain means of ascertaining the quantity consumed in that country itself, fair conclusion may be drawn from the data at hand. Taking the population at 400 millions

and considering that the use of tea is universal among its inhabitants, an average of five pounds *per capita* would not be an overestimate, making a total of two billion pounds alone for home consumption. Again averaging the product at 100 pounds of cured tea per acre and the total area under tea cultivation at 20 million acres, if, therefore, we admit the home consumption of tea in China to be two billion pounds, we cannot but be surprised at the relatively small quantity which is exported from that country. According to the latest statistics, we find that the total exports to all countries from China does not exceed 200 million pounds, which is less than one-tenth of the total production of that country.

JAPAN TEAS.

Tea is grown for commercial purposes all over the Japanese islands, from Kiusiu in the south to Nippon in the north, but both in quantity and quality of their product the central provinces of Hondo are the finest, particularly that produced in the districts on the coast provinces of the interior sea. The tea soil of Japan is described as slate atmospherically dissolved with gypsum and phosphoric acid, produced by manuring. The system of cultivation and methods of preparation do not differ materially from those of the Chinese, the first picking, which is the best, occurring about the beginning of May, the second a month later, the third is often, however, omitted altogether, in order not to injure the plants. In Japan the raw leaves are generally sold to the exporters, by whom they are prepared and converted into the several descriptions known to commerce.

When a sufficient quantity has been accumulated they are carried to the hong or "drying house" and first placed **in large** bamboo baskets, in which they are subjected to a

steam bath for about a minute, after which process they are spread out in the open air to cool and dry thoroughly, previous to being fired and curled. Only about five pounds of the leaves are put in the pans at a time for manipulation, the process being identical with that of China, with the exception that they are finally dried in bamboo baskets suspended over the furnaces by cords from the ceiling for about fifteen minutes. During this time they are gently agitated by the hands of the operators in order to diffuse the heat and more thoroughly dry them. They are then removed by a dextrous motion with fan-like scoops and tossed in the air to free them from dust and stems, and afterwards picked over by women and children before packing in the lead-lined chests for export.

In color, flavor and character, Japan teas are totally distinct from any and all other varieties, the finer grades being exceedingly delicate, rich and peculiar to themselves. They yield a light-colored liquor, very fragrant in flavor, but apt to deceive the casual drinker, as after continued use they are found to possess greater strength and pungency than most China teas, their effect on the nervous system being very soon perceptible. They are classed commercially as Yama-shiro, Uji, Kioto, Yedo, Eisyie, Suringar, Hatchoji, Nagahama, Nagasaki, Tosia and Bancha, grading in value in the order named, and converted into Pan-fired, Sun-dried, Basket-fired, Nibs and Siftings, with occasionally small lots of Pekoe, Congou, Oolong, Imperial, Gunpowder and Young Hyson makes.

Pan-fired—The finer grades have a long, well-curled, natural green leaf, presenting an unbroken appearance, sinking immediately to the bottom of the cup on infusion, uncurling rapidly and showing more or less perfect leaves in the infused state. It yields a clear, bright liquor, which

remains unchanged in color and flavor until cold. The flavor is delicate and fragrant in odor somewhat like that of new-mown hay. The medium grades are correspondingly rougher in make, darker in liquor and duller in flavor, while the commoner ones are coarse and unsightly in style, varying from a greenish to a mottled blue in color, and possessing a "brassy" or metallic taste, due to the cosmetic or artificial coloring-matter used in their preparation.

Sun-dried—As the name implies, are steamed and dried in the sun before firing, in order to fix their color permanently. The leaf is olive-green, well fired, compactly curled and "toasty" in the cup, owing to their thorough fermentation before firing, and although not as well appreciated as the Pan-fired, are much superior in drinking properties, their extra fermentation destroying the "grassy" flavor so characteristic of many Japans. The lower grades range from a yellowish to a dull-green, indifferently rolled and often "fishy" in flavor, said to be contracted from the use of fish manure in the coast districts.

Basket-fired—So named from being cured by the "basket process," and in contradistinction to those fired in pans. The finer grades are long, dark and exceedingly well twisted or curled, entirely free from stems, dust and other extraneous matter, clear and bright in liquor, and mellow or "mealy" in flavor, the latter quality making them a very valuable sort for blending purposes. The commoner grades are rough, and uncouth in style, brownish-black in color, thick and heavy in liquor, but lacking in "grip" and flavor.

Kumo—Or "Spider-leg" Japan, is in reality only a finer grade of basket-fired; long, narrow, black, and "wirey" in leaf, and elastic in texture. It is of the Pekoe order

in make, but still retaining all the properties of liquor and flavor of a Japan tea pure and simple.

Nibs—Are composed of the refuse of the foregoing kinds, bearing the same relation to Japans that Twankays do to Green teas, many of them drawing and drinking exceedingly well, according to the grade separated from.

Up to 1856 China tea was the only tea used in the United States, but during that year a small quantity of Japan teas, consisting of about 50 half-chests, was first received in this country. Being found pure and free from coloring-matter, it soon became very popular with consumers, a large number of whom had been prejudiced against China green teas at the time, under the impression that they were more or less artificially colored. The demand steadily increased, 400 half-chests were imported the following year, which was increased to 1,100 chests in 1859. About 1860 the Japanese changed their mode of curing, adopting that of the Chinese as applied to Green teas, with the result of altering the color from a dark to a light green, and of imparting a high "toasty" or malty flavor, in lieu of the uncooked or "grassy" taste which characterized the first importations, since which period and change they have continued to grow in popular favor. But the supply of Japan teas being at one time greatly in excess of the demand and the price declining in many instances below the cost of production, in connection with the fact that the teas as originally prepared were used only in the American market, induced the Japanese to convert their surplus leaf into other varieties, such as Pekoes, Congous, Oologs, Imperials, Gunpowders, and Young Hysons, in imitation of the Chinese "makes," with the futile expectation of popularizing them in England and other countries, where, heretofore, only very small

quantities were consumed. With this intention Chinese skilled labor was imported into the tea districts to aid them in the experiment of preparing these makes of teas. The result proved most unsatisfactory as was anticipated at the time by experts and others interested in the project, only very small quantities of the respective kinds being produced occasionally. It is predicted, however, that all the different descriptions now received from other countries will be eventually prepared in Japan, in evidence of which a tea rivalling the finest Formosa in general character is now produced in the Hondo district from a variety of the Japan plant.

Japan Pekoe—Is a long, dark-green, flat leaf tea, usually "tipped," but as often not, approaching to that of the India variety in style and appearance. But while looking remarkably well in the hand and up to standard in drink, being smooth in liquor and "malty" in flavor, as a general rule it is through overfiring lacking in the scent and aroma of the China and even India prototype.

Japan Congou—Approximates in many of its leading features to that of the India species, the cured leaf possessing similar properties to many of the finer grades of the latter. The infusion is brighter in color but thinner in body, and more acidulous in flavor, and the reverse of palatable, owing to its imperfect fermentation and high or overfiring.

Japan Oolongs—Although cured in identically the same manner as the China variety, resemble them only in general contour. The leaf is darker in color but finer in make, approaching more to the Souchong order. The infusion is also darker in draw, but very "toasty," that is, "burnt" in flavor, owing to too high firing, retaining all the original peculiarities of a regular Japan tea.

Japan Imperials, Gunpowders and Young Hysons—Differ only from the ordinary Japan teas in form, make and color. Being prepared from the same leaf, they naturally possess the same general characteristics and cup qualities; the demand not justifying, they are not produced in any appreciable quantities.

The production of tea in Japan is constantly increasing and its quality improving, a wider area being devoted to its cultivation each year, largely superseding sericulture in many districts. The total area now under cultivation amounts to nearly 42,000 *Cho*, or about 100,000 acres. The total annual product is estimated at 100,000,000 pounds, a gain of over 30,000,000 as compared with 1890, of which 40,000,000 pounds, or 44 per cent. of the total production was consumed in the United States during the fiscal year of 1891. The American taste for Japan teas continues to grow in proportion, particularly in the Northwestern and Pacific States, their consumption in this country nearly doubling that of Oolongs and Congous combined, and trebling that of Green teas of all makes. This too, notwithstanding the fact that only a very small proportion of really choice Japan teas are ever exported, rarely exceeding one per cent. of the entire crop, being principally retained for home consumption.

INDIA TEAS.

One of the most remarkable circumstances in connection with the development of the Tea trade is the rapid increase in the production and consumption of India Teas. Almost unknown to commerce thirty years ago, they are fast becoming an important factor in the business, particularly in the English and colonial markets, India being already of such importance to them as a source of tea supply that it is only a question of a very

short time when the tea consumers of these countries will no longer regard China as a tea-growing country indispensable to them.

As far as can be ascertained, the first announcement of the discovery of the tea-plant in India was made in 1833, but owing to imperfect specimens being sent to botanists for inspection, it was not at the time considered a true species. It was fully demonstrated, however, in 1835, when a plant with perfect leaves, flowers and seeds was obtained which proved on analysis to be a species of the genus tea allied to, but not identical with that of China; Burmese and Chinese experts, to whom the specimens were submitted, concurring in the statement. The report being favorable, an experimental plantation was immediately established under government auspices with results not known. The first plantation for its cultivation on a commercial scale was formed in Lukhimpore in 1836, from which the first samples were received in 1839, and the first sales made in 1840. But, owing to the unfavorable reports given on the first samples of the tea prepared from the India leaf, it was rejected by the London brokers. The propriety of introducing the China species was next suggested by some planters, and tons of seed were at once imported from that country, large estates being formed from the plants raised from it. Many of the plantations were finally composed of hybrids or crosses between the China and India species, which is now claimed to have been an error, as the nearer each variety approaches to the indigenous the higher its excellence.

The tea-producing districts of India are widely scattered, the largest—Assam—being situated in the extreme north-east of the country bordering on the Burmese Empire, the others being located on the northwestern boundary

of Nepaul and the Punjaub, while Central India appears to be entirely devoid of tea gardens up to the present. There are numerous plantations, however, scattered over the southwestern provinces of the peninsula, most notably in Wynaad, Neilgherry and Travancore. In India, tea is grown on extensive estates, often comprising thousands of acres, situated principally in the alluvial valleys of large rivers, or formed on land reclaimed from primeval jungle, possessing all the richness of virgin soil and cultivated either by the individual owners or the agents of companies commanding considerable capital. Every detail of cultivation and preparation is conducted under close and careful European supervisors. The plants are raised from seed sown in nurseries until they are about 18 inches high, when they are transplanted to the rows in the gardens in which they are to grow, the closest attention being paid to weeding and irrigating. The young trees are carefully pruned periodically and reduced to a bushy form, until they are from two to three years old, when the first picking commences, the exact time for picking being determined by the overseer. The leaves are removed in such a manner as to cause no subsequent injury to the plants, by which care the India planter is enabled to obtain from twelve to sixteen pickings in a single season, the Chinese grower being limited to three or four at the utmost.

Each separate picking in India is termed a "Flush," a number of flushes constituting a "Break" or "Chop," as in China, which is rarely more than 100 chests and frequently as low as 20, but generally uniform in grade. There is another remarkable feature about India teas; it is that while the first, second and third pickings of all other teas are respectively inferior to each other there

is nothing in the India pickings to denote their relationship to any crop or gathering. The number of pickings from the India plant also varies considerably according to the soil, situation, garden and season. When all these conditions are favorable, the plantation will yield as many as sixteen "flushes," while ordinarily and often under the most unfavorable conditions five to six are obtained in a single season.

There is no radical difference between the Chinese and Indian methods of preparation up to what is termed the "Rolling process;" it being performed in the latter country very lightly and only by a minimum of pressure by machinery. Each day's collection is immediately "withered" until thoroughly evaporated, when they are as promptly cured and fired. The processes of fermenting and firing are not as detailed or complete as in China, the India planter aiming to secure the component properties of a *strong tea* at the expense of *flavor* and keeping qualities. In India the tea is generally prepared from the young shoots, two leaves only being picked at a time and "withered" in the open air without any extraneous aid, much, however, depending on the skill and knowledge of the operators in arresting the process at the exact moment. When the proper point is reached they are immediately removed to a "drying" room, and laid out on trays until the excessive moisture has been dissipated, this process being hastened by occasional blasts of hot air driven through by a machine. When sufficient moisture has been extracted they are placed in a heavy rolling machine and tossed about until all the cellular tissues are broken, when they begin to curl up tightly, as if by the action of the hand, after which they are placed in heaps on tables for some hours to allow

them to ferment; the color, meanwhile, changing from green to a dark bronze during the process.

In the process of "firing" the leaves are spread out in a series of wire-gauze trays, placed in layers in a hot-air machine, known as a "Sirocco," from the fact that the current of vapor arising from it is suggestive of the hot winds of the desert, and in which the temperature averages some 300 degrees. These screens are operated either in a lateral or rotary direction also by steam, the tea being thoroughly fired in from twenty to twenty-five minutes, and separated into the different grades at the same time. But on some plantations the tea is afterwards bulked in large tin-lined cases until a considerable quantity is accumulated, when it is again lightly fired, the operations of sorting and grading being again performed by machinery previous to being packed in the teak-wood chests, in which it is finally shipped. The curing and firing of tea by hot air and machinery in India is fast superseding the primitive arrangements and charcoal processes so long in use in China. Yet though much more rapid and effective in its work, and certain not to taint the leaves in any manner, it is still an open question whether the older and slower methods of curing in pans over charcoal fires is not after all the better one. That the teas are not properly cured or thoroughly fired by this over-hasty method is evidenced by the fact that India teas in general are noted for their great excess of tannin and peculiar raw, "grassy," uncooked or herby flavor. But labor and fuel-saving machinery are effecting such economy in the cultivation and preparation of tea in India as to yearly reduce the cost of its production. So many improvements for drying, rolling, firing and sorting are annually being recorded that it is difficult even to

estimate at what figure it may be produced there in the future.

India teas comprise Assams, Cachars, Darjeelings, Deradoons, Kumaons, Dooars, Chittagongs, Juligoories, Rangworths and Neilgherries, district terms, ranking in the order named, and are converted into Pekoes, Souchongs, Peko-Souchongs, Congous, Broken-leaf and Fannings. In make, style, color, flavor, and general appearance, India teas resemble most the Congou sorts of China, but many of them being produced from a combination of the China and India plants are hybrid in character, differing essentially from either originals. Most of them possess a sharp, acrid taste, not to be found in any other variety, and a peculiar flavor rarely liked by consumers, unless when tempered with the softer and more mellow China growths, and to neutralize which peculiarity it is at all times necessary to use only the best India grades. In make they are in general longer and narrower in leaf, darker in color, more shapely, better curled or twisted, and finer in texture than the corresponding Chinese varieties.

Assams—Are greyish-black in color, the leaf of the finer grades being "Pekoe-tipped" and evenly curled. The liquor is unusually strong and pungent, in addition to being thick and heavy in body. The infused leaf dark-brown, with a reddish tinge, and almost perfect in form.

Cachars—Are blacker in color, but not as well curled or even in appearance. The liquor is softer and occasionally "fruity," approaching a burnt flavor, while the infused leaf is larger, darker and not as finely shaped.

Darjeeling—Is a hybrid variety, produced from a cross between the China and India species, and partaking somewhat of the character of both. It is still blacker in the dry leaf, but on an average not as finely

curled, and while full in body is not as pungent or flavory in the cup. The infused leaf is more bright, tender, shapely and "salmony" red in color.

Kangras—As a rule are dark and symmetrical in leaf, light in liquor, but delicate and aromatic in flavor. The infused leaf is reddish-brown in color, with dark or burnt edges, but perfect in shape and form.

Deradoon—Is a high-fired tea, loosely made and deteriorating rapidly, becoming sour on exposure to the air. Occasionally the flavor is "earthy," analagous to that of Ankoï Oolong, for which reason they are not much sought after.

Kumaon—Is generally converted into Green teas, including Imperials, Gunpowders, and Hysons, all being prepared from the same leaf. The chief difference lies in their make and color, as they still retain all the characteristics of liquor and flavor of India teas.

Chittagongs—Are strong, thick and heavy in the cup; "nutty" in flavor and considered good, useful teas for blending purposes, from their great strength and positive character, for which qualities they are always in good demand.

Dooars—Approximate to Cachars in color, make and general appearance, strong, but rough in liquor, pungent and pleasing in flavor, a valuable tea for blending, imparting tone and character to any combination in which they may be used.

Neilgherry—Is a very inferior sort, bearing the same relation to India teas that Ankoï do to Oologs and Pingsueys to Green teas. The leaf in general is black, coarse, "tippy," rough and unsightly in the hand, while the liquor is thin, muddy and rank or "weedy" in flavor.

Travancore—Is a “new district” tea, which, like all new teas, is large and coarse in leaf, heavy and dark in liquor, and strong and wild or “grassy” in flavor.

Juligoorie and Rangworths—Are bold in style, rather rough in make, but regular and well developed. The liquor is thick and rich in color, rough or “rasping” in flavor, but occasionally smooth and “toasty,” while the infused leaves are bright and well formed as a rule.

SUB-VARIETIES OF INDIA TEA.

India Pekoes—Are ordinarily of a greyish-black hue, with a fair sprinkling of grayish-yellow tips, downy in appearance, while the liquor is very strong, brisk and pungent, varying in quality and flavor according to the district of production.

Orange-Pekoe—Is a small, evenly-curved leaf, having a yellowish or golden “tip” at the ends. In liquor and flavor it approximates close to plain Pekoe, being devoid of scent, that many growers make no distinction between them.

Flowery-Pekoe—Is not picked from the plant, but separated from the other grades, only the buds and youngest leaves being selected. The cured leaf is small, uniform and tender, silvery-green in color, although highly-fired, pale but strong in liquor, approaching that of a Moyune Green in flavor, being very deceptive in strength and astringency. The infused leaf is symmetrical in form, small and light-green in color, approaching that of a Foochow Oolong in appearance in the cup.

Souchong—Forms the bulk of the India product and may be classed as the “Standard grade;” the qualifications for being comprehended under this rating are its even, straight, slightly curled leaf, dark color, stylish appearance and greater quantity. Yet while its liquor does not

possess the deep strength and pungency of the Pekoe sorts, it is generally full and round in body and mellow or "malty" in flavor.

Pekoe-Souchong—Is a term applied to Pekoe leaves devoid of tips, as well as to Souchong containing a fair sprinkling of tipped leaves. But, as a general rule, it is an unassorted tea, composed principally of the larger and coarser leaves of both Pekoe and Souchong that will not pass through the sieves, and possessing in the cup the distinctive properties of the combination.

India Congou—Is a tea of the Souchong order too large to be made into that kind or a smaller leaf unevenly prepared. In liquor and flavor it is much the same as Souchong, but is not always as heavy, strong or mellow in flavor.

Broken-leaf—As its name implies, is composed of a mixture of the various kinds broken in manipulation, and is a term of great comprehensiveness, as it may include all the lower grades or approach the choicest kinds in character and value. It varies in color from brown to blackish, its strength being seldom great, though the flavor of the finer grades is, in general, good; that of the commoner ones being poor, thin and coarse.

India Bohea—Consists chiefly of the old and coarser leaves which do not attain a desirable black color in firing, being devoid of sap. The leaf is generally brown, sometimes yellowish in color, the liquor possessing scarcely any strength, usually coarse and rough in flavor, and never of much value at any time.

Fannings—Are composed of the refuse, much broken leaves and dust of all the preceding kinds, and bear the same relation to India teas that Twankays do to Green and Nibs to Japan teas.

Namuna—In Hindostanee literally means "Sample," being accidentally applied to a class of India tea, possessing great strength and high, peculiar flavor not confined to any particular district or plantation. The dry leaf may have the regular grayish-black hue, or be of a greenish-black color, the green leaves being intermixed and distinct from the black ones. It invariably yields a pale, corn-yellow colored liquor, resembling that of Oolong, heavier and stronger than ordinary Pekoe, and in flavor like a Moyune, yet distinct from the former and not as pungent as the latter. Frequently, however, it is intermingled with a nasty black leaf, the flavor of which is destroyed by over-firing, the green leaves being due to deficient or under-firing.

There are many serious objections to the general use of India teas, one of which is the great excess of *tannin* (tannic acid) which they contain, ranging from 13 to 18 per cent. in this variety, and to which property tea owes its astringency, constipating effect on the bowels and the ink-black color which it imparts to water containing salts of iron. In England a crusade is being preached against their use by medical authorities on this account, the marked increase in dyspeptic and nervous diseases in that country being attributed to their general consumption there. Some experts argue that by a shorter infusion—sufficiently long to extract the theine with less of the tannin—this serious defect may be eventually remedied. Such, however, is not the case, as experiments made with it at three and five minute infusions have still shown an excess of tannin, in addition to that of making the liquor raw, herby, and entirely unsatisfactory in flavor. The same time-tests resulting in favor of both China and Japan teas, and which, judging by the bitterness and astringency, the amount of tannin yielded

by India teas in a five-minute draw is incredible. While China teas, under the same conditions, possesses little or no trace of tannic acid, or offending the most sensitive palate or constitution, but on the contrary being both pleasing and refreshing to the most sensitive natures. Another distinct and dubious feature of India teas is the formation of a gummy or oily film which settles on top of the infusion when drawn, and claimed to be very injurious to the nervous system and digestive organs. When first infused this substance is scarcely discernible, but just as soon as the liquor begins to cool this opaque coating forms and develops on top. It is of an oily, creamy or gummy nature, forming a thin layer of a dull, whitish-brown color, more dense than the liquor and changing to a darker shade as it cools. Its nature or effect has not yet been definitely determined, but sufficient is known to prove that it is particularly unwholesome, for their selection is also more difficult than that of any other variety owing to their well-known tendency to early decay, becoming sour and rancid on short exposure to the oxydizing influences of the atmosphere, the greatest caution having to be exercised in avoiding those that will not keep for any length of time owing to this most objectionable peculiarity, losing flavor quicker and decaying faster than any other kinds, not even excepting low-grade Japans. This loss of flavor and rapid decay is greater in some sorts than in others, the grades most easily affected in this manner being the highly-fired, light-flavored and open-leaf makes.

The demand for India teas in this country is only limited, owing to the present taste of consumers, and there appears little hope of any increase in the future. What little is sold being used chiefly for blending with the softer and more mellow-flavored teas of China; the

India grades supplying the absent quality of strength to the latter. Strenuous efforts have and are being made to introduce them, but so far with indifferent success. The character of the liquor after the infusion is so entirely foreign in body, color, flavor and aroma from that of the China and Japan sorts to which the people have been accustomed, and which appears to be an inherited taste, so deeply is it set, that little or no progress can be made in these attempts. The great strength, pungency and pronounced flavor of the choicer grades rendering them valuable only for blending purposes. Still it is difficult to overestimate the importance of India as a source of tea supply. Twenty years ago it furnished only about 10,000,000 pounds to the world's supply, but so rapidly has its production increased that the crop for 1892 is estimated at 110,000,000 pounds. Its consumption in England is annually increasing, the total deliverance for that year being 103,000,000 pounds as against 99,000,000 pounds for 1890, while for 1889 the increase was upwards of 12,000,000 pounds over that of 1888. These enormous strides in the consumption of India teas in England is only equalled by that of Ceylon teas, the British public demanding strong, dark liquoring teas irrespective of flavor, aroma or effect.

CEYLON TEAS.

The tea-plant, though claimed to have been first introduced into Ceylon by the English, who, on principle, "claim everything," was originally carried by the Dutch from China to that island as early as 1800, notwithstanding that Percival maintains that it was first discovered there in a wild state. But while it is admitted that a species known as *Matara* was found in some parts

of the island, later investigation proved that it had no relation whatever to that of the regular teas of commerce. Tennant, in 1842, was the first Englishman to speak of Ceylon as a possible tea-growing country, but the highly profitable cultivation of coffee at that time attracted so much public attention that the article which has since proved to be the real wealth of the island was heedlessly overlooked, so that it is not too much to say that the present high position of Ceylon as a tea-producing country has been to a great extent entirely due to accident, it being only after the outbreak of the coffee-pest in 1870 that tea was first looked upon as a possible source of profit. When utter ruin seemed the only fate of the planters, it was suggested that they turn their attention to the cultivation of tea. A commission was duly appointed to visit the tea districts of India, and report upon the desirability of introducing the tea-plant into Ceylon. Very tardily, indeed, at first did the planters come to regard the experiment in the light of a paying speculation, for old habits and prejudices were strong, inducing them to cling with persistency to the hope that the coffee-plague would ultimately disappear, and it was only as a last resource that they decided to turn their attention to tea-culture on that island. The first plantation was started with plants received from China; the result, however, proved a financial failure, the first tea produced therefrom costing \$25 per pound. Other spasmodic efforts were made later, until it was finally admitted that tea-culture could be made a success on the island, when a rush was made for estates for tea-growing purposes. The progress made was small at the beginning, many of those who planted tea doing so under the conviction that the industry would not pay, abandoning the scheme almost at the outset.

Ceylon eventually began its career as a tea-growing country under the most favorable circumstances; all the mythical hallucinations about tea cultivation having been removed, the disastrous experience of India saving Ceylon from falling into any serious error at the outset. Several India planters settled on the island, bringing with them a knowledge of its proper cultivation and preparation, so that when these facts are taken into consideration, the success which has attended its cultivation in Ceylon is not so much to be wondered at. The island also possessed other advantages over India in that it suffers less from drought, the rains are more regular and equable, there being scarcely a month in the year without at least some rain, and apart from the adaptability of its soil and climate, it has cheaper labor and superior facilities for forwarding the tea to the shipping ports, all important factors in its cultivation for profit. The tea-producing districts of the island are very compact, having Kandy as its chief centre and extending well into the southwestern provinces touching the coast toward the west. The southwestern section of the island is considered a perfect tea-growing district, soil is good, the climate hot and moist, and the plant can be cultivated at almost any elevation, several plantations there being situated as high as 6,000 feet above sea-level. But although the crops are fairly healthy at this altitude, it is admitted that the plantations lower down are best adapted for the production of the finer grades. The first successful garden was established in 1870 in the now celebrated Loocandura estate, with plants brought from Calcutta, and coolies skilled in its cultivation and manipulation. Tea of particularly good quality was produced from the beginning, samples of which were sent to London and highly spoken of by dealers there. Since that time tea

cultivation in Ceylon has made steady progress if not rapid strides.

The plant chiefly grown in Ceylon is a hybrid—the *Manipur* or indigenous tea of Manipari (India)—is also extensively planted there, being equally hardy and suitable to the soil of the island, which is of a light, sandy nature, thickly intermixed with iron-sandstone, this mineral being peculiarly attractive to the tea-plant. The methods of cultivation and preparation are similar in every respect to those in vogue in India. The land is carefully drained and weeded, the trees are not allowed to grow too high, being reduced to a bushy form and picked when they are from two to three years old, according to site and elevation, and the tea prepared from the tender shoots only, caution being exercised not to injure the plants or future flushes checked.

Picking the leaf is carried on all the year round in Ceylon, except during pruning time, when the plants do not “flush” for two months, with which exception they flush every week, from each shoot of which the two top-leaves with the young shoot and half the third or coarser leaf are only plucked at a time. At 4 o'clock each evening the day's “picking” is carried to the factory and the leaves laid out on the “withering” mats, which are stretched one above the other from poles or racks until the next morning, when the leaf is sufficiently evaporated, being rendered soft, pliable, and easy to roll by that time. The next process, that of “Rolling,” is one to which special attention is paid, as it is mainly to this system that the quality of the tea depends. The previously withered leaves are put into the roller, which is operated by hand or steam power, 100 pounds at a time placed in an upper box of the machine and pressed down with weights on the table or lower portion of the machine.

The box containing the pressed tea travels with a circular motion round the table, by which the leaves are pressed, twisted and rolled as they come in contact with the small battens fitted into the centre of the table. After an hour the pressure is increased until at the finish it is from four to five hundred pounds on the leaves, the juice thus expressed being carefully collected and poured back into the roller every now and again until it is all absorbed by the crushed and twisted mass of leaves. When the rolling process is finished, the leaves are then placed on trays holding from 20 to 25 pounds, covered with a wet cloth and allowed to ferment from two to four hours according to the weather, or until they become a bright-copper color, when they are again rolled from a half to an hour according to fancy, after which they are ready for firing.

The "Sirocco machine" for firing tea-leaves by hot air has also superseded the pan or "Charcoal process" in Ceylon. The leaves having been laid out on wire-gauze trays, they are passed through this "hot-air" machine, in which they become thoroughly fired Tea in from twenty to twenty-five minutes, after which it is placed in sieves, which are worked either in a lateral or revolving direction by the aid of steam or manual power, and the different grades are sifted out, the larger and coarser leaves which do not pass through the sieves falling into a "cutter," where they are cut to a uniform size. On estates where they bulk the Tea, in Ceylon, the result, of the day's work is placed in enormous air-tight lead-lined chests, where it remains until a sufficient quantity to form a "Break" or "Chop" is accumulated, which is generally once per week. The chest is then opened from the bottom and the tea bulked, after which it is lightly fired again and packed into the teak-wood chests

for shipment. Light iron chests, coated inside and out with lead, and a lid to screw on, are now being extensively used by many estates for the better shipment of teas in both India and Ceylon.

Ceylon teas derive their trade names from the estates or plantations on which they are grown, being classed commercially as "Loocanduris," "Matagalas," "Ruanwallas," "Kanda-loyas," "Semba-watties," "Windsor Forests," "Narangallas," "Rakuwana," "Madulsuma" and "Kandapole," the finest being produced in the districts of Dunbula and Dolosbagie. Like India teas, they are principally converted into Pekoes, Souchongs, Pekoe-Souchongs, Congous, Broken-leaf, and Fannings. Their strength and flavor, like those of their India prototypes, varying greatly in quality in accordance with the elevation at which they are grown, their uniformity also varying from year to year as in the India districts. Some of the better grades resemble Cachars and Darjeelings, being full and strong in liquor, but frequently "toasty" or burnt in flavor, while the lower grades are decidedly inferior to the corresponding China grades in flavor and fragrance. A feature about the later shipments most to be regretted is that the planters appear to be making the same mistake that the Chinese and Japanese have made, that of sacrificing quality to quantity in their eagerness to get rich too fast.

Ceylon-Pekoes—Are of three kinds, "Plain," "Silver," and "Golden-tip" Pekoes. The former is a small, plain black-leaf tea, lightly "tipped" and finely made. The liquor is bright and fairly heavy in body and fragrant so far as this term applies to this variety, but is not adapted to the American taste.

Silver-tip Pekoe—Is a long, whitish-downy leaf almost "satiny" in texture, with silvery tips at the ends.

The liquor is dark-yellow or golden, bright and sparkling in the cup, delicate and fragrant in flavor, but very much overrated in commercial value and intrinsic merit.

Golden-tip Pekoe—Is smaller in make, darker in color, "silky" in texture, and literally ablaze with rich yellow or orange tips. The infusion is much darker and heavier in body, of a deep wine color, fresh and piquant in taste, and much appreciated by those who prefer this variety.

Ceylon Souchong—Is rather large and bold in style for this "make" of tea, but is nevertheless heavy and round in body, rich and mellow in flavor, and, taken altogether, a pleasing and palatable tea for all practical purposes.

Pekoe-Souchong—Is chiefly composed of the larger and coarser leaves that will not pass through the sieves, but which, falling into the "cutter" in sifting, are cut up into an even and uniform size. It is medium in size, "choppy" in appearance, ripe and rich in liquor, fairly brisk and "malty" in flavor.

Ceylon Congous—Are open, rough and coarse in style, dark in liquor, heavy in body, but fairly brisk and pungent in flavor, making, on the whole, a serviceable tea for blending with Chinese Congous or Oolongs of the lower grades.

"Bhud" Tea—Is a term applied to a small golden-yellow leaf Ceylon Tea, claimed to be composed of the buds of the plant just expanding, but is in reality prepared from the smallest and yellowest leaves of the ordinary "Golden-tip Pekoe," and though sometimes commanding a fabulously high and inflated price, out of all reason with its intrinsic value as a tea, and which is only done for advertising purposes—being in reality no better in either drawing or drinking qualities.

Broken Leaf—Like those of the India variety, are composed of the large, old and mutilated leaves separated in sifting from all or either of the foregoing kinds, drawing and drinking in ratio to the variety obtained from.

Fannings—Also, like their Indian prototype, are prepared from the screenings and refuse of leaves of the respective kinds, but are poor teas to handle as a rule.

As late as 1873 there were only 255 acres under tea cultivation in Ceylon, the total area at present time reaching as high as 150,000 acres, with an average yield of 1,000 pounds per acre, figures which go to show the marvelous strides the island has made in the industry in a comparatively few years, large tracts being still taken up for the purpose. The total product in 1888 was 23,000,000 pounds, as against 13,000,000 pounds for the previous year, an increase of 10,000,000 pounds in a single year, a record never even approached in the history of the tea trade. And, when it is taken into consideration that it is only a few years since tea cultivation was practically commenced on that island, it is obvious that the future of its product must be very bright indeed. It is already predicted by planters and others interested that the tea export of Ceylon will eventually rival, if not exceed, that of India itself. The average cost of Tea to the Ceylon producers is about $6\frac{1}{2}$ pence (13 cents) per pound, some of the lowland estates putting their teas f. o. b. in Colombo at even less than this figure.

Nearly all the India and Ceylon teas go into consumption in England and her possessions, the bulk of her China purchases being re-exported. The English merchants invariably favoring the products of their own colonies to the prejudice of those of other countries, dis-

criminating against them, irrespective of merit or value, in this particular instance compelling their customers, in a measure, to use these dubious varieties of the genus tea. But for presumption and audacity in their claims of superiority the India and Ceylon tea growers and dealers are far and away ahead of all competition. The so-called great favor with which India and Ceylon teas are said to be regarded by British consumers being due in a great measure to the energy and persistency with which the trade has been pushed, the teas being literally *forced* on the public by the Government as well as by the English growers and dealers, in addition to the strong ties of relationship connecting the planters with the mother country. There is not the slightest doubt but that the check which the consumption of China teas appears to have sustained in England is entirely due to these causes. But already there is a growing and positive revulsion of taste in many sections of that country in favor of the purer China teas, owing to their truer character, greater delicacy and richness of flavor.

The chief and only advantages that India and Ceylon teas possess over those of China and Japan are their great strength and thickness in the cup, which are due mainly to the modern methods of fermentation and firing by steam and machinery. China and Japan teas excel them in flavor and aroma, occupying in regard to them a position analogous to that of French wines, in comparison with those of other countries. The product of the latter may be stronger and heavier in body, but for richness of flavor and delicacy of aroma—essential qualities in both wine and tea—the French grape and China tea-leaf stand alone and unrivalled for their intrinsic merits, as well as for their being the only true teas, in all that constitutes tea. Broadly stated, the predominant

features of India and Ceylon teas are *body* and *strength*, those of China and Japan *flavor* and *aroma*.

There is also this difference between them, that while a given quantity of India and Ceylon teas will yield a larger amount of a darker-colored liquor and stronger in flavor than that of a similar quantity of China and Japan, they still lack the richness and delicacy of the latter, if not indeed the properties of a true tea altogether. Again, as to how much liquor an equal quantity of the former will yield in comparison with a similar weight of the latter, is another mooted question. As far as quantity, color and body are concerned, it must be admitted that India and Ceylon teas are once and a half greater. But in flavor and aroma, the essential qualities that constitute and are most appreciated in tea, China and Japan teas far excel them. Thus if one pound of China or Japan teas yields five gallons of extract of a certain weight, strength and color, one pound of India or Ceylon will produce seven and a half gallons of a similar beverage, but will be devoid of that fragrant flavor and rich aroma so characteristic of the China and Japan product. The value of tea, intrinsically and commercially, depending principally upon the character and flavor of the infusion, as well as the aroma imparted to it by the volatile oil.

Ceylon, like India teas, will not keep as long or as well as either China or Japan, becoming sour and rancid by exposure in a few months, defects attributed to the method of curing, but in reality inherent in them. Again the latter contain a larger percentage of the active principle (*theine*) and less of the astringent property (*tannin*), and are consequently less injurious and more refreshing. The great excess of the latter property in both India and Ceylon teas accounting for their dark color, and harsh.

pungent taste in the infusion, as well as being the unsuspected cause of the indigestion and nervousness among those who use them to any extent. So that in view of the strenuous efforts now made to introduce India and Ceylon teas into the American market, it may be well to here caution consumers against their injurious and deleterious effects on the human system, such injury being caused, not alone by the excess of tannin, but also by the sap or juice of the natural leaf not being sufficiently expressed before the leaves are fired by proper fermentation. It being claimed by physicians and others that to the fixed and general use of these teas in England is attributable the great increase of heart-burn, flatulency, nervousness and dyspepsia among the people of that country.

Against the dubious and questionable advantages of body and strength so loudly vaunted in India and Ceylon teas, China and Japan possess others—greater and more important ones—among which are that the tea-grower in the latter countries working his own land in smaller quantities brings greater care and more industry to the task. Again in the methods of curing and firing the leaf, the latter have also the advantage of superiority, as it is now generally admitted by experts and others interested in the business that though the “Sirocco” or hot-air process may be more rapid in its work and certain not to taint the leaves in any way, it is yet open to doubt whether the older, slower, and more natural method of firing in pans over charcoal fires is not the better, more thorough and effective in its results than the new and artificial one. The Chinese and Japanese have been curing and firing teas by that method for centuries, and they surely ought to be the best judges by this time. To sum up, India and Ceylon may produce *stronger*

and more *powerful* teas if that can be called a recommendation, but for *smoothness of liquor, richness and delicacy of flavor*, such as are essential to every-day, universal consumption, the China tea-leaf and French grape stand and will continue to stand unrivalled. India and Ceylon may claim to be the teas of to-day, but it remains to be seen whether that day be long or short, as in my humble opinion, without laying any claim to the prophetic, the teas of the future as in the past will be China and Japan teas.

JAVA TEAS.

Tea culture was introduced to the Island of Java in 1826, the seeds and plants being obtained from Japan for the purpose. The plants having thrived beyond expectation, a plantation of 800 trees was formed the following year in the residency of Buitzenorg, although samples of tea grown elsewhere on the island were shown at an exhibition held in Amsterdam in 1828. Another plantation was subsequently established in the district of Carvet in Preanger, from which its cultivation later extended to Krawang and other residencies in the island. So successful was the progress made that in 1833 the number of trees in the latter residency was returned at more than 500,000. Up to 1842 tea was cultivated in Java exclusively for Government account and under the immediate supervision of its own officials, nearly 14,000,000 trees being in bearing there that year. But the number of laborers required for its cultivation and manipulation becoming so large, the supervision so difficult, and the results so unsatisfactory, the Government was eventually compelled to relinquish many of its plantations to private parties, contracting at the same time to purchase their product at a fixed price. This change proved beneficial, resulting in a still further extension and improvement in

its culture; the contracts with the Government being entirely annulled after seven years' trial, and the industry being left to private energy and capital, without control or interference, it soon developed to large proportions.

In Java the best teas are grown at an elevation ranging from 3,000 to 4,000 feet above sea-level, the finest being produced on the mountain slopes, in the residencies of Preanger, Bagelen and Banjœmas. Nothing could be more attractive than the plantations situated on these ranges, each containing from 70,000 to 100,000 plants in perennial bloom and giving employment to from twenty-five to thirty families of native laborers. The methods of cultivation and preparation are much the same as in Japan, though latterly the India system is being largely adopted, both Black and Green teas being prepared at will from the leaf of the same plants. The seeds are first sown in nurseries, from which the young plants, when old enough, are set out in line, at a uniform distance of four feet from each other. The trees are never allowed to exceed two and a half feet in height, and are much more prolific than either the China or India species, the leaves being picked from them all the year round. They are known to commerce under the appellations of "Preangers," "Krawangs," "Cheribons," "Bagelens" and "Banjœmas" teas, and usually converted into Pekoe, Souchong, Pekoe-Souchong, Congous, Oolongs and Imperials, Broken-leaf and Siftings after the India and Ceylon manner. The leaves for the different "makes" are sorted during picking and graded according to size, the smallest and tenderest being converted into Pekoe, the medium size into Souchongs, and the largest and oldest into Congous, Oolongs, Imperials and Broken-leaf teas.

Java Pekoe—Is a small, jet-black leaf, lightly tipped with yellowish ends. The liquor is extremely dark,

almost black in color, heavy and thick in body, bitter and astringent in flavor, and entirely unsuited to the average taste.

Java Souchongs—Are composed of the older and coarser leaves of the tea-plant. They are bold in style, black in color, dark in draw, thick in body, and exceedingly strong in flavor, too much so to use alone.

Pekoe-Souchongs—Comprise the older and coarser leaves of the respective pickings, considered too large for conversion into Pekoe and too small for Souchong, possessing the same characteristics in draw and drink of both the latter varieties.

Java Congous—Are large, rough, loosely made teas, dark in liquor, heavy in body, and strong to rankness in flavor, on the whole a most undesirable sort for any purpose, becoming rancid and sour when kept too long.

Java Oolongs—Are Java tea pure and simple, made in imitation of China Oolongs, but possessing nothing of the properties or characteristics of the latter, only the name.

Java Green Teas—Include Imperial Hysons and Young Hysons, but are only so in name, as they still possess all the peculiarities of Java tea in draw and drinking qualities.

Java teas in general are particularly small in leaf, dull-black in color, but exceedingly well made and handsome in appearance, almost perfect in style, approximating more to Indias in make, color and character, but do not keep well, becoming rank and sour on brief exposure to the atmosphere. The liquor of all of them is also deficient in strength and flavor, being devoid of any pronounced fragrance or distinctive aroma, defects attributable in a great measure to faulty and imperfect manufacture, as well as to the fact that they are picked from the plants

the year round and allowed no resting or recuperating period. The annual product averages about 15,000,000 pounds, packed in large wooden cases weighing from 100 to 120 pounds, and shipped principally to Holland, Germany and England, only small lots occasionally being received in this country.

At the present time the cultivation of tea is mainly confined to the province of Preanger, in the western part of the island, the industry being in the hands of experienced planters, who spare no pains to increase the product and quality of the article. Notwithstanding their care, however, they cannot congratulate themselves on the profits resulting therefrom, the price continuing to fall, the planters being forced to expend their utmost energies to save their plantations from ruin, this being not only the case with recent enterprises, but also with the older plantations that have been flourishing for many years. In addition to decline in price, the Java tea plantations have been ravaged by an insect known as the *Theluis* (tea louse), which each year destroys in value hundreds of thousands of florins, but at the same time there is noticeable a distinct improvement in the quality of the tea produced there. Until very recently they were only used in Europe when mixed with China teas on account of the excessive quantity of tannin which they contain, and known tendency to rapid decay, the improvement in quality now rendering that process needless, the introduction of Assam plants enabling the planters to compete with India and Ceylon.

OTHER VARIETIES OF TEA.

African Teas.—It is expected that both India and Ceylon will doubtless have in the near future a formidable rival to their tea industry in South Africa, where

promising tea gardens have been extensively laid out by planters from India, with seeds and plants obtained from Ceylon. The soil and climate of the region around Natal particularly are very similar to those of Southern India, and especially favorable to the successful and profitable production of the tea plant. Recent reports pronounce the venture a complete success, the product in 1892 amounting to over 20,000 pounds of tea, although introduced only three years prior and grading in quality with the average teas of Ceylon and India. It is predicted that in a few years South Africa will not only rival but excel the latter countries not only in the quantity but also in the quality of their product.

Singapore Tea.—Tea plantations have been recently formed in the districts of Johore and Seragoon, from seeds and plants imported from India, but as yet are only in an experimental stage. Samples already received are large in leaf, coarse in make, coal black in color, an effort being made to imitate Oolongs in style. The infusion is dark red, heavy, strong and somewhat astringent in flavor.

Perak Tea.—Recently an invoice consisting of some eighty half chests of tea grown in the Straits settlements was shipped to London. The general quality was so favorably commented on by the brokers and dealers there that it found a ready sale at full prices for its kind.

Fiji Tea—Is another new addition to the constantly increasing teas of commerce. It is produced from plants imported from India and assorted into Pekoes, Congous and Souchongs, grading with and approximating to Java teas in style, color and character.

Caravan Tea—Is simply a fine Lapsing or Padrae Souchong, put up in Hankow for the Russian market, and

transported overland by caravan through Bokhara and Central Asia to Moscow and Petersburg.

Russian Tea—Grown in the district of Transcaucasia, consists largely of the leaves of a shrub possessing the botanical name of *Vacinium staphylos*, which when infused yields a decoction having some resemblance to the ordinary teas of commerce, but is acrid and nauseating in flavor. They are generally prepared for the express purpose of mixing with inferior China tea, and also with exhausted leaves, that is, tea once used, dried and rolled again.

American Tea.—Samples of tea grown in South Carolina have lately been received in the New York market and tested there by experts, who pronounce them only fair in quality, and ranking them with the India, Ceylon and teas of that character.

Hop Tea—Is a species of tea now being prepared from common hops in the Kent district in England, prepared and cured by the "Sirocco" process, after the manner of India tea, and used chiefly to blend with the ordinary teas of commerce, the combination resembling a mixture of Virginia smoking tobacco and a rough-leaved Assam tea. It is claimed to be healthy and wholesome, from the fact that the *lapulin* of the hops counteracts or neutralizes the excess of *tannin* contained in the India teas, but nearly doubles it in price.

PARAGUAYAN TEA.

Yerba Mate, or "Paraguayan tea," which although not entering into general use or commerce, is yet deserving of notice in this work from its extensive consumption among the inhabitants of South America. It is prepared from the leaves and stems of the *Ilex*, a species of holly found growing in a wild state in that country.

In size and appearance it closely resembles an orange tree, having a whitish bark and leafy, tufted boughs, with leaves four inches long when full grown, dark-green in color, thick, glossy and crenate at the edges, pale on the lower surface and containing the same active principle, *Theine*, so characteristic of China tea. The flowers or blossoms are small and white, hanging in clusters at the angles of the leaves, the fruit or berries being red, smooth and similar to those of the common holly. So closely does it approach the tea of China in effect, that many authorities claim it to be a species of that plant, yielding a liquor similar in many respects. But while not containing as much volatile oil as the latter, owing to the primitive manner in which it is prepared, it nevertheless yields a most agreeable and refreshing beverage, enjoyed by many and forming the staple drink of millions of the inhabitants of Paraguay and other South American countries.

Expeditions to collect and prepare it start annually from the capital to the *Yerbales* or groves in the interior, taking extra mules and bullocks to bring the dried leaves back. On reaching the forests *Tatacuas* or camps are formed by clearing the ground and beating it down with heavy mallets until it is sufficiently hard and level for the purpose. The leaf in the natural state is from four to five inches long, thick, leathery, glossy and serrated at the edges, and is prepared for use in a network made from raw-hide straps stretched on posts, underneath which wood fires are kindled. The leaves and stems, as they are collected, are placed on these nets and scorched, care being taken only that they do not ignite or burn too much—in which state they closely resemble senna. When sufficiently scorched they are ground, in some instances, into a coarse powder in a rude wooden mill,

weighed and packed for export in large bullock hides, holding from 200 to 250 pounds each and left to dry and tighten in the sun for a few days, becoming meanwhile as hard and impervious as stone. This method of curing is very defective, as the stems and other extraneous matter imparts a "woody" flavor to the infusion which is otherwise very agreeable and refreshing. It is prepared for use in a kind of filter or perforated bowl called *Maté*, from which it derives its trade name. The infusion is yellowish in color, almost syrupy in body, possessing an "herby" or weedy flavor, bitterish in taste, much disliked at first by those unaccustomed to its use, but nevertheless pleasant, wholesome and refreshing, pleasanter still when cold, and while approaching in its chemical composition to the regular teas of commerce it does not cause the wakefulness or nervousness attributed to the latter.

In the smaller towns and rural districts of South America it is regarded as a regular form of diet, and not, like ordinary tea, a mere accompaniment to the meal, being looked upon as a necessary, as well as a luxury, by the inhabitants, and is the first thing offered a visitor when entering a house, the table being rarely without it. The *gaucho* of the plains will travel for weeks asking no better fare than a little dried beef, washed down with copious drafts of *Maté*, the Indian carriers subsisting for days together on it alone, in short, being to them what the tea of China is to its inhabitants, essential and indispensable. The Government has a monopoly of its sale, a heavy duty being imposed on its exportation, forming the principal source of its revenue. The popular method of preparing it in Paraguay is to mix large proportions of raw sugar with a decoction made from the powder or leaves until a thick syrup is produced, when it is

ready for drinking, the nourishing properties attributed to the infusion by the natives, it is contended, being due, in a great measure, to the excess of saccharine matter. It ranges in price from four to eight cents per pound in the prepared state, one pound yielding as much as twenty quarts of the infusion of moderate strength. It is difficult to get at any reliable returns for the entire traffic in this commodity, the production being carried on in such a crude and desultory manner, extending, as it does, over a vast area of wild country, the official returns furnishing only an approximate estimate of its trade and consumption. The total production may, however, be computed at 1,500,000 arobas, equivalent to about 40,000,000 pounds per annum, the total consumption averaging thirteen pounds *per capita* to the population, as against two pounds of coffee and one-fourth pound of China tea. Its use is confined chiefly to Paraguay, Uruguay, Argentine, Peru, Chili and Brazil. Its consumption in Paraguay and Argentine alone is over 35,000,000 pounds per annum, as against 5,000,000 pounds of coffee. Surprising as this large quantity may appear at first sight, it is explained by the fact that *Maté* constitutes the only vegetable nourishment of many classes in these communities, forming, as it does, the chief dietic beverage of over 20,000,000 of people in South America alone. Yet it is singular, to say the least, that its consumption should be so great in such large coffee-producing countries, and which export annually over half the world's supply of that commodity. Strong efforts are being made at the present time to open up a trade in it in Europe, particularly in France, where the cafés now advertise it among their regular beverages, and shops devoted to its exclusive sale also recommend it. But whether these efforts will succeed remains to be proven, considering the enormous increase in the

production of so many other teas and their established consumption.

TRADE GRADINGS OF TEA.

A Standard Invoice of Green tea contains a number of "Lines," made up as follows: Gunpowder, No. 1 and 2 and 3; Imperial, No. 1, 2 and 3; Young Hyson, No. 1, 2 and 3. There being rarely more than two lines of Hyson, and never more than one of Twankey.

A "Chop" of Oolongs comprises four, sometimes five, "Lines" termed "Firsts," "Seconds," "Thirds," "Fourths" and "Fifths," when any, which are again subdivided into "Brackets" or "Numbers," ranging from one to ten but similar in grade.

An Invoice of "English Breakfast teas" includes a quantity of Capers, Pekoes, Congou and Souchong teas, graded and classed according to the district of production, by which terms they are best known to trade.

A Standard Invoice of Japans embrace some Pan-fired, Sun-dried and Basket-fired teas with occasionally other makes, also ranking according to the different districts.

A "Break" or "chop" of India or Ceylon include Pekoes, Congous, Pekoe-Souchongs, Broken-leaf and Fannings, and are best known to trade by their plantation names and district appellations.

The term "Muster" means Sample-package or chest, the name on top of label the vessel, route or "chop," the initials in centre those of the importer. The names at bottom such as "Tong-mow," "Tong-lee," grower or packer, and the Chinese character on inside of package. "Chop mark," denoting the "chop" or picking, which cannot always be relied on, as shippers are apt to put on that which has the best reputation, or which happens to be most in demand the season of shipping.

CHAPTER VI.

ADULTERATION

AND

DETECTION.

THE Teas of commerce are subject to four principal descriptions of sophistication—"Facing" or Coloring with deleterious compounds, in order to enhance their appearance;—Substituting with spent, partially-used or exhausted leaves to increase their bulk and reduce the cost;—Mixing or blending with spurious or foreign leaves, and—Sanding or adulterating with a variety of mineral matter, chiefly iron or steel filings, to add to the weight. Each trade has its own special form of adulteration, and as in the milk business the most prevalent sophistications are watering and skimming, so in the Tea-trade the besetting malpractice is coloring and mixing with or substitution of partially-exhausted tea leaves, so that the main efforts of experts and tea-analysts should be directed more to this form of adulteration. The other forms have received some attention from chemists and others interested in the article, but not to the extent which the importance of the subject merits. But it is against the two former most common and dangerous forms of adulteration that the principal efforts of tea-analysts and inspectors should more particularly be directed; and, while considerable of this nefarious and positively injurious work is done in the countries of importation, by far the greater portion is perpetrated in the countries of production. For consummate skill in the "tricks of trade,"

the Chinese as a people have long been proverbial. "They are a self-ended people," says an old writer, "having the same reputation in Asia that the Jews have in Europe." Yet there are strong reasons for stating that many dealers in our own and other tea-drinking countries have become expert imitators of their methods, especially in the minor forms of coloring, mixing, repacking and refacing. The sophistications in our own country being chiefly confined to the admixture of damaged, stained and tainted teas with sound, pure or high-grade goods, with the object of concealing or disguising their defects, and the substitution of one variety for another by repacking and relabeling. The latter form being practiced to a much greater extent than most people imagine, giving rise to a special branch of business in nearly all of the larger cities.

"FACED" OR COLORED TEAS.

Of the various forms of adulteration practiced in China and Japan artificial coloring or "facing" is perhaps the most prevalent and glaring. The material used for the purpose is usually composed of Prussian blue, gypsum, indigo, tumeric, and more frequently, China clay, a whitish iridescent powder, resembling mica, variously composed, but generally consisting of *kaolin* (soapstone), and sulphate of lime. While that in use in Japan is not known, its composition being a secret, known only to the manufacturers, but is evidently a preparation of gypsum and kaolin, the Japanese contending that it is a vegetable compound pure and simple. That kaolin is used in its preparation can hardly be denied, as kaolin contains sulphur, and many of the lower grades of Japan teas are found on infusion to possess a slightly sulphurous odor. It has been proved, however, whatever its nature, to be less harmful and

injurious than the Chinese compound, and used only in the manipulation and sophistication of the lower or commoner grades of tea in that country.

The process of coloring or facing Green teas is performed by placing a portion of Prussian blue in a porcelain bowl, not unlike a chemist's mortar, and pulverizing it into a fine powder, a small quantity of gypsum being meanwhile burned over a charcoal fire, to soften it, after which it is ground fine. The two substances are next mixed together, in the proportions of one part blue to four parts gypsum, both making in combination a light-blue preparation, in which state it is applied to the leaves during the last process of firing, about five minutes prior to removal from the pans, the time being regulated by a burning joss stick. The Saihoo taking a handful of the compound, scatters it over the leaves while in the pans, other operators tossing and turning the leaves around rapidly with their hands meantime in order that it may equally diffuse among them. One ounce of coloring-matter will face fifteen pounds of leaves, imparting to them a dull leaden-blue hue, and "glossy" or greasy appearance, readily detected in the hand. In many districts, most notably in Ningpo and Canton, tumeric, kaolin, and China clay are more extensively employed for the purpose. This almost transparent form of adulteration is readily detected in the following manner:—

(1) When the tea is heavily coated it may be easily recognized by its dull leaden-blue color and greasy appearance in the hand, or by placing a small quantity of the leaves on a piece of glass or smooth table, on removing them the coloring-matter will be found adhering to the hands, glass or table, and its nature, whether Prussian blue, tumeric, kaolin or indigo, readily determined

with the aid of a microscope. (2) When only lightly colored or suspected, place a sample of the leaves in a cup or wine-glass and pour on briskly boiling water and stir well for two or three minutes, then strain well through a thin muslin cloth. The coloring-matter, if any, will be found adhering to the cloth, that passing through, sticking to the sides, or forming a sediment at the bottom of the vessel into which it is strained. If these deposits be treated with a preparation of chlorine, or a solution of chloride of lime, and turn white, the coloring substance used is indigo. But if treated with a little potash, and it becomes brown, it will prove to be Prussian blue, the application of a little sulphuric acid having the effect of turning it blue again.

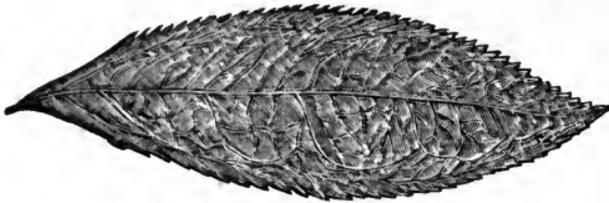
What are known to trade as "Canton Green teas" are made from tea-dust and exhausted leaves ground up fine and agglutinated with a preparation of gum, glue or other starchy substance to unite and hold them together and then artificially colored or glazed. This fabrication is readily detected by crushing the so-called leaves between the fingers or rubbing them between the hands, upon which they leave a yellowish-brown stain, greasy in nature. Or by powdering a small quantity of the alleged leaves and treating the dust with a dilution of sulphuric acid it becomes very much discolored, and if it assumes a leaden-blue color on the application of caustic potash it is colored with Prussian blue. Again, place a small quantity of the leaves in a cup or glass and pour on boiling water, they will immediately begin to disintegrate and form a thick, gluey deposit at the bottom of the vessel. By treating this precipitate with a little iodine the mass will become separated and dissolve into its original dust.

FOREIGN OR SPURIOUS LEAVES IN TEA.

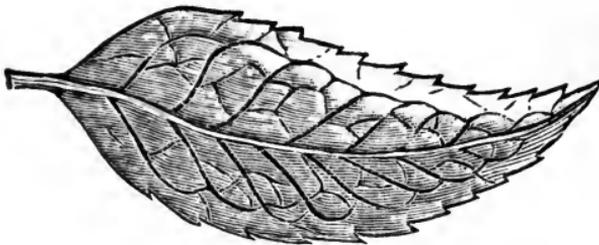
Another reprehensible form of adulteration is the substitution or admixture of foreign or spurious leaves obtained from other plants, which resemble in structure but differ widely in character from the true tea-leaf, such as those of the willow, plum or ash. Millions of pounds of these leaves are annually picked, cured and colored in the same manner as tea in China, and used for the purpose of increasing the bulk and reducing the cost, while in England, particularly, the leaves of the birch, elm, willow, chestnut, poplar and hawthorne have been extensively used for the same purpose. The coloring material used in the latter country differs from that used in China and Japan being still more dangerous and injurious to health. This form of adulteration, however, is trivial when compared with the former one, but, nevertheless, the expert and analyst are frequently called upon to deal with it to a much greater extent than most people imagine.

Such foreign leaves in tea may be best detected by their botanical character or by the absence of the special structural marks which distinguish the genuine tea-leaf from that of all other leaves in the vegetable kingdom, for while the true leaf bears a strong resemblance to that of the willow, ash and plum, it varies, however, in size form and structure. The border of the true tea-leaf is more regularly serrated, the serration stopping just short of the stalk, and the venations are very characteristic, the veins running out from the mid-rib almost parallel to one another, but altering their course before the border of the leaf is reached, and turning so as to leave a bare space just within the border of the leaf. So that in making an examination of a sample of tea for the purpose of ascertaining whether these distinctive characteristics are present in the leaves under treatment, it will be found

convenient to pour hot water on them so as to soften, uncurl and spread them out more easily, as otherwise considerable difficulty will be experienced owing to the brittleness of the tea-leaves in the dry state.



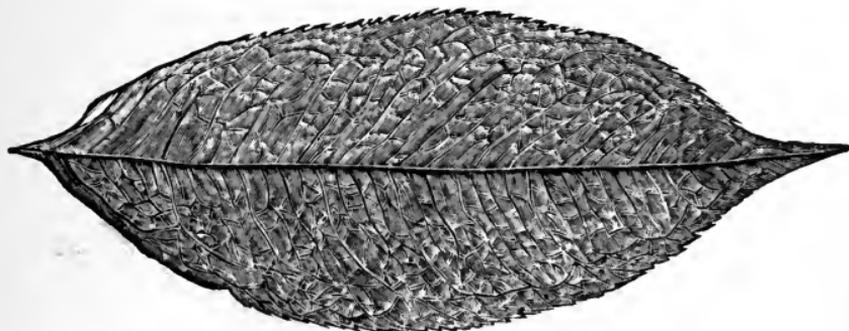
CHINESE TEA-LEAF.



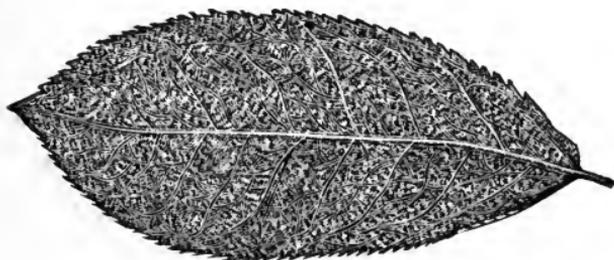
JAPANESE TEA-LEAF.

TRUE TEA-LEAVES.

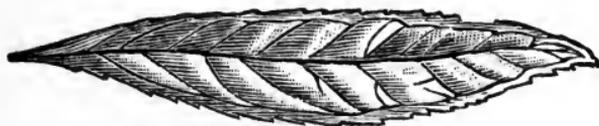
The leaf of China Green tea is much broader than that of Black in proportion to its length, but not so thick, and somewhat acuminate or curled at the apex, that of Black being elliptical, oblong and flat in shape, long and pointed, that of Green being much shorter and rounder in form.



INDIA TEA-LEAF.

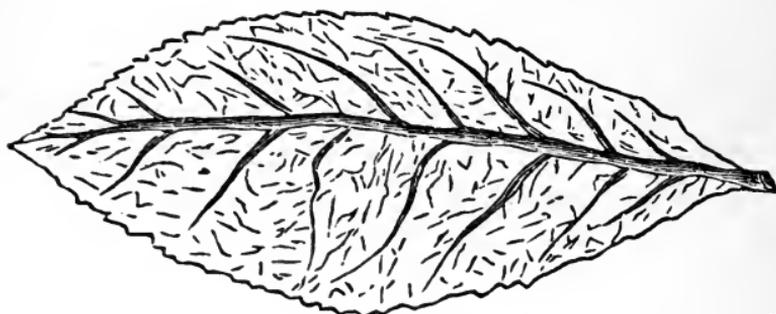


CEYLON HYBRID TEA-LEAF.



JAVA TEA-LEAF.

TRUE TEA-LEAVES.



SKELETON OF GENUINE TEA-LEAF.

But in order to better detect the presence of spurious leaves in tea a keener knowledge of the botanical formation of the true tea-leaf is requisite, for which purpose the use of a microscope will be found an invaluable aid. Tea-leaves in general construction bear a strong resemblance to those of the willow and many other plants of the kind, vary widely in size and form, being much smaller, more deeply serrated, and ending more regularly just short of the stalk. The venations are very characteristic, the veins running out from the middle rib, almost parallel with each other, altering their course before reaching the extremities, and turning so as to leave a bare space within the border. When infused and unfolded it is of a bright-green color, the loopings together of the principal veinings in the true leaf being very characteristic. While the spurious leaf is either of a greenish-yellow or reddish-brown color, and irregular in form under the same conditions or when deprived of its cosmetics.

To still better distinguish between them treat a sample of the suspected tea as in making an ordinary infusion to soften and expand the leaves, then separate and uncurl them and lay flat on a piece of glass or other smooth surface for comparison with the genuine leaf. Next see that they agree in description and formation, but more especially in the venations and serrations. Or soak the leaves in hot water, and carefully unroll and closely examine their formation and structure and then compare closely. The epidermis of the lower surface of the true leaf can be with a little caution detached in small portions with a sharp razor, and then analyze the frame or skeleton of the leaf in a little water or glycerine, under a microscope, comparing the venations and serrations with those of the genuine tea-leaf. Still another simple and inexpensive test is to boil a few of the suspected leaves for a minute or two on a watch glass, with a little distilled water, and add an equal portion of burnt magnesia, treating the whole until it is reduced to a large-sized drop. If no crystalline sublimate is obtained therefrom by the operation the leaves cannot be those of genuine tea.

Chemically an examination of the ash of tea-leaves also affords some criteria which may also be utilized for the purpose of identifying the true tea-leaf. For instance, in common kinds of wood, such as oak, deal and pine, the proportion of ash is a few-tenths per cent. of the whole, and by taking wood in its ordinary air-dried condition it contains some 20 to 30 per cent. of moisture. Leaves, on the other hand, contain 10, 20 and even 30 times as much mineral matter, there being doubtless a connection between this abundance of mineral matter and the active chemical changes which take place in the leaves during the growth of the plant. In tea-leaves, therefore, as in leaves in general, the ash amounts to a

considerable percentage, usually averaging about 6 per cent., so that a chemical examination of the ash forms an important part of the analysis of tea. The proportion of ash in all teas is tolerably constant, genuine tea rarely yielding so little as 5 and never exceeding 6 per cent. of ash on incineration. Therefore, to determine the amount of ash, weigh a small quantity of the tea in its ordinary commercial state and burn it in a platinum crucible and then re-weigh the resultant ash; by observing a few simple precautions very constant and accurate results are attainable by this method. The crucible should be clean and bright, the lid fitting precisely; an iron triangle, covered with a tobacco pipe may be employed to support the crucible during ignition. The operation is then commenced by igniting the empty crucible, and allowing it to cool, being placed for that purpose on a piece of porcelain or iron, immediately weighing the crucible on becoming cold. Next place one or two grams of tea in the crucible, weighing both together, and ignite over a spirit lamp or good gas-burner, stirring the contents with a platinum wire for a few minutes. When ignition is complete the crucible is covered with the lid, let cool again and immediately weighed a second time. If there is any doubt as to the completeness of the ignition, the crucible must be again ignited, and if there is no difference in weight, the ignition is thereby proved finished. As is obvious, in order to obtain accurate results it is indispensable that the crucible should be in the same condition when it is weighed empty and when weighed with the ash, and this is insured by the preliminary ignition and rapid re-weighing, as above described.

The following determinations of the percentages of ash in spurious leaves most used in the adulteration of

tea, dried after the manner of tea, may serve to illustrate, the leaves being gathered towards the end of August:—

Kind of Leaf.	Per cent. of Ash.
Ash,	9.40
Plum,	9.90
Willow,	9.34

To these may be appended the determinations of Paraguay tea at 28 and the ordinary tea of commerce at 5.92 per cent.; while in Peligot's analysis the average proportions of ash in true tea-leaves is given as follows:—

Kind of Leaf.	Per cent. of Ash.
China Tea,	5.5
Japan "	5.5
Java "	5.3
India "	6.06
Ceylon "	6.06

Proving, as has been mentioned, that genuine tea-leaves as brought direct from the producing countries, or such as is a fair commercial article, does not yield less than 5, or sensibly more than 6 per cent. of ash on incineration. When the ash much exceeds 6 per cent. the first question to be considered is whether it is accidental or if the high yield of ash would be maintained if a larger quantity of the sample were incinerated. The composition of the ash of genuine tea-leaves has also been carefully studied, yielding on analysis the following constituents:—

Constituents.	Per cent.
Soda,	0.65
Lime,	4.24
Potash,	39.22
Silica,	4.35
Chlorine,	0.81
Magnesia,	6.47
Oxide of iron,	4.38
Carbonic acid,	24.30
Sulphuric acid,	A trace
Phosphoric acid,	14.55
Protoxide of manganese,	1.63
Total,	100.00

This analysis is especially important, inasmuch as the tea which furnished the ash was of guaranteed purity, so that no question of the possibility of its sophistication could arise. On examining this analysis it will be observed that tea-ash contains a quantity of iron, also some manganese, the presence of manganese being so marked in tea-ash that on subsequent treatment of the ash with water a deep-green solution of manganate is obtained. Owing to this presence of manganese in tea-ash it also invariably evolves chlorine very perceptibly when it is treated with hydrochloric acid.

If the analysis of the tea-ash is referred to it will be noted that more than one-half of it should be soluble in water, so that for all practical purposes a complete analysis is not requisite, a determination of the ratio of *soluble* to *insoluble* parts of the ash being sufficient. Such a determination is made by boiling the ash several times with a little water, filtering and washing the residue in the filter, drying the precipitate, igniting and weighing it. The weight of the insoluble part of the ash may then be subtracted from the weight of the entire ash, in which manner both the percentage of the soluble and insoluble ash will be conveniently arrived at, in which case the following determination of the percentage of "soluble" and "insoluble ash" in 100 parts of spurious leaves and pure tea when completely dried will be of interest here:—

Kind of Leaf.	Soluble Ash.	Insoluble Ash.
Ash,	3.19	7.48
Plum,	5.66	4.24
Willow,	4.16	5.18
Teas of commerce,	3.55	2.47

Proving that in spurious leaves the ratio of soluble or insoluble ash is very different from what it is in genuine tea-leaves, and that an ash of such composition cannot be very soluble in water.

Peligot has also pointed out that tea leaves differ from other leaves by their extraordinary richness in nitrogen, the prepared leaf being by the process of curing rendered still more nitrogenous than the raw or spent leaves, the former averaging, according to his experiments, 6 per cent. of nitrogenous matter, and the latter 4.37, so that if the tea-leaf be unique in containing such a high percentage of nitrogen, it is obvious that a determination of nitrogen in tea may also be useful as a method of identification.

The tea-extract also yields a comparatively large quantity of ammonia when it is boiled with potash or permanganate of potash, and it is probable that this characteristic may also prove very valuable in the testing of tea. A solution containing about 10 per cent. of solid potash, free from ammonia and nitrogenous matter is required for the purpose, and easily obtained. So that a deficiency of theine, a deficiency of nitrogen, and a deficiency of ammonia are all indicative of the presence of foreign leaves in tea.

SPENT OR EXHAUSTED LEAVES IN TEA

Are principally used in the adulteration of Black teas, and is effected by adding or substituting leaves that have been at least once used, and from which all the vital properties have been extracted. The Chinese being inveterate tea-drinkers, large quantities of these leaves are always to be had for the purpose, they are re-dried and subjected to a treatment of gypsum or terra-japonica, in order to make them retain their curl, and then glazed or "faced" with a preparation composed of either graphite or silica to enhance their appearance in the hand; a decoction obtained from catechu or logwood being next added to impart a tea-like color to the liquor when infused. This vile compound is known to the

Chinese as "Bastard tea," and is rarely sold alone, being used principally for mixing or blending with pure teas.

The presence of spent or exhausted leaves in either Green or Black tea is best determined by estimating the amount of tannin contained in the liquor after infusion, and for which experiment various tests are in use. A large proportion of the tea-extract is found to consist of tannin (tannic acid), there being much more in Green than in Black tea, the larger portion of that originally existing in the latter being dissipated by the extra fermentation to which this variety is subjected in curing and firing. Green teas contain on an average about 15 per cent. of tannin, Black teas never exceeding 10 per cent. This rate, however, varies considerably from different causes, such as age, quality, soil and climatic condition of the districts of growth, the main average being 12 and 9 per cent. respectively in pure teas. Spent or exhausted leaves, on the other hand, contain only 2 per cent. on an average at the highest estimate, a difference of 7 to 10 per cent. of tannin, as will be observed, in favor of pure teas.

For the purpose of estimating the percentage of tannin contained in tea, the simplest method is to make an infusion of the leaves and pour it into a cup or glass and add to it a small quantity of a standard solution of plumbic acetate. The acetate will cause the tannin to form a precipitate, which must be removed and weighed in a small scale fitted for the purpose; then by taking the nominal percentage of tannin contained in pure teas at 12 in Green and 10 in Black and 2 per cent. in Spent or exhausted leaves, the difference will be the percentage of adulteration, the extent being indicated by the lessened proportion of tannin in the same ratio. The presence of

Catechu (soluble salts of iron) is best ascertained by making an ordinary infusion of the leaves, allowing the liquor to cool and pouring it into a cup or glass. Next add a preparation of neutral plumbic acid and separate the precipitate formed by the introduction of the chemical by filtration, and adding a little argentic nitrate to the filtrate. If catechu be present the residue will turn a dark-brown, the liquid meanwhile acquiring a deep yellow hue, while under the same conditions the liquor of pure tea will remain unaffected. But if the cosmetic be extensively employed, a weak solution of ferric-chloride will cause the precipitate to turn light-green or it may be detected under the microscope if heavily coated.

Spent and spurious leaves may also be readily detected by the "ash test," through the following deductions: Pure teas, as shown above, contain from 5 to 6 per cent. of ash on incineration, 2 per cent. of this being soluble in boiling water; any increase of these parts is a certain indication of the presence of foreign or exhausted leaves in the sample treated. The percentage of ash contained in spent leaves, ranging from 10 to 30, and in spurious leaves from 40 to 50, in many instances, while the residue of teas adulterated with mineral matter have been known to reach as high as 75 to 80 per cent. of the incinerated sample. The presence of logwood is best exposed by the addition of a few drops of sulphuric acid to an infusion made with the leaves in the ordinary way. If any of the dye be present this acid will cause the liquid to turn a deep red, but if the tea be uncolored the liquor will remain entirely unaffected. Graphite being visible to the naked eye is easily distinguished by its characteristic glossy nature, or can be separated by treating the leaves with boiling water in the usual manner and evaporating the infusion. The substance, if present, will form a

deposit at the bottom of the vessel or will be found adhering to its sides if used in large quantities. While Silica is readily recognized by the increased amount of ash insoluble in the water obtained by calcimining a sample of the tea so adulterated, as above described.

SAND AND MINERAL MATTER IN TEAS

Is frequently introduced into tea with the object of adding weight, and is best detected by the "ash-test." As formerly stated, the leaves of genuine tea, or tea of fair commercial value, yield from 5 to 6 per cent. of ash or mineral matter on incineration, 2 per cent. of which is again soluble in water. This rate is fairly constant, and ranges from 5 in Black teas to 6 per cent. in pure Green, rarely yielding as low as 5 in the former and never exceeding 6 in the latter, while many of the teas of commerce are found to yield from 13 to 20 per cent. of ash on incineration. Such teas are unmistakably sophisticated, and will be found, on analysis, to contain sand or other mineral matter in their composition.

To determine the amount of mineral matter contained in teas so adulterated, proceed as in the case of spurious and spent leaves, which analysis may be again confirmed by a determination of the ratio of soluble to insoluble matter contained in the ash. The result is obtained by boiling the ash in a little water and filtering the precipitate, drying, burning, weighing and subtracting the residue or insoluble matter from the original weight of the ash. By this process both the soluble and insoluble parts are ascertained, and if the sample be pure, but 3 to 3½ per cent. of insoluble will remain, any increase of these figures clearly denoting adulteration to that extent.

Where the burning of the leaves is inconvenient, the following operation may be substituted: Weigh a sample

of the suspected tea and boil with about ten times its weight of water in a porcelain dish or beaker. This boiling will wash the sand off the leaves and sink to the bottom, the leaves floating in the liquid. When the liquid has cooled sufficiently, the leaves may be removed with the hand, the liquid and sand being poured into a filter. The sand is then washed, dried and ignited in a platinum plate and weighed, in which manner the amount of sand yielded by 50 or 100 grams of tea may be actually weighed and ascertained. On examining the analysis it will be found that tea-ash contains a quantity of iron and some manganese, the presence of the latter being so marked in tea-ash, that on subsequent treatment of the ash with water a deep green solution of the manganate is obtained. Owing to the presence of this chemical, tea-ash also evolves chlorine very perceptibly, particularly when treated with hydrochloric acid. If the sample of tea treated yield *only* the normal percentage of ash at the same time contains a considerable quantity of silica, such a combination would afford the strongest evidence of adulteration. This will be apparent from the fact that tea-ash is an essential part of the tea, and if a part of the tea-ash be absent, the sample must have been deprived of at least the corresponding quantity of tea. Spent leaves contain less ash than genuine tea, the average being about 3.06 of ash in 100 parts of dried spent leaves, and when the ash is deficient, the explanation is that the genuine tea has been more or less replaced by spent or exhausted leaves. But for all practical purposes a complete analysis of tea-ash is not necessary, a determination of the ratio of soluble to insoluble portions of the ash answering the purpose as well. Such a determination is made by boiling the ash several times with a little water, filtering and washing the precipitate in the

filter, drying, igniting and weighing it. The weight of the insoluble part of the ash may then be subtracted from the original quantity, in which manner the percentage of soluble and insoluble ash is obtained.

Peligot has also pointed out that tea-leaves differ from the leaves of other plants by their extraordinary richness in nitrogen, the percentage averaging 4.37 per cent. in the raw leaf of the former, and ranging from 5.10 to 6.60 per cent. in the dried state. In the preparation of the fresh leaves for market a quantity of juice is expressed from them, the increase of nitrogen in the prepared leaf being accounted for on the supposition that this juice is not as rich in nitrogen as that still remaining in the leaf, and if the prepared leaf be unique in containing this high percentage of nitrogen, it is obvious that a determination of nitrogen in tea may prove useful as a method of identification.

IRON AND STEEL FILINGS IN TEA

Are best detected by pulverizing a sample of the suspected tea and spreading the powder on a piece of glass or plate, and applying a magnet to the dust. If a quantity of the particles gravitate and adhere to it, the tea is undoubtedly adulterated in this form. While fabrications and sophistications in general may be best exposed by treating an infusion of the leaves with a watery solution of sulphuretted hydrogen or a weak solution of ammonia. Under the first treatment the liquor of pure teas will retain its natural color, but will assume a light-blue tint under the latter.

Another simpler method for those who may not have the chemicals or appliances convenient is to place a small quantity of tea-leaves in a wine-glass or goblet, pour on cold water, and stir or shake well for a few minutes. The tea, if pure, will only slightly color the

water, but if adulterated, a dark-colored liquor is quickly yielded, which if boiled and let stand until cold will, if spurious, become bitter and almost transparent as it cools, while pure tea under the same conditions assumes a darker color and pleasing flavor. The latter changes arise from the tannin (a natural property in tea) of which artificial tea is entirely devoid and adulterated teas in proportion. Mineral adulterants, however, must be dealt with by the ash-test, which is unerring, spurious leaves by their botanical character and structural marks, deficiency of tannin being invariably an indication of spent or exhausted leaves.

The part of the tea which we really use being that which passes into the infusion, in other words—the Extract of tea—it is natural to look to this extract as affording the directest evidence of the quality and genuineness of a sample of tea. The extract may be regarded both quantitatively and qualitatively, and from the former point of view we are led to the tea-assay or determination of the weight of the tea-extract which a given weight of tea is capable of yielding.

In Peligot's analyses we find the following determinations of the tea-extract—the author being quite alive to the importance of such a test:—

GREEN TEAS.

Variety.	Part soluble in boiling water.	
	Dried Leaf.	Ordinary Conditions.
Imperial,	43.1	39.6
Gunpowder,	50.2	49.9

BLACK TEAS.

China,	42.8	39.0
Japan,	45.8	41.5
India,	45.4	41.7
Java,	35.2	32.7
Ceylon,	44.4	39.8

These results being arrived at by the employment of a valid but rather inconvenient method of weighing out ten grams of tea-leaves and boiling them with water as long as anything is dissolved out of them, and afterwards drying up the exhausted leaves, first at a low temperature and then at a higher one, finally weighing the exhausted leaves. The loss in weight is the weight of the tea-extract, care being taken to weigh the original tea and the exhausted tea-leaves in the same state of dryness. The results, as will be observed, are stated both in the dried tea and in the tea in its ordinary commercial condition. But, instead of weighing the tea-leaves before and after extraction and taking the difference in weight as the weight of the extract there is a more convenient process—that of evaporating down the extract itself to dryness and weighing *it*. The drying up of the exhausted leaves and the getting them into the same hygroscopic condition as the original tea presenting considerable practical difficulties.

The evaporation of the infusion to dryness and the weighing of the dry extract is also a tedious process in its unmodified state. But if a given quantity of tea be boiled with successive portions of water no more tea-extract is yielded than if the same tea be boiled once with a large quantity of water, but whether the infusion is kept for a length of time just at the boiling-point or whether it be made to boil vigorously makes some difference in the result, brisk-boiling extracting about one-tenth more than slow boiling, so that if the boiling be very vigorous half an hour's boiling is just as effective as an hour's slow boiling.

Founded on these observations an assay of the tea-extract may be made by the following simple process: Put ten grams of tea into a pint flask and pour on about

two-thirds of distilled water accurately measured, a cork and bent tube is then adapted to the mouth of the flask and a connection made with a condenser. The contents of the flask are next heated and made to boil strongly. That having been done the boiling is stopped and the flask and condenser disconnected and the distillate poured back into the flask and the decoction of tea observed closely. If quite clear fifty grams are weighed out and evaporated to dryness in a water-bath and weighed till constant. If the decoction be not quite clear by this time it is to be filtered hot; the first small filtrate is best thrown away and the filtrate collected, weighed, and dried in the water-bath until the residual tea-extract becomes quite constant. Having performed the operation in the manner directed, the weight of the tea-extract actually weighed will be the weight of the extract yielded by one gram of the sample to be assayed.

But in coming to a decision as to the genuineness of a sample of tea of which an analysis has been made by this method, it is of importance to remember that genuine tea is subject to considerable variation in composition. The quality and condition of the leaf at the time of gathering and the different treatments which it undergoes in the process of manufacture, or whether the tea is Black or Green, cause the composition to exhibit a wide range of variation. Taking the percentage of the extract as a basis from which to start, that in genuine tea being from 32 up to 50 per cent. in its ordinary commercial condition. Such being the case, it is obvious that a determination of the percentage of extract will not enable the expert or analyst to say whether the sample of tea be of a lower or higher grade of pure tea, or whether it is composed of a high grade of genuine tea and a portion of exhausted leaves. In a general way,

however, this question is not of vital importance to the analyst, as a solution may be arrived at from a determination of the soluble ash, which would be found rather deficient on incineration. For although tea may be exceptionally rich in extract, and although there are difficulties in the way of deciding whether a given sample of tea consists of average quality or of fine tea mixed with spent tea, there are no such difficulties in recognizing the case of tea of average grade, mixed with a considerable quantity of exhausted leaves, as it is assumed in this formula that the soluble ash in genuine tea is 3.6 per cent. and that in spent tea only 0.3 per cent. But in using this formula it must be understood that the results are only rough approximations, judgment and discrimination being required to determine by it.

Tea-extract yields a comparatively large quantity of ammonia when it is boiled with potash and permanganate of potash, and it is probable that this character may prove very valuable also in testing the purity of tea, for which purpose a solution containing about 10 per cent. of solid potash, free from ammonia and nitrogenous matter, is required and easily obtained. Ten grams of this solution of potash is put into a small flask-retort, working in an oil-bath and connected with a small condenser; the whole apparatus to be carefully freed from the last traces of ammonia, which is best accomplished by distilling the water through it, after which from 5 to 10 parts of the tea infusion are poured into the retort, which is then corked up and heated in an oil-bath to 150 C. Having been maintained for a short time at this temperature it is then lifted out of the bath and some pure water poured into the retort, which is again to be heated in the oil-bath. More than half of the water is then distilled over and in this manner the "free ammonia" is obtained.

from the distillate. When this has been accomplished some of the potash and permanganate solution is added to the contents of the retort and distilled so as to yield a distillate containing "albuminoid ammonia," the result being as follows in pure teas:—

Free ammonia,	0.28 milligrams.
Albuminoid ammonia,	0.43 "
	0.71
Total,	0.71 milligrams.

While the extract from a sample of spurious leaves yielded of

Free ammonia,	0.20 milligrams.
Albuminoid ammonia,	0.295 "
	0.495
Total,	0.495 milligrams.

This experiment is made with the greatest ease, and will also be found valuable by brokers and others interested in tea for testing the strength of the tea-infusion.

As has already been observed, tea is also remarkably rich in nitrogen, so much so that a determination of nitrogen may be resorted to as a means of identification. With this object it is best to take a sample of tea, first mixing it up well and powder it in a mortar. Of this tea-powder some 0.3 grams should be accurately weighed out. This is then to be mixed with some 50 grams of oxide of copper, which has been first oxidized without the employment of nitric acid, and which shortly before using had been ignited and allowed to cool. A combustion-tube of hard German glass, closed at one end and perfectly clean, is next charged as follows: At the closed end a layer, some three to four inches in length, of a mixture of dry bi-carbonate of soda and fused bi-chromate of potash is placed, the mixture being intended to give out carbonic acid. Next to this compound place two inches of oxide of copper, then the mixture of tea and oxide of copper,

then more oxide of copper and some clean metallic copper on top, then a perforated cork and exit tube, which dips under the mercury, and place the combustion-tube in an appropriate furnace to heat. By heating the layer of carbonate of soda and bi-chromate of potash, carbonic acid is caused to traverse the tube and expel the air from it. This having been done the tube is next heated gradually from before so as to burn up the tea, the gases being collected over the mercury. At the end of the operation the carbonic acid is once more made to traverse the tube by again heating the mixture at the back, all the nitrogen being driven from the tube and collected. Finally the carbonic acid is absorbed by means of the potash and, the residual nitrogen gas is measured with well-known precautions. This gas should also be tested for bin-oxide of nitrogen by means of oxygen and pyro-galate of potash, any bin-oxide of nitrogen gas to be measured and allowed for in the test.

Among the most common forms of adulteration practiced by dealers in this country is that of substituting old and valueless Young Hysons for Japans or mixing them together the better to disguise the fraud. The mixing or blending of old, stale, weedy or smoky Congous with Oolongs, particularly when such teas become a drug on the market. The reduction of Moyunes by the addition of Pingsueys in the proportions of half and half and then refacing them as "True Moyunes." The refacing of Ningyongs and other Amoyas as Formosas being still another form, for which at the present low prices of the commodity there is not the slightest occasion. The most recent "trick" of the tea trade being that of mixing Japan Nibs with Twankays and Hysons, the latter, I regret to add, being now extensively adopted by at one time reputable houses.

Some law should be passed in this country to ensure the public against the possibility of purchasing spurious and adulterated teas as in Russia, where the dealers are compelled to sell their teas under government labels placed on the packages by experts appointed by the Government for that particular purpose and who work under official inspectors, the expense of examining and labeling being defrayed out of the revenue realized from the sale of the labels to the dealers. To such an extent was the nefarious practice carried on in that country that the adoption of this system became imperative in order to restore the confidence of the public in the genuineness of the tea offered for sale, with the result of having materially checked the traffic in spurious and adulterated teas in that country.

CHAPTER VII.

TESTING, BLENDING

AND

PREPARING.

THERE is no article handled by the grocer which engages more of his time, demands greater attention, or has a more important bearing upon the success of his business than Tea. In many respects it stands ahead of all other commodities in commanding and maintaining patronage, also in that it is expected to attract and retain trade for other articles, and at the same time yield a larger margin of profit. As gain is the fundamental object of business, and as Tea plays such an essential part in determining this profit, we may be excused if, considering the article from a purely practical standpoint, we urge the relation which it bears to the success of the dealer in it, and who, as a rule, experience more difficulty in the selection of Tea than in any other article he trades in. The cause is obvious, being due to the numerous varieties and almost innumerable grades, characters and flavors with which he is confronted, and to be selected from, taken in connection with the diversity of tastes and preferences to be catered to, it requiring no ordinary skill or knowledge to make the proper selection under these circumstances to suit patrons. The acquisition of such knowledge, for all practical purposes, is not, however, quite as difficult as many may suppose, as it can be fairly obtained by a little study, a few simple and inexpensive experiments and repeated trials to familiarize oneself with the leading characteristics and values of the different

varieties, grades and flavors of the teas best adapted to each particular class or section of the country.

Teas have two values—an *Intrinsic* or real value, and a *Commercial* or market value; quality, strength and flavor constituting the first, the latter being more often based on style, appearance, supply and fluctuations in price. So that in their selection for commercial purposes four leading features are to be considered—Leaf, Style, Liquor and Flavor. The drawing and drinking qualities of the tea in the cup are paramount to the style and appearance of the leaf in the hand, as many teas, though rough-looking and coarse in “make” or style, draw and drink well in the infusion. There are five principal methods of testing the merits of a tea:—

By Style or Appearance.—Which, though not invariably an indication of merit, has still considerable to do with the value and quality of a tea. Choice teas of all kinds are however, handsomely made and stylish in appearance, that is, compactly if not artistically curled, twisted, folded or rolled, according to its make, and all teas being small and fine in proportion to their youth and tenderness, the ripest and most “sappy” curling up tightest and retaining their form longest, consequently the younger and fresher the leaves the richer, more juicy and succulent the tea. If it be Green tea of the Imperial or Gunpowder order the leaf is hard-rolled and “shotty,” regular in make, bright natural green in color, very uniform and pleasing in general appearance. But if of the Hyson or Young Hyson sorts, the leaf will be well and evenly curled or twisted, the latter being almost “wirey” in texture and of the same hue as the former. If Black, of the Oolong or Congou variety, the leaf will be finely made, “silky” or “crapy” in texture and varying in size from small to medium, artistically twisted and

attractive to the eye. Old and inferior teas, on the other hand, will be large, rough and loosely rolled or curled, in proportion to their age, quality and picking, and being partially or entirely devoid of "sap" or succulence, they are correspondingly thin, coarse or flavorless in the infused state.

By Feeling.—Judging a sample of tea by feeling is applicable more to the curled, twisted or rolled sorts, such as Oolongs, Congous, Souchongs and Hyson teas. If the leaves of a tea of these makes, so tested, be really choice they will be found smooth, crisp and elastic in the hand, and capable of resisting a gentle but firm pressure, yielding rather than snapping or breaking under it. But if old and "sapless," they will be found rough and "chaffy" to the touch, very brittle, cracking easily and crumbling under the same conditions, making much dust.

By Smelling.—By blowing or breathing hard upon a sample of tea and then quickly catching the odor emitted from it a fair estimate of its general character and value may be arrived at. To judge by this method, however, an acquaintance with the distinctive flavors and peculiarities of the various sorts and grades will be first necessary. This knowledge is best acquired by adopting as a type or "standard" a sample of the tea to be matched and educating this sense to its flavor and aroma. It is not for a moment claimed that this test will be at all times accurate or reliable, and only a general estimate can be formed, especially if suffering from a cold, in which case its true character or value cannot be even approximated. Again, many teas that may be "new and nosey" in the hand will be "thin and flat" in the cup, the "flashy" or evanescent flavor passing off rapidly on infusion.

By Masticating.—A close and almost accurate estimate of the character and value of a tea can be formed by chewing a few of the leaves. With this method a good tea may be recognized by the ready manner in which the leaves almost dissolve in the mouth on slight mastication, becoming quickly reduced to a “pasty” consistency if young, tender and succulent, the “sap” or juice yielded will be abundant, pungent and pleasing to the taste. If of the Green or Japan variety the residue will be of a bright, natural-green color on removal, rich olive-green if Oolong, of a rich reddish-brown tint if Congou and dark-red if India or Ceylon. But if composed of old, inferior, spent or spurious leaves they will be found difficult to masticate, being dry, “chippy,” sapless and tough in texture, yielding little or no juice according to its age and inferiority. Whatever little is expressed being “wild,” “weedy,” “woody,” “herby,” “mousey,” “grassy” or “metallic” and bitterly astringent to the taste, the residue being dark in color, coarse or granulated on removal. This test should not be resorted to only on extreme occasions, as a too frequent chewing of tea-leaves, owing to the tannin in their composition, severely affects the nervous system and ultimately the digestive organs.

By Infusing or Drawing—Is unquestionably the most reliable and satisfactory method of testing or appraising tea, being the one adopted by all brokers, experts and dealers as the most conclusive and least injurious to the system. For this purpose a number of small porcelain cups, scales and half-dime weight is requisite, together with a perfectly clean kettle and freshly distilled or filtered water, briskly boiled. Take the weight of the half-dime of leaves and mark the cups to correspond with the samples under examination, then

pour on the briskly boiling water and allow it to draw from three to five minutes by the watch, first seeing that the cups are thoroughly clean and dry, or, better still, heated or rinsed with boiling water before weighing or putting in the tea, as cups used for drawing other sorts of tea will impart the flavor of those previously tested to the last if not properly washed and dried before using again; also see that the water is *briskly* boiling before pouring it on the leaves, as water not properly boiling will cause the leaves to float. If large cups are used the quantity of leaves should be increased proportionately, say to that of a dime in weight for an ordinary tea-cup. It is customary with some brokers and tea-testers to cover the cups with a lid or saucer during infusion, but this precaution is not absolutely necessary; still it has its benefits, as it prevents the vapor and aroma from escaping, both valuable factors in the exact testing of tea. The water used should be as soft and pure as can be obtained; boiled briskly and used *only* at the boiling point. That is, it must boil, but not overboil, for if it be allowed to do so for even a few minutes it will not extract the full strength and flavor of the leaves. Expert tea-testers are most particular in this respect, watching their kettles so that the water may be used the minute it boils, and if any water remains in the kettle it is poured off and refilled with fresh water before using again, as the effect of using water that has been boiled a second time is the same as that of water which has been overboiled. In testing teas by infusing or drawing five important points are to be considered: Body, Color, Strength, Flavor and Aroma of the Liquor, the tea combining these qualities in the highest degree proving, of course, the best. On removing the lids, if used, inhale the vapor slowly, noting its aroma at the same time; next

stir the leaves gently with a spoon for a few minutes, and smell them occasionally, also noting their odor; by which time the tea will be cool enough to taste. Before doing so, however, observe the color of the liquor—an important factor in tea—a rich straw, golden or corn-yellow colored liquor, generally, if not invariably, indicating a tea of fine quality, except it be of the Congou, India or Ceylon variety. Next, taste the tea by sipping it so as to strike the palate, but do not swallow, as it kills the taste, and noting its body, flavor, strength and pungency while so doing, comparing it with the tea required or to be “matched.”

But while a clear, bright, sparkling liquor denotes a fine tea it does not always determine its body or strength, as many light-liquored teas are full and round in body, pungent and “snappy;” others again, though dark and heavy in liquor, are yet devoid of strength and flavor, the liquor of old and inferior teas being invariably dark, thick or “muddy” in color, and lacking in briskness and flavor. After an opinion has been formed of the liquor in all its relations, next examine the infused leaves with regard to their size, color, form, texture and condition, as all these points have an indirect bearing on the age, quality, character and value of the tea under examination. The infused leaves of fine, pure teas range from small to medium in size, perfect or nearly so in shape, regular and symmetrical in form, uniform and unbroken in appearance. While the infused leaf of low-grade and adulterated teas is large and dark-red or brown in color, broken, irregular and different in size, form and color from the true tea-leaf. The smaller, brighter and more symmetrical the infused leaf, the higher the grade, and consequently the greater the value of the tea, that of fine Oolongs being olive-green, with slightly brown

or "burnt" edges, Congous and Souchongs rich reddish-brown, India and Ceylons, "salmony-red." Scented teas possessing a small olive-green infused leaf. In Green teas those yielding a bright, sparkling, "amber"-colored liquor, with small or medium infused leaf and presenting an unbroken and uniform appearance are the best; the same rules that govern in the selection of Green teas also applying to Japans.

The value of tea commercially, depends principally upon the character and flavor of the infusion and also on the aroma imparted to it by the volatile oil, which is not generally estimated by chemists owing to the imperfect methods of obtaining it and the difficulty attending the operation. But commercially the value of a tea is based on the amount of "extract" it yields as well as on the quantity of theine and tannin contained therein. Tea-tasters and experts on the other hand take no account of theine, which is almost tasteless, but which is at the same time physiologically the most important constituent of tea. And so far as total extract is concerned Congou teas are inferior in quantity to Oolongs, Greens and Japans, while the latter in turn yield a larger percentage of theine than either India or Ceylons, notwithstanding that it is claimed that they yield less. Yet it must be admitted that a deeper color is imparted to the infusion by India and Ceylon teas, and that they are also of greater strength than China and Japan teas, in fullness (not delicacy) of flavor, the former claim is not borne out by either analysis or testing. There is also no uniform relation existing between the chemical composition of teas and their commercial value, as the percentage of extract determined by a half-hour's boiling of the leaves in 100 parts of distilled water bears in China and Japan teas particularly a more uniform relation to the price, although the total

extract obtained by exhausting the leaf is very irregular. This result is also quite in accord with the fact that the finer and more valuable qualities of all teas are to be found only in the youngest and tenderest leaves, the decline from the finer to the lower grades in the amount of theine dissolved being also noteworthy as showing the power to yield nearly all their theine, the latter doing so only to a limited extent under the same treatment. But although these results show the difference in the drawing qualities of all the various kinds of tea, yet they are not sufficiently uniform to make such analysis the basis for calculating the price of tea. It is evident, however, that the volatile or essential oil—to which tea owes its flavor and aroma—plays a more important part than any of the other constituents in determining the commercial value of tea. Again, it must be noted the strength and flavor of the infusion is as much due to the character of the water used in drawing as to any other cause, the quantity of tannin extracted by soft water being greater than that obtained by the use of hard.

The taste for tea being an acquired and not a natural one, it necessarily follows that persons who have been accustomed to a certain variety or flavor in tea, want that particular kind and will be dissatisfied if any other is given them. Consumers of wine have their fancies, so have users of ale or beer—one prefers a dry, another a sweet wine—one a mild and another a bitter beer. This being the case, it becomes essential to the success of the tea-dealer to study and learn what variety of tea or what particular flavor his customers have been accustomed to before attempting to cater to it. This is a question somewhat difficult to answer, as not only is there a wide difference of taste in tea in the different parts of the country, but in every large town or city alone the varieties

and flavors in demand are so numerous and various that most dealers are compelled to mark out a distinct line for themselves. In the larger cities this is the most successful course to pursue, particularly if the kind and quality of the tea be kept regular and uniform the year round, as it secures the return again and again of the same customers for that particular tea, and thus keeps a business always steady and progressive. Even away from the larger cities it is well to follow this course, but while at first it may be found advisable to keep close to the established tea-taste of the section, a gradual change may be found good policy, as a dealer can by a little effort educate his trade in time to a particular variety or flavor of tea, for after all is said, and as remarked before, the taste for a certain tea is only an acquired one. He may, for instance, be selling a heavy-bodied Amoy or dark-leaved Foochow Oolong and suddenly change off to a fine Formosa. In such a case his trade would be very apt to find fault at first, notwithstanding that the latter may be choicer and more expensive than the former, but by ignoring the complaints at the beginning and continuing to insist upon their taking it, eventually succeed in educating them to acquire a taste for it. Still the importance of retaining and maintaining the quality and flavor to which his customers are longest accustomed cannot be overestimated, for no dealer can afford to jeopardize his business or can expect success if his teas one month consist of fine flavored teas, the next month of heavy and dull and the third of a sharp and pungent kind. To maintain this necessary regularity, must be admitted, is difficult, as no two consecutive importations of tea are exactly alike although selected from the same picking or chosen from those grown in the same district the variations may still be so

wide as to cause dissatisfaction among consumers. Therefore it becomes essential to the success of the dealer to pay particular attention to the quality of his tea, as there is no article he deals in which will attract trade or retain it longer than good tea, a fine tea creating more comment in a town or neighborhood than any other article used at table and if customers once lose confidence in either the ability or honesty of the dealer they will be repelled rather than attracted, it being next to impossible to get them back again. So that it does not pay a dealer to make any mistake in the selection of his teas, such mistake proving fatal to drawing or holding trade. Poor teas will drive more customers away in a week than can be made in a year; it is therefore much better and more profitable in the long run to sell only good teas at a smaller margin of profit than to sell poor teas at a larger one. Many dealers make use of the argument, "I bought this tea so much cheaper and my customers do not appear to notice the difference; they do not complain." This may be true, but it is delusive, as people seldom complain; they go elsewhere and get better value. Every community becomes accustomed to drinking a particular description of tea and is quick to discover any change in the character and flavor of any tea that may be substituted for it, thereby becoming dissatisfied notwithstanding that even a higher-priced tea, of different character, may be given them. For this reason the dealer will do well to keep as close to the grade and variety in use there and as nearly uniform as possible at all times maintaining a "standard." To do this effectually it will be necessary for him to study and learn as near as he can the particular grade and flavor his trade prefers, which is best accomplished by first trying them with various kinds until he has found that which is best suited to a majority of his customers; having

succeeded in this, let him stick to that particular kind. Again, as any one variety will not suit all tastes, he can next endeavor to find a tea adapted to the minority by the same method, reserving and keeping these two or more kinds as the case may be. It is much easier to describe what teas to avoid than those to select or what may be best adapted to a particular section, as good tea of all kinds will sell at any time.

Again, some sections of the country possess great advantages over others in the testing and preparation of tea for use, as, wherever the water is soft and pure, much better results are obtained from the infusion by a given quantity of leaves, owing to the fact that such water dissolves more rapidly and extracts a larger amount of the *theine* than hard or muddy water. The coarse as well as fine properties of the tea are also "brought out" more prominently by the action of the former, it being for this reason that "high-fired," "toasty" and "tarry" teas so much in favor in some sections will not sell at all in others where the water is soft as a rule, and why China Congous are best appreciated in sections where the water is soft, as the natural delicacy of their unique "fruity" flavor is best extracted by that kind of water and to a greater extent than is the flavor of most other varieties.

The distinctive flavors which characterize the different varieties of tea may be summed up in a single technical term—Amoys are "nutty," Foochows are "mellow," Formosas are "fragrant," Green teas are "pungent," Pekoes are "piquant," Congous are "fruity," Souchongs are "tarry," Japans are "mealy," Scented teas are "aromatic," Indias are "malty," Ceylons are "toasty" and Javas are "sour." Oolong of an "herby," "weedy" or "wild" flavor should be avoided, as they are principally mixed with Ankois. Ping-sueys, Cantons and all

doctored Green teas should be tabooed altogether; if cheap Green teas must be had, procure a low-grade Moyune regardless of its appearance, as it will give better satisfaction than the finest of the foregoing. Japans of a "fishy," "grassy" or "metallic" flavor should also be shunned, as they will be found dear at almost any price. Congous of a "woody," "mousey" or "smoky" flavor and too "tarry" Souchongs are also good teas to leave alone, while Canton and Macao Scented teas should never find a place in the dealer's stock. Low-grade India, Ceylon and Javas are either "raw," "uncooked," "baked," "burnt" or "sour" in flavor, and decay very rapidly being unfit for use after a few weeks' exposure. In brief, do not handle any old, raw, grassy, weedy, woody, smoky, fishy or brassy flavored teas under any circumstances. There is no satisfaction in them to the consumer and no profit in them to the dealer. Keep good teas only and get your price. It pays best in the end.

A tea-dealer with any desire to extend or even retain his trade should no more attempt to sell poor, inferior, unclean or damaged tea than a butcher to endeavor to sell tainted meat or a baker to give his customers sour bread. The offense may not at first seem so objectionable, but the verdict of the public will be the same in each case, and the practical manner in which his customers will manifest this opinion will be to let such dealer severely alone. Good clean teas can nearly always be purchased for a few cents per pound above the price of the "trash" now offered in the American market and masquerading under the name of tea, being nothing more or less than a gross libel on the "fascinating beverage." By this mistaken policy of trying to save three or four cents, the seed is not only sown for the

future ruin of the dealer himself, but it also produces the effect of disgusting the public and casting discredit on tea as an article of food. While, on the other hand, if the dealer make a comparatively small but necessary sacrifice for the sake of future gain by selling *Tea that is tea* and be content with a fair and legitimate profit, satisfaction will be given to his customers, trade fostered and the consumption of this now most important food auxiliary increased at least two-fold in this country.

“Standard Chop,” or “celebrated district” teas, should always be selected when possible, and “first-crop” for high-grade teas, as first-crop teas are invariably superior (except in the case of Formosas) to the later pickings in flavor, aroma and keeping properties, due to the larger amount of theine and volatile oil which they contain, and possessing every quality except weight for which tea is valued or appreciated. To do this it will be necessary for the dealer to ascertain which “chop” is the best and which district has yielded the best picking during the current season, thereby making quality as well as quantity the test of excellence. For, as with wheat and other crops, the tea crop also varies according to the season and curing; some years being highly successful in one district while it may be a comparative failure in another, The “Tong-lees” may be heavy and flavory this year, thin and flavorless the next; while the “Tong-mows,” or some other “chop,” inferior in leaf and liquor last season may possess all the most desirable qualities this. Green teas, Japans, Congous, Souchongs, India, Ceylons and all varieties of tea being equally subject to these variations So that the advantages to be derived from a careful selection of the best “chop” and “district” teas of the season. with but slight consideration, will be manifest to the intelligent dealer in tea.

The tastes of communities differing so widely in the various sections of the country, the dealer must study and learn the particular variety and flavor best adapted to the locality or town in which he is doing business, as a tea that may give general satisfaction in one section may not suit at all in another. But generally in mining, milling or manufacturing districts or among working classes in cities, heavy-bodied Amoyes and dark-leaved Foo-chous will be found the most popular. The taste for China and Japan teas in this country is undoubtedly an inherited one, but irrespective of this cause they are for the vast majority of tea-drinkers peculiarly the most suitable and best adapted, being softer, milder, richer, more mellow and wholesome than either the India or Ceylon growths, and it is only a cultivated and refined taste that can appreciate them at their true worth. In a community composed principally of Irish, English or Scotch, thick "fruity" Congous, heavy-bodied "tarry" Sou-chongs, Capers, Pekoes, India and Ceylon teas or combinations formed from these varieties will prove the most satisfactory. While Green teas are most in demand in the Southern States, Oolongs in the Eastern and Middle, Foochows and Formosas being chiefly sold in the larger seaboard cities, Amoyes in the principal manufacturing districts, Japans in the Pacific and Northwestern, India, Ceylons and teas of the Congou order, in Irish, English and other foreign settlements.

All teas after ripening have a tendency to decay, some teas not keeping as well as others, there being a great difference in the time that some will keep before the deterioration becomes pronounced in comparison with that of others. And tea also possessing an natural aptitude to become impregnated with the odor of any high or foul-smelling article near which it may be placed, care

should be taken to keep it away from such commodities as fish, soap, coal-oil, molasses and spices, as it quickly absorbs all pungent odors. Yet I have known of teas that were imported with or stored in close proximity to wine, oranges, lemons and even camphor to be improved in flavor, more particularly when very lightly tainted by such odors. Still teas should be kept as much as possible from the light and air, particularly in damp or humid weather, as the oxydizing influences of the atmosphere has a more or less deleterious effect upon them. They should never be sold out of freshly-painted bins or newly-japanned tea-caddies, being much better, at all times, to deal them out of the original packages, replacing the lead and lid when through. The most successful tea-dealers I have met invariably sell them in this manner. Do not keep your teas too close to a fire or stove, a dry, cool atmosphere of moderate temperature is always best.

The tea-market fluctuating considerably in the course of the year, it will be necessary for the dealer to understand something of the law of supply and demand, which affects the fluctuation to a considerable extent, before he can make profitable purchases. The dealer who is best "posted" in his business makes the best business man, so that the tea-dealer who not only understands the article he is dealing in, but whose knowledge and discrimination enable him "to buy the right tea at the right time" possesses advantages over his competitors, the value of which can hardly be overestimated. Each season, on the "first arrivals," high prices are paid, and if there be a brisk demand those full prices are continued for some time, after which follows a dull, drooping or listless market, from which but little satisfaction can be obtained; but should the demand on arrival be light, through dealers holding off for better

terms, the prices rapidly decline to a more reasonable level, it then becomes comparatively steady. When this is the case the decline occurs about the middle of September, and dealers will do well to take advantage of the choice selections of teas that arrive during the months of October and November. For the better buying of teas at this time it will also be found necessary to note the supply very closely, as during heavy shipments the market is nearly always easier, while, when the arrivals are light, the tea-market is higher. These points are deserving the special attention of the successful tea-dealer.

For some years past a new development of the tea trade has, to the surprise of the older wholesale and retail dealers, assumed a good deal of prominence, for if the advertisement columns of newspapers, startling placards at railroad stations and on fences form any criterion, the public are taking a liking to teas put up in pound and half-pound packages under fancy names—the latter having no relation whatever to any country, district or locality where the teas are grown. That the public should, to a certain extent, buy anything persistently forced upon its attention is perhaps possible, but tea put up in tin, lead or paper packets would seem a somewhat hopeless direction in which to attempt to draw the public taste. Tea in bulk, in the original lead-lined chests, undoubtedly keeps better, as it preserves the strength, flavor and aroma of the tea longer than when exposed to the oxydizing influence of the atmosphere, particularly in this climate, so that during transference into the tin, paper or unseasoned lead packet, ornamented with a "showy" label which the more gorgeous the more apt it is to communicate a taste of the ink, paint, glue or material in which it is packed to the tea they are intended

to adorn. Again, these packets, labels and labor add as much as five to eight cents to the cost of the tea, together with the expense of flaunting them before the eyes of the public, which must be simply enormous. The public generally are ignorant in such matters, and the legitimate dealer might look with amused surprise on the apparent demand for packet teas if it were not that an increasing number of dealers are adopting the new system. Engaged as most of the grocers are in trying to stop the plague of all sorts of proprietary goods which yield them so little profit and make them the servants only of the manufacturers and proprietors, it is astonishing, to say the least, that other dealers should be found who are adopting the same system with tea. A grocer cannot manufacture spices or sugar, grow wine, distil whisky or brew beer, but *he can, as generations of grocers have done before him, sell good tea out of an honest tea-chest,—or caddy—and make a respectable living, if not money, out of it for himself and not for others, while serving the public well at the same time.* Surely, the attitude of the grocers on this question should not be one of doubt, as they have it in their power to make it clear to the public that *they can sell cheaper, better and fresher teas of their own, and with a far better guarantee of the source of supply named or adhered to than if a paper or metallic packet with a fancy label, however attractive, is trusted to.* Again, there can be no valid reason why every grocer, if he sees fit, should not put his own teas up and offer them under his own name and brand upon it, if his patrons should desire, a fancy and costly packet with no other advantages attaching to it.

TEA-BLENDING AS A FINE ART.

Comparatively little is known of the art or principle of mixing or blending of teas in this country, American

dealers and consumers alike being averse to the practice, regarding it as about on a parity with other methods of sophistication. Such objections are entirely erroneous, as it is an acknowledged principle that a combination of different varieties of wheat make better flour, the same being true of coffees and other articles of diet. So that the practice of blending teas, if properly understood and skillfully performed, would prove a more satisfactory and profitable one to both consumer and dealer. The object is not, as the public may imagine, to lower the quality or reduce the cost to the dealer, but simply to produce better tea and obtain a finer and more desirable flavor than that yielded by any single variety, one giving better satisfaction to the consumer at a more moderate price and at the same time allowing a larger margin of profit to the dealer. As an illustration, a dealer may be selling a tea possessing a suitable flavor, but be lacking in body or light in liquor, whereas, by adding to it one or two other teas possessing these qualities the defect is rectified and a full-flavored heavy-bodied tea is produced and the two latter also improved. It follows then that by the judicious blending or mixing of three to five teas, differing in variety and grade, a more uniform and pleasing tea, heavier in body, richer in liquor and flavor can be obtained by this principle at a more moderate cost.

The idea of blending teas originally arose from the experience incidentally gained that a beverage more pleasing, satisfactory and less costly, could be produced from a number of different varieties and grades judiciously and scientifically combined, than could otherwise be obtained from any single sort when used alone. No sooner was this experience confirmed than "mixing" or blending of teas was generally resorted to by many of

those who had the dispensing of the article to the public. Some dealers had marked success in this branch of the business, while others again who attempted it failed completely in their efforts to produce any satisfactory results, the end accomplished being, instead of an improvement, an injury to the quality and value of the tea combined, often to such an extent that ordinary plain teas would have pleased better at less labor and cost. The cause of this failure was due alone to the want of that necessary training and experience which would enable the dealer to understand the characteristics and affinities of both the teas which are improved and those which are deteriorated by blending together. The knowledge and skill required for this particular branch of the tea business is only attained in perfection by numerous tests and constant experiments which are performed by mixing from two to five or more samples of tea, differing in variety, character and quality, alternately changing, altering and substituting them until the dealer has succeeded in producing a tea unique in character, the body, flavor and aroma of which will prove more pleasing and satisfactory to a majority of his patrons, at a more moderate cost, identified with himself and differing in every respect from that of any tea offered by his competitors. And after he has succeeded in his efforts he must be careful to keep it as uniform as possible, never allowing even his employees to know of what teas his combination is formed. By following these precautions he becomes noted for keeping a tea that cannot be secured elsewhere and one which, after his customers become once educated to that especial flavor, will not be satisfied with any other.

“The world moves” and the American tea dealer should move with it, as time and experience has proved beyond dispute that skilful and judicious Tea-blending

will be found to amply repay the study and labor bestowed on it. The chief and only difficulty existing in the art lays in first finding a combination that will please a majority of your customers. The primary object and fundamental principle should be to obtain in a consolidated form, harmony, strength, pungency, flavor and piquancy and at the same time to effect these results with the smallest possible outlay. To accomplish these results three important points must be carefully studied: First, to learn the taste of your customers; second, to ascertain what teas combine best to suit this taste; third, to find out to what extent the component parts of a once adopted and satisfactory blend may be varied in case of difficulty to secure the same kind of teas for future use. These results can be best secured only by proper selecting, weighing, regulating and arranging the proportionate quantities and different qualities in such a manner as to obtain the best results at the smallest possible outlay. So that before proceeding to produce a specific blend or mixture the dealer must consider well the descriptions which will combine satisfactorily and these that will not unite harmoniously, as teas that are not improved are certain to be deteriorated by blending.

The chief art in successful tea-blending is to combine body, strength and some particular and distinct flavor in one, so as to please the majority of that portion of the public for whom the tea is prepared, and at the same time so arrange its constituent parts in such a manner that this desirable result may be obtained at the smallest possible outlay. To satisfactorily accomplish this object the dealer must first learn to understand thoroughly the taste of those for whom the tea is intended, and secondly, to study what teas will combine best to please their taste, as well as to know how far the component parts of

the blend can be varied without seriously affecting its regularity so that advantage may be taken of the cheapness of any special variety or grade of tea. The importance of retaining the uniformity of a blend, when once a satisfactory combination has been discovered, must also not be overlooked. Other combinations may be as good, or better, their component parts skilfully arranged and properly mixed, but unless one standard blend is decided on, and then sedulously maintained, fault will be found and customers go elsewhere. This difficulty is best avoided by paying proper attention to the selection of the teas constituting the blend, having each sample matched as close as possible before purchasing, as well as by not changing more than one of the teas composing the blend at a time when it is the intention to alter the character of the tea. When a large number of teas are used in the formation of a blend, the alteration of any—provided that a particular one is fairly matched—will effect but a comparatively slight variation in its general character. But, if more than one change is to be made let it be done by degrees, for, if the changes in the various teas forming the blend are made gradually, few, if any, will detect the alteration.

The proper Blending of tea is an art that cannot be correctly taught in books or easily learned, it must be acquired by study, experiment and experience alone. Like all other knowledge there is "no royal road to it" the dealer must endeavor to learn himself, to understand the flavors, characters and affinities of the teas that will be either improved or deteriorated by combination, as no absolute rule can be substituted for the practical knowledge so acquired. In the proper blending of teas it is essential also that all combinations should be judiciously and thoroughly mixed together, the leaves of the

component parts being selected with due regard to size, color and uniformity and broken as little as possible so that all may harmonize well together. It is a serious mistake to imagine that the successful or profitable blending of tea consists solely of an indiscriminate or injudicious heaping together carelessly and indifferently of two or more varieties of tea in one homogeneous mass without the least regard to quantities, qualities, affinities, affiliations or assimilations of leaf, liquor, character or flavor of the component parts. On the contrary, the art consists in combining the two or more different varieties or grades of tea forming the combination in an intelligent, judicious and scientific manner so as to yield an unique and particular tea of uniform quality, strength, flavor and pungency at a given price, pleasing and satisfactory to the greatest number and maintaining its standard at all times and under all circumstances.

But while it is admitted that it is next to impossible to understand tea-blending thoroughly without an apprenticeship to the business and that the combinations that may be formed from it are almost kaleidescopic in their range, requiring a separate work. Still, even a novice need not spoil good tea by injudicious mixing, as a little study and a few simple rules carefully followed, although they cannot be substituted for years of experience in such a difficult branch, will prevent any serious error and ensure a fair measure of success. It must be understood at the outset that all combinations of tea, as a rule, must depend upon the character, flavor and grade of the tea most in demand in the section or neighborhood of the dealer, that particular variety forming the base or foundation of the blends prepared, that is, it must dominate the combination. To illustrate, if

Oolongs be most in demand, the blend must be composed of from one-half to two-thirds Oolong, and so on with Congous, Greens, Japans or India sorts, as the case may be. Before proceeding to describe any particular blends it will be necessary to name the descriptions of tea that will not combine satisfactorily, as well as those which will amalgamate most harmoniously with each other. The former are described first, because *teas not improved are certain to be deteriorated by blending*. One of the first and fundamental rules in tea-blending is not to allow unclean or tainted tea, even in small quantities, to be introduced into any combination, which rule should be as rigidly adhered to in the low-priced blends as well in the higher grades, so that all "weedy," "herby" and "wild" flavored Oolongs should be eschewed in blending.

In this country, where the taste for Oolong and Japan teas appear to be an inherited one, and where there is every prospect of their continuing to be the favorite teas with American consumers for all time to come, the best results are to be obtained from combinations formed of these varieties. Ripe, juicy and succulent "first crop" Foochows make the best foundation for all blends in this country. First-crop Formosas losing their fragrance almost as rapidly as Japans. Third-crop, or "Autumn-leaf" Formosas that have been well-fired, and which, unlike most other varieties, improve rather than deteriorate with time, becoming more "mellow" for at least the first year after arrival, rank next for this purpose, the action of the atmosphere in exposure bringing out their fragrance more fully, and at the same time causing their high-toast or burnt flavor to disappear. Bold-leaf, sweet-drawing Amoy; dark-leaved, full-liquoring Foochows, and large-leaf "nosey" Formosas and thick, sweet, "fruity" Congous make the best foundation for all tea blends, and

for the purpose of imparting a rich fragrance to any combination a choice or "pekoed" Formosa will be found the most desirable and valuable, its high character and great piquancy being possessed by no other variety grown. A small quantity of a really choice or even tolerably good Formosa tea will penetrate and dominate a blend, making itself felt and tasting through it. Its value consisting in its delicate "cow-slip" aroma and great piquancy, mellowing the liquor and giving a rich "bouquet" to the infusion. It is also a tea that when once tea-drinkers become educated or attached to its matchless qualities are ever after hard to please with any other.

Low-grade and artificially-colored Pan-fired Japans, owing to their usually "brassy" or "fishy" flavor, and well-known tendency to early decay, which has a highly detrimental effect on the other teas should be avoided, while new, "mealy," Basket-fired Japans are especially adapted for all Black tea blends, as they impart a peculiarly rich color and tone to the liquor and a very pleasing mellowness to the flavor of the combination, but should never form the base of the blend. "Old," "musty," "mousey," or "smoky" Congous, too "high-fired" and excessively "tarry" Souchongs should also be avoided altogether, as they invariably detract from or destroy the flavor and aroma of the finer kinds used in the blend, their deleterious effects being felt through the entire combination, and all "dusty" and "stemmy" teas in particular, for while some tea-drinkers will bear with a small quantity of these most objectionable features in tea, the vast majority will protest, as it is next to impossible to prevent dust and stems from finding their way into the tea-cup.

The appended formulas are not given with the intention of laying down any fixed or positive rules, but simply as

suggesting a code that may be useful to those who are compelled to blend tea without ever having an opportunity of thoroughly mastering the art. Only two to five varieties, at current prices, are used, in order to illustrate the principle more simply, as more complex combinations should not be attempted until the dealer has acquired that practical knowledge attained only by experiment and experience.

SPECIMEN BLACK TEA BLENDS.

1. (Low-priced)—Suitable for restaurant and general trade where a cheap, heavy-bodied and strong-flavored tea is the main consideration. Base 10 pounds Amoy Oolong at 20 cents, 2 pounds Oonfa or other dark-leaved Congou at 20 cents. Average cost 20 cents. In the Oolong forming this blend a little coarseness may be tolerated, but "herby" and "weedy" teas must be avoided, as what strength is needed is supplied by the Congou, which must be free from any suspicion of oldness. The color of the leaf, however, must be black, so as to harmonize with that of the Oolong. If not sufficiently pungent, the addition of 1 pound low-priced Assam will supply that defect.

2. (Medium)—Base 10 pound Foochow Oolong at 25 cents, 2 pounds basket-fired Japan at 25 cents and 1 pound Ning-chow Congou. Average cost 25 cents. This will be found a popular tea in a mining or manufacturing district where a smooth-flavored substantial tea is required, or 10 pounds Ningyong Oolong at about 20 cents, 2 pounds Congou at 24 cents and 1 pound Assam at 24 cents may be tried if the former should not prove entirely satisfactory. This combination makes a heavy-bodied, dark-colored "grippy" tea; one that will stand a second drawing and still be strong and flavory.

The Ningyong used in this combination should be light, clean and as sweet-drawing as can be had at the price and the Congou as "high-toasted" as possible, and if the Assam be "pekoed" so much the better.

3. (Medium to Fine)—Is a tea that has been found to give almost universal satisfaction in a district composed of a working class who appreciate smoothness and richness to weight or strength, and is formed as follows: 10 pounds fine dark-leaved Foochow Oolong at 30, 2 pounds Basket-fired Japan at 25 and 1 pound Moning Congou at 25 cents. Average cost 29 cents. Or where Oolongs are most in demand 10 pounds Foochow, 10 pounds Formosa and 5 pounds Basket-fired to mellow or tone the combination may be substituted, 5 pounds of a true Moyune Young Hyson to replace the Japan when a Greentea is preferred in the blend, or, better still, added to it. The Foochow in this combination while possessing a full body is yet lacking in aroma which is imparted by the Formosa, the Japan supplying the mellowness and Young Hyson the requisite pungency.

4. (Fine to Choice)—A Blend like the following will be found to give universal satisfaction in any locality, being full, strong, round, smooth and fragrant, one entirely foreign in flavor and aroma to that of any single tea in common use: Base 10 pounds choice "third crop" Formosa at 35 cents, 1 pound fine Ning-chow Congou at 30 cents and 1 pound Yamashiro Basket-fired Japan at 30 cents, for which an equal quantity of Nankin Imperial may be substituted when it becomes necessary to vary the combination, or, better still, added to it if a Green tea is desired in it by the customer.

5. (Choice)—Is a combination that will yield a most pleasing tea to suit a mercantile or professional trade having been fully tested and proved popular among these

classes in Philadelphia and vicinity. Foundation: 10 pounds "first chop" high-district Foochow Oolong at 40 cents, 10 pounds choice "pekoe-tipped" Formosa at 40 cents and 5 pounds "Spring-picked" Basket-fired about same figures. A blend composed of these three varieties cannot be approached in drawing and drinking qualities by that of any single tea costing 60 cents.

SPECIMEN GREEN TEA BLENDS.

The combinations to be made from Green teas are not many, being limited in range.

6. (Low-Priced)—A heavy drawing, thick-liquored full-flavored tea can be prepared from a combination of equal parts of a cheap but clean, sweet-drawing Moyune Hyson or Twankay and Japan Nibs, when a cheap all-Green tea is required, as both these teas drink much better in conjunction than when either is used alone, the Japan mellowing and otherwise enriching the China tea.

7. (Medium)—Base 20 pounds fair Foochow, 5 pounds Moyune Young Hyson, and 5 pounds Sun-dried Japan, make a unique and popular blend in some sections where the taste for Young Hysons is still extant, but where Imperials are preferred, the best results are obtained by a mixing of $\frac{1}{3}$ Imperial to $\frac{2}{3}$ Foochow or other Oolong.

8. (Choice)—Pan and Sun-dried Japans, in equal quantities, always combine well with Hysons and Imperials, imparting a clearness and briskness to the liquor, but in the blending of green teas only true Moyunes should be employed, as Cantons, Pingsueys and all artificially-colored Green teas invariably injure and detract from the combination in which they may be introduced, no matter how fine the base and other constituent parts of the

blend may be. Whenever low-priced Green teas are to be used select a cheap, clean sweet-drawing Moyune Imperial, Hyson, or even Twankay; they will give better results than the better-made and higher-priced doubtful sorts.

SPECIMEN SCENTED TEA BLENDS.

One of the greatest delusions indulged in by the novice in blending is that by using large and disproportionate quantities of Scented teas in old, inferior or damaged teas, under the erroneous impression that no matter how thin, flat, tainted or otherwise defective they may be it will "bring it up" and improve the flavor. No greater mistake in blending could be made, for while it is admitted that a small quantity of either Orange or Flowery Pekoe will add to the value and flavor of a clean, sweet Congou, but if used too freely makes it thin. Scented teas of any kind cannot overpower, neutralize or even modify the flavor of inferior or tainted teas, but, on the contrary, will make them more so, particularly if Cantons or Macaos be used. In this variety the best combinations are always to be produced from teas of the Congou and Souchong sorts, though not infrequently they combine well with Oolongs in very moderate quantities.

9. (Low-Priced)—Is a favorite blend in Scented tea localities, particularly when the water is hard or cloudy. To 10 pounds Saryune Congou add 1 pound Amoy Foochow and 1 pound Orange Pekoe. The fullness and smoothness of Saryune is unequalled for blending by that of any other low-priced Congous, but must be selected with care, as they are sometimes sour, often rank and frequently dusty. For those preferring an Oolong a cheap Saryune Oolong is best substituted for the Congou in Scented blends, the affinity being stronger

and more natural. Another good blend intended for the same trade may be made from a combination of equal proportions of a cheap but clean and free liquoring Black-leaf Congou, Broken-leaf Assam and a Scented Caper—Foochow if the price should permit.

10. (Medium to Choice)—Foundation: 10 pounds Padrae Congou or Oolong, 2 pounds thick “fruity” Kiu-kiang or delicate Kintuck and 1 pound Foochow Orange or Flowery Pekoe make a fragrant and aromatic tea in affiliation, the three flavors assimilating as if governed by the law of gravitation. This will be found a tea combining strength and delicacy at the same time and well appreciated, as the chief difficulty in tea blending is the production of these two qualities in the same tea at the same time.

INDO-CHINA TEA BLENDS.

The selection of India teas for blending is more difficult than that of either China or Japan, most India teas possessing a sharp, acrid or “baked” flavor not found in the former kinds and the natural result of excess of tannin and artificial curing. These “peculiarities” consumers in this country greatly dislike, and to such an extent that is only when the finest grades are used that they can be neutralized, disguised or well-tempered with the heavier bodied China sorts that they will use them at all. For an “all-India blend” the best plan is to mix three or four different district kinds together in equal quantities—a strong, heavy Assam, a brisk and pungent Cachar, a soft and juicy Deradoon and high-flavored Kangra or Darjeeling; the latter will impart a distinctive tone to the entire combination. But fairly excellent results may also be obtained from a blend composed of equal parts of Cachar and Darjeeling alone.

11. (Low-Priced)—Is produced from proportionate quantities of a heavy-drawing Broken-leaf Assam or Darjeeling Oonfa Congou and Cachar Souchong, the whole making a rough-looking but full-bodied, strong and “grippy” tea.

12. (Medium)—Prepared from $\frac{1}{2}$ Darjeeling Souchong, $\frac{1}{2}$ Keemun or Ningchow Congou and $\frac{1}{4}$ Paklin. Its predominant feature will be delicacy, though not sufficiently so to please a general trade, the Paklin detracting from the body, but imparting a rich, deep color to the whole.

13. (Choice)—Is a good combination certain to be appreciated by lovers of the India and Scented varieties, is made from $\frac{1}{2}$ of a brisk, pungent Assam Souchong, $\frac{1}{4}$ Ningchow or fruity Kintuck and $\frac{1}{8}$ Foochow Caper, The Ningchow should be grey-leaf and as heavy as can be procured, but without being coarse or “tarry,” and the Assam as pungent as can be obtained at the time.

SOME ENGLISH BLENDS.

Blended teas are the rule in England, where the skillful mixing of tea has become an art, very little, if any tea being sold to consumers that is not mixed or blended in some manner, every dealer, both wholesale and retail being identified with or noted for some particular flavored tea. Many of the blends sold in London, although differing widely in character, are most skilfully and scientifically combined, the greatest care being taken that no tea is introduced which might act detrimentally upon any other tea in the blend. The majority of these blends are markedly distinct, almost opposite, the chief features of one being a rough, strong, but ripe Saryune Congou, that of another being an even-leafed, delicate-flavored Chingwo, the base of a third being a plain Ningchow or

fruity Oonfa, to which is added an Assam Pekoe or Sou-chong to increase its thickness and pungency as well as give tone to the mixture, together with a small quantity of low-priced Kaesow to reduce its cost. But however great the divergence in the blends, whenever knowledge and judgment have been brought to bear on the subject success has followed in its wake, and although the most of the combinations are exceedingly popular there is still ample room for the introduction of others as well as for improvements upon those that are at present in use.

14. The following is a very popular London blend, and will be duly appreciated among English residents generally: 3 pounds Kaisow Congou, 2 pounds Sou-chong, 2 pounds Assam, 1 pound Pekoe and 1 pound Foochow Oolong. The foundation of this combination as will be observed, is composed of China Congous, the Souchong enriching, the Assam giving sharpness and pungency, the Oolong softening and mellowing and the Pekoe imparting aroma and piquancy to the entire.

15. Another English blend, cheaper, and consequently not as satisfactory, is composed as follows: 6 pounds Ningchow, 6 pounds Oonfa and 5 pounds Cachar or Darjeeling Congous, 5 pounds Oolong, 1 pound Caper and 1 pound Pekoe. The Congous forming the base of this blend being lacking in strength, an extra quantity of Cachar is required to "bring them up," while the equal quantity of Oolong softens and the Scented teas give a tone to the high-toasty flavor of the India.

In Blending teas scoops or guessing should not be relied on, but scales and weights always used in measuring. If it is worth the time and trouble to test a number of teas so that the most suitable may be selected, it certainly must be worth a little more of each to weigh and arrange

the proportions in the best and most advantageous manner, and not risk the success of the combination by a rough conjecture at the various quantities composing it. The advantage of correctly weighing tea for blending is not surpassed by that of selecting it in the first place, and a blend should never, under any circumstances, have its cost reduced by the introduction of a tea coarser or rougher in leaf than that of the majority of the kinds composing the mixture. Low-priced teas when used for this purpose should be clean, plain and sweet, as a tea of more pronounced character will stamp its own impression on the other teas instead of its being lost among them, its coarse features standing out prominently, while the superior qualities of the finer grades will be, if not entirely obliterated, so marred as to be unrecognizable. Whereas, if the blend is so arranged that the most powerful tea is also the highest grade in it, the effect is that all the other teas are elevated to its level. Teas should on no account be ever blended in wet or damp weather, as they have a natural susceptibility for absorbing moisture and all surrounding odors. After blending, they should be immediately replaced in the original lead-lined package and covered, or in tightly-covered cans, to exclude the air and protect them from the weather, and then allowed to stand from a week to ten days in order to let them assimilate and unite their opposite qualities.

VARIOUS METHODS OF PREPARING FOR USE.

In China, where tea has been in use from time immemorial, and where it not only forms the regular beverage of the people but also administers to the luxury of the epicure, it is generally prepared in the cup. The tea service consists of large porcelain cups

which fit into a silver base, a smaller cup and cover, the leaves being placed in the large cup which is filled with boiling water and also covered. In about two minutes when the tea is drawn it is decanted from the large to the smaller cups, the cover being used to strain off the tea, after which it is drunk without the addition of either sugar or milk. Another shorter method is to first put a small quantity of leaves in a cup and place a perforated silver-lid on top to keep them down, *briskly* boiling water is then poured on and the cups covered with a saucer to prevent the aroma from escaping. The tea is then allowed to brew or "draw" in this manner from eight to ten minutes, after which the infusion is drunk from the original cup. By these simple processes only the more volatile and stimulating properties of the leaves are extracted the tannin or astringent principle being retained in the leaves and an immeasurably much finer beverage produced than by any other known method.

The Mandarins and wealthier Chinese prepare it in a small hollow ball made of either gold or silver, about the size of a walnut, suspended from a finger-ring by a slender chain of the same material four to five inches long. This "tea-ball" is divided in the middle, the halves being hinged and perforated with innumerable holes, but is often made like a globular sieve of gold or silver wire connected in the same manner. The halves are filled with tea-leaves and then clasped tight and suspended by the ring and chain from one of the fingers of the right hand into a porcelain cup of freshly boiling water and gently moved to and fro or up and down until the water is colored to the desired height, the strength of the infusion thus prepared depending much on the length of time the tea-ball is agitated in the cup, making it strong or weak as may be required. The Chinese

invariably make the infusion with rain or spring water heated to a high degree, the ebullition lasting only a few minutes and poured on the leaves just as soon as the bubbles appear on top of the water.

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The Japanese, to whom tea is as valuable as it is to the Chinese, first reduce the leaves to a fine powder by grinding them in a small hand-mill made for the purpose, and then mix it with hot water to the consistency of a thin pulp, in which form it is sipped, not drunk, particularly by the aristocracy and richer people, being made and served to visitors in the following manner: The tea-table, with the powdered tea enclosed in a box, is set before the company and the cups filled with boiling water as much of the powder as would cover the point of a knife put into each cup, which is then stirred and mixed with a curious denticulated instrument until the liquor foams, in which state it is served to the company, and sipped while warm. Customarily they strain the liquid before drinking, but frequently the tea and pulverized leaves are drank together in the same manner that the Turks and other Orientals use coffee.

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In Cashmere a beverage called "Cha Tulch" is prepared from tea by boiling the leaves in a tin-lined copper pot to a strong, dark decoction, and while boiling briskly *phule* (red potash), anise-seed and a little salt is added, after which it is poured into a kettle and finally served in porcelain tea-cups. It is also prepared there in a vessel termed a *Chajos*—kettle and tea-pot combined—and poured direct into the cups, but is used only after meals, more particularly after the morning repast. The morning meal, consisting of this decoction and some

plain biscuit served hot. Another preparation, known as "churned tea," made in a similar manner, but afterwards regularly churned like milk, is highly prized among them, being used exclusively for entertaining visitors. And there is no doubt that the Cashmere ladies talk scandal, vent their grievances and discuss their bonnets and their babies over this peculiar beverage in the same manner as do their more civilized sisters in America at their "five o'clock teas."

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Vumah cha or "Cream tea" is the favorite form in Turkestan in the preparation of which only Black tea is used, but is a much stronger decoction than that ordinarily made. The leaves are boiled in a copper pot and the color heightened by lifting spoonfuls up and letting them fall back again into the vessel while boiling, cream being added to it meantime and bread soaked in it, after which it is eaten. Another preparation termed Seen cha or "bitter tea" is made from Green tea infused in the regular way, but drawn for a shorter time, as the lighter the color the higher it is valued.

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The Persians boil the leaves in a pot or kettle until the water assumes a blackish color and bitter taste, after which they add fennel, anise-seed, cloves and sugar to it, while the Hindoos and Cingalese simply put the leaves in seething water and use the liquor only without the addition of any other ingredient. In Chinese-Tartary tea is prepared in the customary manner as with us, but the liquor and leaves are swallowed together. The Mongols generally add milk, but make a much stronger decoction and use only the infusion, while the Bokharis use only Black tea mixed with camel's milk or suet, breaking up their bread in it, always carrying a bag of it with

them when traveling, giving it to their innkeepers to brew as they need it.

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In Siam when the water is well boiled they pour it on the leaves which have been put in an earthen pot proportional to the quantity they intend to make, the ordinary amount being as much as they can take up with the finger and thumb to a pint of water. They cover the pot until the leaves have sunk to the bottom and then serve it up in china dishes to be drank as hot as can be endured without sugar or milk.

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A preparation called *Shamma* or "residue" is made from the spent or exhausted leaves—that is, leaves once used—in Beloochistan, and chewed like the pan or betel-leaf is in India and the coca in South America, and is claimed to have the same exhilarating effect in enabling them to stand fatigue and long journeys.

* * * *

Tea is prepared for use in Thibet by first grinding the leaves and mixing them with bullock's blood. This compound is then pressed into the form of bricks, dried by a fire-heat and wrapped in sheepskin until required for use, in which form it also serves as a currency throughout Central Asia. A kind of "bouillon" or soup is made from them by boiling in water and adding salt flour, oil, tallow or camel's milk.

* * * *

Among the Arabs tea is prepared by first placing a large kettle over a wood fire to heat and then filling it with water, the leaves being, meantime mixed with salt and thrown into the water as it heats. When it approaches the boiling point they are rapidly stewed and lifted with a large ladle until the liquid becomes dark brown,

when it is poured into another vessel, the kettle being cleaned meanwhile and a paste composed of meal and butter put in to fry in it. The tea infusion with cream added is then poured on the whole, ladled as before, after which the mass is removed and set aside to cool. In this condition it is ladled into wooden mugs and served up, the decoction thus prepared forming both meat and drink, satisfying hunger and thirst at the same time.

* * * *

Tea in Morocco is regarded as a "course meal" the tea-pot or kettle is first filled with Green tea, sugar and water in such proportion as to make a thick syrup, which is used without the addition of milk or cream, but frequently add spearment, wormwood, verbena, citron, and on great occasions ambergris. It is usually drank while seated cross-legged on soft carpets, spread on the floor around a costly tray with small feet raising it a few inches from the floor, furnished with glasses in place of cups, nothing else being taken at the meal. An infusion made of tea and tansy is also a favorite beverage with the people of Morocco which is highly aromatic and tonic in its effect, and claimed by them to be a remedy for debility.

* * * *

In Switzerland it is customary to mix cinnamon with the leaves before making the infusion, and brew both together at the same time in the usual manner. While in France and other continental countries brandy, wine, or other liquor is generally added to the beverage before drinking.

* * * *

The Russians, who are a nation of tea-drinkers, and who are close enough to the Chinese to have received some knowledge of their methods of preparing tea for

use, are very particular in using fresh-boiled water. They prepare it in the same manner as with us, sliced lemon being invariably added to the infusion before using, which wonderfully improves the flavor, making a delicious beverage. Sugar or milk are seldom added, but in cold weather a kind of liquor called "Vodki" is substituted for the lemon, the latter making it a potent drink, sending a glow all over the body. The vessels used by Russians in making tea consists of a small china tea-pot and a "Samovar" invariably, but the tea is not brewed or "drawn" in this vessel as is generally supposed, it being simply the utensil in which the water is boiled, taking the place and serving the same purpose as our tea-kettle. It is usually of brass, though often of other metal, urn-like in shape, but, unlike an ordinary urn, having an inner compartment or cylinder running through the middle, in which is placed burning charcoal for heating the water to an extreme temperature on the principle of a tubular boiler. The charcoal is not lighted until the Samovar is placed on the table, the water being drawn on to the tea as required, the tea being first put in a porcelain or earthenware tea-pot and filled from the Samovar; the first water is poured off the tea as soon as it is put on, being used merely to carry off the dust. A second water is then used for drawing the tea, sufficient to make a strong infusion, being poured on at once, after which the tea-pot is covered, an ample "cosy" being fitted over it to keep the tea warm and prevent the aroma from escaping, and is then allowed to draw from four to five minutes. Sufficient of this beverage is poured into each cup or *glass* and a slice of lemon added, as tea is drank chiefly from glasses set in metal frames in Russia, and the glass refilled with boiling water from the Samovar.

* * * *

It is strange that nothing is ever done in this country by dealers to attempt to educate or enlighten their customers how to properly prepare their tea, study the water or preserve its aromatic properties after purchasing, seeing, as they must, how little the art is understood in this country particularly. Good tea can be kept intact, like good wine, for years with considerable advantage to both dealer and consumer alike, and there is no valid reason why consumers of tea should not be as particular and fastidious as buyers of wine. But to obtain good tea in the first place the consumer should purchase only the best, it requiring much less of the finer grades to make a good infusion—purchasing only from the most reputable dealers, those who know or study to understand their business. As a nation, the American people want the best of everything, or, as they characteristically express it, “the best is good enough for them,” and they intend to have it if money can purchase it. But of what avail is the best—tea for instance—if it be not prepared properly or in such a manner as to develop and secure its more delicate, subtle, volatile, refreshing and exhilarating properties. A country that expends annually upwards of sixteen millions of dollars on this commodity alone ought to devote a little more time and trouble in studying the best methods of preparing it and in extracting its most desirable and fragrant qualities.

Tea may be made depressing and injurious, or exhilarating and wholesome, according to the manner in which it is treated and prepared for use. Many who imagine that a high, dark-colored liquor indicates strength, boil the leaves, while others, again, spoil the tea by putting the leaves into the boiling water, some people putting the leaves in cold water and then placing the vessel over the fire to boil, prolonged infusion being still another

serious mistake. All of these methods produce the same evil results—that of extracting an increased amount of the tannic acid—thereby destroying the flavor of the tea by giving it a bitter and astringent taste as well as imparting an almost ink-black color to the infusion.

The falsely economical custom of filling the tea-pot a second time without removing the exhausted leaves is another error in the making of tea, as the theine which is only soluble in fresh-boiled water, is wholly extracted in the first drawing and cannot for this reason be present in the second, the latter being merely a decoction composed chiefly of tannin. To avoid this error a sufficient quantity of tea should be made in the first drawing or fresh leaves supplied as needed. And still another reprehensible practice is that of adding fresh leaves to those that have already been used once, it being utterly impossible to add either to the strength or flavor of tea by putting more leaves in the tea-pot after the first drawing, for the reason that *tea-water* will not extract the active principle—theine—from the dry leaves of fresh tea; *only fresh boiling water will do this*. The use of tea-water simply increases the amount of tannin, darkens the color, destroys the flavor and only adds to the quantity of leaves already in the pot without in the least affecting the active principle, so that if it be necessary to increase the strength of the tea prepared, draw some fresh leaves in a separate vessel and add the liquor to that already made.

Tea being an *infusion*, not a *decoction*, it should be *brewed*, not *stewed*, the object being to extract as much of the *theine* or refreshing principle and as little of the *tannin* or astringent property as possible, without, at the same time, either boiling or overdrawing. So that in the proper preparation of tea for use, the aim and

object should be to extract as little of the *tannin* as possible and as much of the *theine* and *volatile* oil as can be conveniently extracted without permitting the infusion to boil, to obtain which most desirable result the following general rules are recommended: Put the requisite quantity of leaves in a covered china or earthenware vessel—avoid tin or metal of any kind, even silver—then pour on fresh, *briskly*-boiling water and let stand where it will keep *hot* without boiling from seven to ten minutes according to the variety of tea used. In this time, while the tea is *drawing*, only the refreshing and stimulating principles (theine and volatile) are extracted from the leaves. Boiling or prolonged infusion dissolves and brings out the astringent principle (tannin) which injures the nerves and impairs digestion, for which reason no tea that has been either boiled or overdrawn is fit to drink. When tea has been boiled or overdrawn it can be readily detected by the exceedingly dark color of the liquor, as well as by its bitter and astringent flavor.

To insure a really good “cup-of tea” the kettle must be filled with *fresh* water—if distilled the better—and boiled for about three minutes; there will be a sparkle about tea made with fresh-boiled water that it cannot receive from flat, hot water, which has been boiled long or repeatedly. For moderate strength it requires one heaping teaspoonful of good tea to each half-pint of boiling water or an ordinary tea-cup half-full to a quart of water will make a sufficiently strong infusion for five persons. No metal vessel, not even one of silver, is fit to make tea in, nothing being better adapted for the purpose than the old-fashioned tea-pot of heavy, glazed, brown earthenware, covered with a tea-cosy—a tufted cushion, cap-shaped, which envelopes the tea-pot, keeping the tea warm and the aroma from escaping, This vessel must be first

“scalded” and set on the range to dry and keep hot, after which the tea is put in and allowed to heat for a few minutes before the boiling water is poured on the leaves, and the infusion allowed to draw or “brew” from five to ten minutes according to the variety of tea under treatment.

India and Ceylon teas are usually “drawn” in five minutes, longer infusion, owing to their great excess of tannin, making them still more bitter and astringent than they naturally are under ordinary conditions. The addition of extra quantities of milk and sugar, however, greatly modifies their great strength, sharp pungency and pronounced flavor. China Green and Japan teas require from six to eight minutes to “draw” thoroughly, while China Oolongs are best at from eight to ten. China Congous yielding lower percentages of tannin than most other varieties, the time allowed should be longer than ten minutes if a full yield of their best properties should be desired. They will also be found more suitable to temperaments to which teas containing larger quantities of tannin are found injurious or objectionable. China teas in general do not require much milk or sugar, while Japans are more pleasing and palatable without the addition of either.

Everything should be clean, the water fresh and the tea drawn at a specific heat, to insure which requires a brisk fire or gas heat, and different treatment according to the season of the year. Care should be taken that the water boils, it being much better to let it boil for a few minutes than use it under the boiling point. In winter the vessel should be made hot and the leaves heated in it before the water is poured on, for about a minute, while in summer the tea-pot need not be heated or the water poured on while boiling, but should be

allowed to cease for a few seconds, more or less, according to the heat of the day. It is also a needless operation to pour a small quantity of water on the tea for a preliminary drawing, as is frequently done. Always fill the tea-pot, or pour in at once the quantity required, but for the more temperate seasons a modification of these methods may be adopted. The longest time that any tea should be allowed to steep is from five to ten minutes. As soon as it has been steeped this length of time, at the outside, it should be served. Even if it is allowed to remain on the stove a few minutes after this time it will be ruined.

The character of the water used greatly influences the liquor and flavor of the tea. Soft water should always be used when available, it being next to impossible to make good tea with hard water. Excess of lime in the water also deteriorates the infusion, the last difficulty may, however, be remedied by the judicious use of carbonate of soda, as much as would cover the face of a dime being sufficient for an ordinary drawing of tea.

Tea being an extremely delicate and sensitive article, it should be protected from all foul and foreign flavors, its susceptibility to the odors of other articles being a source of danger and deterioration, as it readily absorbs the smell of coffee, cocoa, spices, meats, fish and other commodities of pronounced flavor. Even when securely packed in the lead-lined chests in which it is received from the producing countries, the change from the glowing heat of Eastern skies to our atmosphere deprives it of much of its pleasing fragrance. For this reason the complaints so frequently made would not arise if always kept in places free from contagion or stored in a dry, warm temperature and not exposed to atmospheric influences.

BEVERAGES PREPARED FROM TEA.

Iced Tea—Put the requisite quantity of leaves in an earthen vessel and pour on briskly boiling water until the vessel is nearly full, and let it infuse or draw from two to three minutes; in no case permit it to boil, as boiling or long infusion extracts the tannin and imparts to it, even the best tea, a disagreeable, herby or astringent taste. When infusion is complete, strain the liquor out of the tea-pot into a jar, demijohn or other covered receptacle, and place it in a cool place for a few hours, or until wanted, then serve in a cup or goblet, adding some cracked ice and a slice or two of lemon. A fine grade of Chinese Congou or Souchong is best adapted for this purpose. Choice Oolong is also good, but Japan tea should never be used, as it is not pleasing when iced to a well-regulated palate. Fine Imperials and Young Hysons are also excellent for those whose nerves can stand Green tea, the first two, however, are best of all, having an especially agreeable flavor when iced. Plenty of ice is needed, which should be *cracked*, not *crushed*, and the lemon cut in quarters, the juice being squeezed out and the pulp scraped into the tea. The rind should never be used, as the oil contained in it imparts to the beverage a bitterish taste; use neither milk or sugar unless you are compelled to from habit. It is the bitter flavors of the tea and lemon together that is required to allay the parched feeling of the palate and throat.

Extract of Tea—In hot weather an infusion of tea-leaves made in cold water is much superior to that made in hot or boiling, for the reason that the aroma will not be dissipated. An extract made in this manner may be bottled, and if placed in a moderate temperature will keep for any reasonable time until required for use. When serving, fill the glass with cracked ice, put some sugar

on top of it, add a slice or two of lemon and then pour on the extract thus made; the result will be a nectar fit for the gods.

Essence of Tea—Is produced from the leaves by distillation in the form of a dark-colored fluid, of which one or two spoonfuls added to boiling water will make an excellent cup of tea in a very short time. When prepared in a tea-pot, the water should be put in first and the requisite quantity of essence added afterwards; the flavor will be pronounced, coming out remarkably well in the liquor. This essence, when pure and properly made, will keep for any length of time in any climate on land or sea.

New Beverages—An effervescent wine may be produced from tea by forcing carbonic acid gas into the plain liquor as ordinarily prepared, and another beverage is produced by the introduction of an effervescing wine to the liquor only. While a pleasing drink is also prepared by treating the ordinary infusion with a little yeast and sugar, a tea-wine being produced from it differing in color and flavor according to the proportions in which the constituents are combined. Still another being evolved from this by the addition of a little alcohol to the compound. A drink called Rohrer or "tea spirit" is again produced by adding either whisky or brandy to the plain infusion when fresh made.

Paraguayan Tea—Is prepared in a filter or perforated bowl, known as a Maté, heated with warm water. A thin layer of sugar is first put in and a layer of leaves laid on top, another layer of sugar being added, the leaves being sandwiched between. The vessel is next filled with boiling water, which is allowed to percolate through the leaves and sugar. Before serving it is again sweetened with sugar until it becomes almost syrupy in

substance, and frequently flavored with cinnamon, orange or lemon juice. Goat's milk is often used instead of water, when thus prepared the infusion becomes ambrosial, approaching to that of "Chocolate Italienne" or nectar in flavor, becoming still more palatable when cold, but if allowed to stand too long exposed to the influence of the atmosphere it gets muddy and sours quickly.

CHAPTER VIII.

CHEMICAL, MEDICAL AND DIETICAL PROPERTIES.

TEA in chemistry is a complex mixture of a variety of substances, including *Theine*, *Tannin*, *Dextrine*, *Glucose*, *Gum* and an essential oil known as *Volatile*, which, together with a portion of the ash, pass into the solution when tea is infused. Being a leaf it also contains some woody fibre, the quantity of which as determined by Mulder, ranges from 17.1 in Green to 28.3 per cent. in Black teas. According to Peligot, whose admirable investigation of tea ranks as a chemical classic, it also contains a large quantity of legumen, a nitrogenous substance, sometimes termed vegetable *Caseine*, the percentage of which, as given by Peligot, is about 15 per cent. in tea in its usual commercial state. The woody fibre, legumen, some tannin *coloring-matter* and a certain quantity of the ash make up mainly the portion of the leaf which is not soluble in boiling water. In its commercial state tea is not subject to much irregularity in a hygrometric condition, there being only about 8 per cent. of moisture in it, which may fall to 6 or rise to 10 per cent. from outside causes.

Tea has been analyzed by many other chemists, but owing to a difference in the variety, character, quality, age, color and methods of preparation of the specimens

submitted, the results have been as varied. The average composition in parts range as follows:—

Chemical Constituents.	Quantities.
Theine,	3
Tannin,	25
Volatile Oil,	1
Albuminoids,	15
Mineral Matter,	6
Gum and Glucose,	21
Vegetable Fibre,	20
Fatty Substances,	4
Water of Absorption,	5
	—
Total,	100

Theine—Is the alkaloid of tea and is the substance to which it owes its refreshing and stimulating properties. It is a crystallizable matter, soluble in water, very bitter to the taste and characteristic alike of both tea and coffee, being to these beverages what quinine is to bark, and with the base of cocoa which has recently received the name of “theobromine,” it is also closely related. It is further remarkable as occurring in many other plants dissimilar in structure and character, grown in remote countries, but yet selected by the inhabitants on account of their yielding a slightly exciting and refreshing beverage, and to the presence of which the peculiar physiological action of tea on the animal economy is attributed. It was first discovered under the name of *Caffeine* by Runge, who originally found it in Coffee, and later by Oudry, who extracted an identical substance from tea, to which he gave the name of *Theine*. Strickler subsequently produced it from cocoa, naming it *Theobromine*. These bodies are evidently related to uric acid as like it, when exposed to the action of nitric acid and ammonia they yield a purple coloring matter, technically termed *murioxide*.

Theine is a substance which crystallizes very beautifully, forming white, silk-like crystals containing an atom of water of crystallization, the specific gravity of which is 1.23 at 1°C., and the 9 water of crystallization is not altogether evaporated by a temperature of 150°. As deposited from aqueous solutions it still contains an atom of water, but as deposited from solutions in alcohol or ether, or when sublimed it is anhydrous. It is much more soluble in hot than cold water or in alcohol or ether, and according to Peligot, one part of theine dissolves in 300 parts ether or in 93 parts water at ordinary temperatures. It is a base of the same class as aniline and urea, that is to say, it will combine with acids yielding crystalline compounds, but never neutralizing an acid. With chloride of platinum, chloride of gold and corrosive sublimate, the hydrochlorate of theine enters into combination, forming a double salt with each. As will be manifest from its formula— $C^8-H_{10}-N_4 O_2$ —theine is one of the most highly nitrogenous substances known to chemists, and connected with this high percentage of nitrogen (almost double that formed in any other albuminous substance) is its property of yielding an abundance of cyanides when fused with soda lime, which property distinguishes it from a number of organic bases, such as piperine, morphine, quinine and cinchonine. With the base of cocoa—which has received the name of theobromine—theine is also closely related, being nothing more than methylated theobromine. Strecker having produced it from theobromine by acting upon a silver derivative with iodide of methyl, in a sealed tube heated at 100°. Theine exists in tea, not in the free state, but in the form of tannate of tea, which appears to be dissolved by the excess of tannic acid contained by the tea leaf, and so it

happens that the theine makes its appearance in the infusion instead of remaining in the exhausted leaves. The proportion of theine in tea has been variously given by different chemists. Mulder finding 0.43 per cent. in Green tea and 0.46 in Black, while Stenhouse found 1.05 and 1.27 in Green and Black respectively. Peligot found 2.34 and 3.0, and Zoller, whose research is comparatively recent, found 3.94 per cent. of theine in India tea. But it would be a mistake to regard these varying results as showing that the quantity of theine in tea is variable, as they serve only to illustrate the difficulties which stand in the way of a quantitative extraction of the theine, and the imperfection of the earlier methods. In Peligot's paper, these difficulties are referred to, and by making an attempt to extract the theine from a sample of tea the chemist acquires a sense of the truth of them. The experiments of the latter, however, being of great interest to chemists merits a somewhat detailed description. He began by determining the total amount of nitrogen contained in the dried leaves of different kinds of China tea at 110° , finding 6.15 per cent. in 100 parts of Oolong, 6.58 in Congou, and 6.30 in Green tea, while from one sample of India he extracted only 5.10 per cent., proportions six times greater than had been heretofore obtained by any previous analysis. Next testing every soluble substance for nitrogenous matter, he proceeded by successive eliminations to ascertain the quantity of theine in 27 other different samples and found that Green teas contained on an average 10 per cent. of water, and Black only 8 per cent., and also that the latter contained about 43.2 of matter soluble in boiling water while the former averaged as high as 47.1, and that this soluble matter yielded only 4.35 of nitrogen in Black teas, and 4.70 per cent. in Green. It remaining to be determined

whether this large percentage of nitrogen was wholly due to the theine or in part to some other principle, he next found that the precipitate with sub-acetate of lead contained no apparent quantity, and then testing the theine by a modification of Mulder's process obtained from Green tea an average of 2.48 per cent., and from a mixture of Green and Black 2.70. But greatly as these quantities exceed those of all other chemists, they were still unable to account for the whole amount of nitrogen found in the infusion, so by adding mere acetate of lead and ammonia, separating them by filtration, and passing through it a current of sulphuretted hydrogen to precipitate the lead, and evaporating the liquid with a gentle heat he obtained an abundant supply of crystals of theine. This supply he still further increased by re-evaporation until the whole amounted to 3.48 per cent. of the entire. There still remaining a syrup containing some theine it was precipitated with tannic acid, the result being added to that already crystallized it yielded a total of 5.84 from Green tea in the natural state and 6.21 in the dried leaf. These experiments being further continued by boiling the exhausted leaves with potash, it showed a presence of caseine to the extent of 28 per cent. of the mass, the proportion of the latter substance in the raw leaf being only 14 to 15.

Theine is extracted from tea by boiling a quantity of the leaves in a considerably larger quantity of distilled water and the liquor squeezed out of the leaves which are to be boiled with a fresh quantity of water and again subjected to pressure, the process being repeated a third time. The several portions of the infusion expressed from the leaves are put in the same vessel, mixed together thoroughly and treated with an excess of acetate of lead and ammonia, which precipitates the tannin and coloring

matter. The liquor is next filtered and the filtrate evaporated down to a small bulk, first over a naked flame and afterwards in a water bath, and on being allowed to cool the solution will deposit crude theine which is removed by filtration, and the filtration nearly dried up in the water bath, and the residue boiled with alcohol, which dissolves the theine out of it. From this hot alcoholic solution theine crystallizes on cooling, a final purification being effected by crystallization from ether and decolorizing with animal charcoal. A simpler but less effective method is to place the dust of finely powdered tea-leaves, or an evaporated watery extract on a watch glass and cover it with a paper cone and hold it over a spirit lamp or gas jet the vapor arising from the glass condenses on the interior of the cone and forms small crystals of theine. Concentrated sulphuric acid dissolves theine in the cold without the production of color, but if the alkaloid be treated with nitric acid evaporated to dryness, and the reddish-yellow residue moistened with a little ammonia it turns a splendid purple color. Again, if a solution of theine be evaporated with chlorine on a watch glass a reddish-brown residue is obtained, which if again treated with the vapor of ammonia it becomes a deep violet of which the chief precipitants will be phosphoric acid, iodine and platinum, forming a yellow and brown precipitate respectively.

Theine having no odor and only a slightly bitter taste it obviously has very little to do with the flavor of tea. It is, however, considered a very valuable constituent on account of the large percentage of nitrogen which it contains and to which is attributed the peculiar physiological action of tea on the animal economy, but what changes it undergoes in the human system has not yet been determined. When oxydized artificially it

decomposes into methleamic (hydrocyanic acid) a nitrogenous compound closely allied to caseine or gluten, and as hot water extracts but very little of this substance a large amount of it is wasted in the ordinary infusion, which might otherwise be saved by the addition of a little carbonate of soda to the water in preparing it.

Tannin.—A large portion of the Tea-extract consists of tannin (tannic acid of a peculiar kind), there being much more in Green teas than in Black, ranging from 13 to 20 per cent. in the former, and 8 to 12 per cent. in the latter, but averaging 12 and 9.50 per cent. respectively, the difference being due to the fact that part of the tannin originally existing in the raw-leaf is destroyed during the process of fermentation to which Black teas are subjected in manipulation. It is a powerful astringent principle, puckering up the mouth when chewed, and to which tea owes its bitterness when overdrawn or boiled, constipating effect on the bowels, and the inky-black color which it imparts to water containing salts-of-iron. But whether it contributes in any degree to the exhilarating, satisfying or narcotic action of the tea has not yet been determined. Johnston thinks it probable that it does exert some such effect from the fact that a species of tannin is found in the Betel-nut, which when chewed produces a mild form of intoxication, but as to whether this property assists or retards digestion is still an unsettled question, the old maxim, "what is one man's meat is another man's poison," being particularly true of this substance. Many persons finding that the use of tea while eating, or immediately after eating, has a soothing effect on their system, while the same persons after drinking coffee, under like circumstances, get nervous, and cannot digest their food properly. As there is no tannin in coffee, it stands to

reason that the substance must have some influence on the digestive organs.

For the estimation of tannin in tea various processes are in use, a titration by means of a standard solution of gelatine, which depends upon the well-known property possessed by gelatine of forming insoluble compounds with tannin being the most effective, but tedious and difficult. A much more simple and promising method consists in titrating by means of a standard solution of lead, the point of saturation being indicated by the red color struck by an ammoniacal solution of ferricyanide of potassium, one drop of this solution being capable of coloring one milligram of tannin dissolved in 100 parts of water, the exact strength of the solution of lead being ascertained with a standard solution of tannin. In using the solution of lead, 10 drops of it are first diluted with 9 times its volume in water, and the tea infusion dropped into it from a graduated burette until the indicator strikes a red with the drop of the indicator. The infusion of tea is made by boiling 2 grains of the leaves in water and afterwards diluting it to 250, it being understood that the smaller the quantity of this infusion required to saturate the 10 parts of the lead solution, the higher the percentage of tannin in the sample of tea treated. This test is specially applicable for ascertaining whether Black tea in particular has been mixed with spent leaves. By taking the normal percentage of tannin in pure Black tea at 10 and the percentage of tannin in spent tea as 2, the difference is the extent of adulteration.

There is a great variability in the amount of tannin contained in the different varieties of tea, varying in quantity according to the country of production, kind, quality, and state of growth when picked. In six samples of China Oolong teas recently tested, the percentage

of tannin extracted, after an infusion of thirty minutes, averaged only 7.44, an almost similar result being obtained from an examination of the finest Congou-China Green teas, ranging from 11.87 to 14.11 per cent., some Japan samples under the same conditions yielding on an average from 8 to 10. While with a sample of the finest Assam (India) a percentage of 17.73 of tannin by actual weight was extracted after an infusion of only fifteen minutes, two samples of India and Ceylon giving respectively 18.91 and 15.26, proving conclusively that India and Ceylon teas are much more heavily weighted with tannin than China and Japan teas. The percentage of tannin in the extract is also quite irregular, according to the quality of the tea, the ratio of tannin to the extract varying quite uniformly with the value of the tea, the percentage falling and rising with the percentage of the extract and cost of the tea.

Volatile Oil—Is the principle which imparts to tea its peculiar flavor and aroma, and upon the amount contained in the dried leaves depends the strength and pungency of the infusion. It is present only in very small quantities, but is, nevertheless, very potent in its effects, the proportions ranging, according to Mulder, from 0.6 per cent. in Black tea to 0.80 in Green, but averaging 0.75 in all good teas. It is found by distilling the tea with water, is lighter in body than water, citron-yellow in color, resinifying on exposure, solidifying with cold, and exerting a powerfully exciting or stimulating effect on the system. But there being no chemical analysis of this constituent extant, its exact effect on the human system is difficult to define. By some authorities it is claimed to produce wakefulness, acting, it is said, in the same manner as *digitalis* (fox-glove) which, when taken in overdoses, causes anxiety and inability to sleep. It is a well-known

fact that Green teas produce these effects, while Black does not, the excessive fermentation to which the latter are subjected in the process of curing, dissipating the volatile oil to a greater extent, or, more properly, altering its general character not only in effect but also in flavor.

Gum or Gluten—If it is necessary to estimate the quantity of gum or gluten in tea, as sometimes happens, evaporate an aqueous decoction of the leaves to an extract, and treat the residue with methylated spirit, filter and wash off with hot water, after which evaporate the solution to dryness, next weighing and burning it to an ash and deduct the mineral residue from the original weight of the leaves. Tea extract also yields a large quantity of ammonia when boiled with potash, and it is probable that this character may prove valuable also in testing the genuineness of tea. Tea leaves under an extraordinary amount of ammonia, when submitted to this test, are found to be remarkably rich in nitrogen, the determination of which is also a means of identification. It may also be here remarked that when tea-leaves have been exhausted by infusion, alcohol is still capable of extracting a considerable amount of soluble matter. This alcohol extract, when infused in boiling water, furnishes a liquor which smells and tastes strongly of tea, which, were it not for the expense of the solvent and trouble attending its separation, could no doubt be profitably employed. A fixed oil composed of equal parts of oleine and stearine, serving many purposes, medicinal, illuminating and others, is extracted from the seeds of the tea-plant in many parts of China and Tartary. The other substances extracted from the tea-leaf consists principally of those which, in various proportions, enter into the composition of all plants and include a modification of constituents analagous to sugar, fat, salts, starch and water.

The fibre, tannin, legumen coloring matter and a certain quantity of ash making up mainly the portion of the leaf insoluble in boiling water.

MEDICINAL EFFECTS.

The virtues of tea as a medicine have been extolled from the time of its earliest use as a beverage in China. Chin-nung, a celebrated scholar and philosopher, who existed long before Confucius, and to whom its first discovery is attributed, is claimed to have said of it: "Tea is better than wine, for it leadeth not to intoxication; it is better than water, for it doth not carry disease, neither doth it act as a poison when the wells contain foul and rotten matter;" and Lo-yu, another learned Chinese who lived during the dynasty of Tang, declared that "Tea tempers the spirits, harmonizes the mind, dispels lassitude, relieves fatigue, awakens thought, prevents drowsiness, refreshes the body and clears the perceptive faculties," while the Emperor Kieu-lung advised all his subjects to "Drink this precious liquor at their ease, as it will chase away the five causes of sorrow. You can taste and feel, but not describe the calm state of repose produced by it." Again, Ten Rhyne, a botanist and chemist to the Emperor of Japan, in a work published about 1730, states that "Tea purifies the blood, drives away frightful dreams, dispels malignant vapors from the brain, mitigates dizziness, dries up rheum in the eyes, corrects humors, regulates the liver, modifies the spleen, restrains sleep, restricts drowsiness, expels lassitude, is good in dropsy, makes the body lively, cheers the heart and drives away fear." But of its sanitary effects after its first introduction into Europe there was for a long period much consternation existing, being preposterously praised by

some writers as an incentive to virtue, and as unjustly condemned by others as productive of numerous diseases, more particularly that of causing an increase of nervous complaints, which it would perhaps be more just to attribute to the more complicated state of modern social customs arising from an augmented population and advance in luxurious living, in connection with the more frequent infringement of the natural laws, especially that of turning night into day, and not seldom day into night, as is the too common practice of the votaries of fashion, together with the abuse of stimulants, tobacco and other narcotics.

Its assailants, however, were not very distinguished, but have been quite emphatic in their condemnation. Jonas Hanway, a man whose follies may well be pardoned for his virtues, being, perhaps, the most conspicuous of them. "He looked abroad upon the world, and perceiving that many things went wrong with it, and others no longer presented the same attractive appearance, he remembered them to have had in his youth, he laid to the charge of tea all the evils and disenchantments that oppressed his spirits." "Men," he says, "seem to have lost their stature and comeliness and women their beauty, and what Shakespeare had asserted to the concealment of love in this age is more frequently occasioned by the use of tea." The champions of our "wholesome sage," who contended that "it was far superior to the boasted Indian shrub," were but a few of the host who attacked tea as "an innovation pregnant with danger to the health and good morals of the people." Others, again, although resolute for its banishment from the tea-caddy, were yet willing to accord it a place in the medicine chest. To such complaints echoes were not wanting, the tea-drinkers, in a short time, having it all their own way.

Lettsen was the first medical writer who attempted to give the public a reasonable and scientific account of tea, but even his fears of its abuse ran away with his judgment. The poet who commends "the cup that cheers, but not inebriates," must have been startled if Lettsen's pamphlet ever fell into his hands, at the assertion "that the growth of this pernicious custom (drunkenness) is often owing to the weakness and debility of the system brought on by the daily habit of drinking tea," and that "the trembling hand seeks relief in some cordial in order to refresh and excite again the enfeebled system, whereby such persons fall into the habit of intemperance." Here assuredly the exception must have been taken for the rule, that tea may be so abused as to create a craving for alcoholic stimulants is unquestionable, but that at any period of its history its abuse has been so general as to become the main cause of intoxication may be safely denied. On the contrary, it was for a long time looked upon as the great means by which intemperance was to have been banished from society. Again, if there be any truth in this charge, why is it that the Chinese and Japanese, who are the greatest and most inveterate tea-consumers in the world for centuries, using it in season and out, are yet the most temperate? It is, however, admitted that the tremblings and other nervous effects produced by tea on brokers and professional testers, liquor is too frequently resorted to as an offset, and that by the practice of some tea drinkers of the absurd and dangerous Russian and English customs of adding vodki, gin or other alcoholic stimulant to the "cup of tea," a habit is oftentimes acquired which can never afterwards be relinquished. Neither is it true, as alleged by Lettsen, that the use of tea has been the cause of the increase of nervous and kindred complaints in colleges

and seminaries. Still, his advice is sound when he states that "tea ought by no means to be the common drink of boarding schools, and when allowed, in moderation, the pupils should at the same time be informed that the constant or too frequent use of tea would be injurious to their health and constitutions. As whatever tends to impair the nerve power and ultimately the digestive organs, in strumous children particularly, should be by all means avoided." But if a diminution of the number of inflammatory diseases be one of the consequences of the increased consumption of tea, which is now generally conceded, it is very much in favor of its use, as however distracting nervous diseases may be, they are by no means so fatal as those of an inflammatory nature, more particularly as the former can be almost immediately remedied by relinquishing the use of tea or by simply omitting it from the breakfast for a time, at which meal it is certainly less proper to be used.

The medicinal uses of tea, however, are not many, neither does its chemical analysis shed much light on its action on the human economy, a correct estimate of its particular action thereon having so far not been ascertained. So that before attempting any such estimate it will be necessary to consider that many of its attributed ill-effects may be due as much to the spurious leaves of other plants so frequently mixed with genuine tea-leaves for adulteration purposes, as well as to the deleterious compounds so often used in coloring, for the results of which pure tea is held responsible. The most dispassionate inquirers, however, regard it as a narcotic, the stimulating period of which is most conspicuous and of the longest duration, the active ingredient, theine, being an alkaloid identical with the caffeine of coffee,

the medical action of the tea infusion upon the system is the result of the several effects of this alkaloid formed by combination of the theine, tannin, volatile oil, and the hot water. Of these elements theine probably plays the most important part, and like all other potent alkaloids theine is a powerful modifier of the nerve functions, increasing the action of the skin and cooling the body by lessening the force of the circulation, but does not cause any congestion of the mucuous membrane, particularly in that of the bowels. In answer to the question whether *theine* produces nervousness and wakefulness, reliable authorities answer: No! But that, on the contrary, the effect of theine upon the human system is a calming and soothing one, producing a sense of repose and supplying to the body that which is lost by fatigue.

The experiments made with tea on a number of animals for the purpose of ascertaining its effects on the nervous and muscular apparatus give varying results, the most important being that of lessening the amount of nitrogenous excreta, notably that of the urine, which means to diminish the rate at which nitrogenous substances are oxydized within the body, such action being probably due to the volatile oil, as Lehman found the same oil in roasted coffee to produce the same action in his experiments. There being a substance in the flesh or muscles of all animals known as *kreatine*, the chemical properties of which are analogous to those of *theine*, and it is now generally accepted that these substances are most agreeable to the human system as food which most nearly resemble the compound that form the tissues and muscles of the body, while those act as poison whose composition is most different from that of the tissues and muscles on which the life of the body depends. Scientists who have made this subject a

special study, inform us that the substance known as kreatine is diminished by overwork and fatigue, and that, therefore, as *theine* and *kreatine* are chemically about one and the same property, the theory is accepted that the theine in tea supplies best that which is lost to the system by the wear and tear of life, the property termed *caffeine* in coffee being identical with both, serving the same purpose. While Liebig suggests that theine contributes to the formation of *taurine*, a compound peculiar to bile, and Lehman found that its administration is followed by a slight augmentation of urea. It has also been proven that *theine* and *quinine* are similar in nature, and that on analysis these substances are shown to contain the same proportions of carbon, nitrogen, oxygen and hydrogen, and, as is well known, quinine is about the only remedy used in intermittent and malarial fevers and ague. These facts being settled beyond dispute, it can be readily understood why it is that tea is so soothing and beneficial to those who may feel feverish, tired or debilitated. And while it is not claimed that tea alone will cure fever and ague, it certainly acts as a preventative.

In the early stages of fever it is found very valuable when given in the form of a cold infusion, it being not only considered an excellent diluent at the commencement, but also when administered in the form of "a tincture," prepared by macerating the leaves in proof spirit and adding a teaspoonful of the mixture to a small cup of water. This preparation is given to the patient at short intervals during the night, after the acute symptoms have subsided, and is often of great benefit during the latter stages. For this purpose, in hospitals and other institutions, the leaves which have been used once for the regular infusion, may be macerated in alcohol and

a tincture of sufficient strength obtained at a cheap and economical rate. In a peculiar state of the brain, termed "sthenic excitement," a condition clearly bordering on inflammation, more especially when produced by alcoholic stimulants, intense study or long-continued application of the mind to any particular subject or literary research, an infusion made from Green tea will quickly act as a salutary remedy. While, on the contrary, in periods of diminished excitement, a morbid vigilance and increased nervous disturbance is certain to follow its use, much better results being produced by small quantities repeated than by large ones in such cases.

In cases of poisoning by arsenic and antimony, fatal results have been prevented by the prompt administration of a strong infusion of tea, its power as an antidote in such cases depending on the tannin decomposing the poisonous substances. While it is nearly as valuable an antidote to poisoning by opium as coffee, it is, however, only useful in combatting the secondary symptoms, and should never be administered in such cases until the stomach pump or other means have removed the opium from the stomach. In some forms of heart disease, tea proves a useful sedative, while in others it is positively injurious. Many cases of severe nervous headache are instantly relieved by a cup of strong Green tea taken without the addition of either milk or sugar, but should be only occasionally resorted to in such cases, it being much better to avoid the cause.

The almost total absence of gouty and calculous diseases in China and Japan is claimed to be attributable to the constant and inveterate use of tea by the inhabitants of these countries, in confirmation of which Prout says: "Persons of a gouty or rheumatic nature, and, more

especially, those prone to calculous diseases, will find tea the least objectionable article of common drink, but should use it without the addition of sugar and only very little milk. When the water is hard, the addition of a small quantity of carbonate of soda will improve the flavor of the tea at the same time, rendering it a more proper beverage for persons so affected, but should not be taken by them for at least four hours after any solid meal, the addition of the alkali serving to increase the action of the skin as well as to augment its cooling and refreshing properties in the fullest degree."

Dr. Smith alleges that "tea promotes all vital actions, the action of the skin particularly being increased and that of the bowels lessened, the kidney secretions are also affected, and the urine, perhaps, somewhat diminished, the latter being uncertain." Other recent authorities agreeing that the direct effect of tea upon the human system is to increase the assimilation of food, both of the heat-giving and flesh-forming kinds, and that with an abundance of food it promotes nutrition, while in the absence of sufficient food it increases the waste of the tissues and body generally. An infusion of cold tea has been known to check violent retching and vomiting, while a very hot one will prove beneficial in severe attacks of colic and diarrhoea, having a specific action on the kidneys and urine. An application of infused tea leaves will subdue inflammation of the eyes produced by cold or other causes, but should be applied only and allowed to remain over night; and people who travel much will find a supply of tea a valuable accompaniment, as it is found to improve the taste and counteract the effects of the most brackish water, proving efficient also in preventing the dysenteric and diarrhetic results produced by the frequent and extreme changes of drinking

waters. It is for the purpose of qualifying the water expressly that tea is so generally used in China, as very little good drinking water is to be met with in any part of that country.

With brain-workers it has always been a favorite beverage, the subdued irascibility, the refreshed spirits, and the renewed energies which the student so often owes to it, have been the theme of many an accomplished pen. Yet it is impossible to speak too strongly against the not uncommon habit frequently adopted by ardent students when prosecuting their studies far into the night, to resist the claims of nature for repose, and keep off the natural sleepiness by repeated libations of tea. That it answers the purpose for the time being cannot be denied, but the object is often attained at a fearful price, the persistent adoption of such a practice being certain to lead to the utter destruction of the health and vigor of both body and mind. Less injury in such cases will result from the use of coffee, there being this difference between the morbid states of the nervous system produced by coffee and that resulting from tea. The effect of the former generally subsides or disappears entirely on relinquishing its use, while that caused by tea is more permanent and often incapable of being ever eradicated.

That tea does not suit all temperaments, constitutions and all ages is no valid argument against its general use. That it is less adapted to children than adults is admitted; indeed, for very young children it is entirely improper, producing in them, like all narcotics, a morbid state of the brain and nervous system in general. It is also unsuited to those of an irritable temperament as well as for those of a leuco-phlegmatic constitution, such persons illy bearing much liquid of any kind, particularly in the evening, prospering best on a dry diet at all times, and

to which young children especially should be strictly confined. Briefly it may be summed up that tea is best suited to persons in health, the plethoric and sanguine, and upon which principle it is the proper diet at the beginning of fevers and all inflammatory complaints. Besides the more obvious effects with which all who use it are familiar, tea saves food by lessening the waste of the body, thus nourishing the muscular system while it excites the nervous to increased activity, for which reason old and infirm persons derive more benefit and personal comfort from its use than from any corresponding beverage. To the question "does tea produce nervousness?" the answer is "in moderation, emphatically No!" One to two cups of tea prepared moderately strong, even when taken two to three times per day will not make any one nervous, but when drunk to excess it undoubtedly will. Tea-testers and experts who are tasting it all the time, day in and day out, for the purpose of valuing it, are frequently made nervous by it, soon recover by a little abstinence. Tea, like liquor and drugs, when taken in moderate quantities, produce one effect, but when used in large and immoderate quantities produce just the contrary result. China and Japan teas, containing more theine and less tannin, are consequently less hurtful and more refreshing than India and Ceylon teas, which contain nearly double the quantity of tannin, the astringent property to which India and Ceylon teas owe the harsh, bitter taste so often complained of in them, and which is undoubtedly the unsuspected cause of the indigestion and nervousness produced by their use.

DIETICAL PROPERTIES.

That the universal employment of tea has displaced many other kinds of food is certain, and regarding its dietical properties much has been written for and against.

While some physicians have praised its value as an article of food, on account of the large proportion of nitrogen which it contains, others have as strenuously maintained that it is non-nutritious, and does not serve as a substitute for food, and that the only beneficial properties it contains are due to the milk and sugar added in its use. So that in considering the nourishing effects of tea, the nutriment contained in the milk and sugar certainly must not be overlooked, neither must the powerful influence of the heat of the steaming draught be forgotten. According to the chemical classification of food, the "flesh formers" contained in tea of average quality is about 18, and the "heat givers" 72 per cent., water and "mineral matter" being divided between the residue, the several constituents as they are found in one pound of good tea being as follows:—

FLESH FORMERS.

Constituents.	Quantities in one pound of good Tea.	
	oz.	grs.
Theine,	0.	210
Caseine,	2.	175
Volatile Oil,	0.	52
Fat,	0.	280
Gum,	2.	385

HEAT GIVERS.

Sugar,	0.	211
Fibre,	3.	87
Tannin,	4.	87
Water,	0.	350
Mineral,	0.	350
Total,	15 oz.	267 grs.

The use of *theine* as an article of diet has not so far been satisfactorily determined; but that it is a question of no mean interest is obvious when we consider that it is found to exist in so many plants, differing widely in

their botanical origin and yet all instinctively used for the same purpose, by remotely situated nations, for the production of useful, agreeable and refreshing beverages.

By taking the normal temperature of the human body at 98° , it follows that where food is taken into the stomach of a lower temperature than that of the body it must necessarily abstract heat from the stomach and surrounding tissues, so that where the practice of taking cold food becomes habitual depression occurs and the stomach is consequently disordered, and the system must make good this heat lost in raising the temperature of cold food or else suffer. The body demanding food when in an exhausted state, cold food or drink makes an immediate drain upon the system for heat before it can supply material for producing combustion, and the body is thereby taxed to supply heat at a time when it is least fitted for it. It is natural, therefore, that there should be a craving for warm food, and as liquid food is deficient in heat-giving matter, the use of cold drink is more injurious than that of cold food. From other experiments it appears that the introduction into the stomach of three or four grains of *theine*, which is the quantity contained in the third of an ounce of good tea, has the remarkable effect of diminishing the daily waste or disintegration of the bodily tissues which may be measured by the quantity of solid constituents contained in the many secretions, and if such waste be lessened the necessity for food to repair that waste will obviously be decreased in corresponding proportions. In other words, says Professor Johnstone, "by the consumption of a certain quantity of tea daily the health and strength of the body will be maintained to an equal degree upon a smaller supply of ordinary food." Tea, therefore, saves food; stands to a certain extent in place of food, while at the same time it soothes the body and

enlivens the mind. While tea, according to Dr. Sigmond, "has in most instances been substituted for spirituous liquors, and the consequence has been a general improvement in the health and morals of the people, the time, strength, and vigor of the human body being increased by its use. It imparts greater capability of enduring fatigue, and renders the mind more susceptible of the innocent and intellectual pleasures of life, as well as of acquiring useful knowledge more readily, being not only a stimulant to the mental faculties but also the most beneficial drink to those engaged in any laborious or fatiguing work. Dr. Jackson testifying "that a breakfast of tea and bread alone is much more strengthening than one of beefsteak and porter."

In his admirable work on hygiene Dr. Parker remarks that "tea possesses a decidedly stimulating and restorative action on the human system, no depression whatever following its use, the pulse being a little quickened, and the amount of pulmonary carbonic acid accordingly increased." From this experiment he regards "tea as a most useful article of diet for soldiers, the hot infusion being potent against heat and cold, and more useful still in great fatigue in tropical countries by its great purifying effect on brackish and stagnant water." Adding that "tea is so light, easily carried and so readily prepared, that it should form the drink, *par excellence*, of the soldier in service or on the march, above all its power of lessening the susceptibility to malarial and other influences." And Admiral Inglefield is quoted as strongly recommending the use of tea to Arctic travelers and explorers, as seamen who surveyed with him in the polar regions after an experience of one day's rum drinking came to the conclusion that tea was more beneficial to them while undergoing the severe work and intense cold. Under the

infirmities of advancing age, especially when the digestive powers become enfeebled and the size and weight of the body begin perceptibly to diminish, the value of tea in checking the rapid waste of tissue is particularly observable, and persons, when very much fatigued, will be sooner refreshed by drinking a cup of moderately strong, good tea, than by drinking wine or spirits of any kind. In allaying or satisfying severe thirst, no beverage will be found as efficacious as a draught of cold tea.

Lettson furnishes a calculation, partly his own and partly from other sources, in which he endeavors to prove how much is, in his view, unnecessarily expended by the poor for tea. But the observations of Liebig, if correct, and in all probability they are, offer a satisfactory explanation of the cause of the partiality of the poorer classes, not alone for tea, but for tea of an expensive and therefore superior quality. "We shall never certainly," he says, "be able to discover how people were led to the use of hot infusions of the leaves of a certain shrub (tea) or a decoction of certain roasted seeds (coffee); some cause there must be which would explain how the practice has become a necessary of life to whole nations." But it is still more remarkable that the beneficial effects of both plants on the health must be ascribed to one and the same substance, the presence of which in two vegetables belonging to natural families, the product of different quarters of the globe, could hardly have presented itself to the boldest imagination, recent research having shown in such a manner as to exclude all doubt that the *caffeine* of coffee and the *theine* of tea are in all respects identical. And without entering into the medical action of this principle, it will surely appear a most startling fact, even if we deny its influence on the process of secretion, that this substance, with the addition of oxygen

and the elements of water, can yield *taurine*, the nitrogenous compound peculiar to bile. So that if an infusion of tea contain no more than 1-10 of a grain of theine, and contributes, as has been shown, to the formation of bile, the action, even of a such a small quantity, cannot be looked upon as a nullity. Neither can it be deemed that in the case of non-atomized food or a deficiency of the exercise required to cause a change of matter in the tissues, and thus to yield the nitrogenized product which enters into the composition of bile, the health may be benefited by the use of compounds essential to the production of this important element of respiration. In a chemical sense, and it is this sense alone that theine is in virtue of its composition better adapted to this purpose than all other nitrogenized vegetable principles yet discovered. To better prove how the action of tea may be explained, we must call to mind that the chief constituents of the bile contain only 3.8 per cent. of nitrogen, of which only one-half belongs to the *taurine*. Bile contains in its natural state water and solid matter in the proportion of 90 parts of the former to 10 parts of the latter, and if, we suppose, these 10 parts of solid matter to be cholonic acid with 5.87 per cent. of nitrogen, then 100 parts of bile must contain 0.171 of nitrogen in the form of taurine, which quantity is contained in .06 parts of theine, or, in other words, 272 grains of theine can give to an ounce of bile the quantity of nitrogen it contains in the form of taurine. The action of the compound in ordinary circumstances is not obvious, but that it unquestionably exists and exerts itself in both tea and coffee is proven by the fact that both were originally met with among nations whose diet was chiefly vegetable. These facts clearly show in what manner tea proves to the poor a substitute for animal food, and why it is that

females, literary persons and others of sedentary habits or occupation, who take but little exercise, manifest such a partiality for tea, and also explain why the numerous attempts made to substitute other articles in its place have so signally failed.

TEA AS A STIMULANT.

“Life without stimulants would be a dreary waste,” remarks some modern philosopher, which, if true, the moderate use of good tea, properly prepared and not too strong, will be found less harmful than the habitual resort to alcoholic liquors. The impression so long existing that vinous or alcoholic beverages best excite the brain and cause it to produce more or better work is rapidly being exploded, healthier and more beneficial stimulants usurping their place. But while the claims made in favor of the “wine cup” must be admitted, it cannot for a moment be denied that as excellent literary work has been accomplished under the influence of tea, in our own times, particularly when the poet, the essayist, the historian, the statesman and the journalist no longer work under the baneful influence of spirituous stimulants. Mantegaza, an Italian physiocogist of high repute, who has given the action of tea and other stimulants careful study, confirms this claim by placing tea above all other stimulants, his enthusiasm for it being almost unbounded, crediting it with “the power of dispelling weariness and lessening the annoyances of life, classing it as the greatest friend to the man of letters by enabling him to work without fatigue, and to society as an aid to conversation, rendering it more easy and pleasant, reviving the drooping intellectual activity and the best stimulus to exertion, and finally pronouncing it to be one of the greatest blessings of Providence to man.”

Tea was Johnson's only stimulant, he loved it as much as Porson loved gin, drinking it all times and under all circumstances, in bed and out, with his friends and alone, more particularly while compiling his famous dictionary. Boswell drank cup after cup, as if it had been the "Heliconian spring." While Hazlet, like Johnson, was a prodigious tea-drinker, Shelley's favorite beverage was water, but at the same time tea was always grateful to him. Bulwer's breakfast was generally composed of dry toast and cold tea, and De Quincy states that he invariably drank tea from eight o'clock at night until four in the morning, when engaged in his literary labors, and knew whereof he spoke when he named tea "the beverage of the intellectual." Kent usually had a cup of tea and a pipe of tobacco, on which he worked eight hours at a stretch, and Motley, the historian tells us that he "usually rose at seven, and with the aid of a cup of tea only, wrote until eleven." And Victor Hugo, as a general rule, used tea freely, but fortifying it with a little brandy. Turning from literature to politics, we find that Palmerston resorted to tea during the midnight sessions of Parliament. Cobden declaring "the more work he had to do the more tea he drank," and Gladstone himself confesses to drinking large quantities of tea between midnight and morning during the prolonged parliamentary sittings, while Clemenceau, the leader of the French Radicals, admits himself to be "an intemperate tea-drinker" during the fiery discussions of debate.

In moderation, tea is pre-eminently the beverage of the twilight hour, when tired humanity seeks repose after a day of wearying labor. Then the hot infusion with its alluring aroma refreshing and stimulating, increasing the respiration, elevating the pulse, softening the temper, producing tranquility in mind and body,

and creating a sense of repose peculiarly grateful to those who have been taxed and tormented by the rush and routine of business cares and vexations. What a promoter of sociability, what home comforts does it not suggest, as, when Cowper, on a winter's evening, draws a cheerful picture of the crackling fire, the curtained windows, the hissing urn and "the cup that cheers?" When, however, tea drinking ceases to be the amusement of the leisure moment or resorted to in too large quantities or strong infusions as a means of stimulating the flagging energies to accomplish the allotted task, whatever it might be, then distinct danger commences. A breakdown is liable to ensue in more than one way, as not infrequently the stimulus which tea in time fails to give is sought in alcoholic or other liquors, and the atonic dyspepsia which the astringent decoction produced, by overdrawing induces, helps to drive the victim to seek temporary relief in spirits chloral or the morphine habit, which is established with extraordinary rapidity. For it is a truth that as long as a person uses stimulants simply for their taste he is comparatively safe, but as soon as he begins to drink them for effect he is running into great danger. This may be stating the case too forcibly for stimulants, but if this rule was more closely adhered to we should have fewer cases of educated people falling into the habit of secret intemperance or morphomania.

TEA AND THE POETS.

The subdued irascibility, the refreshed spirits, and the renewed energies which the student and the poet so often owed to tea has been the theme of many an accomplished pen, eminent writers of all times and all countries considering it no indignity to extol the virtues of this precious and fascinating beverage. What Bacchanalian

and hunting songs, cavalier and sea songs, rhapsodies and laudations of other subjects have been to our literature, such was tea to the writers, poets, artists and musicians of China and Japan, their's being confined to the simple subject—Tea. Each plantation was supposed to possess its own peculiar virtues and excellences, not unlike the vineyards of the Rhine, the Rhone and the Moselle, each had its poet to sing its praises in running rhymes. One Chinese bard, who seemingly was an Anacreon in his way, magnifying the product of the Woo-e-shan mountains in terms literally translated as follows:—

“ One ounce does all disorders cure,
 With two your troubles will be fewer,
 Three to the bones more vigor give,
 With four forever you will live
 As young as on your day of birth,
 A true immortal on the earth.”

However hyperbolic this testimony may be considered, it at least serves to show the high estimation in which the plant was held in China.

The first literary eulogist to espouse the cause of the new drink in Europe was Edmund Waller, reciting how he became first induced to taste it. In a poem containing several references to the leaf occurs the following pregnant allusion to tea:—

“ The muses friend doth our fancy aid,
 Repress these vapors which the head invade,
 Keeping that palace of the soul serene.”

That Queen Anne ranked among its votaries is manifest from Pope's celebrated couplet:—

“ Though great Anna, whom the realms obey,
 Doth sometimes counsel take and—sometimes Tea.”

Johnson did not make verses in its honor, but he has drawn his own portrait as “ a hardened and shameless tea

drinker, who for twenty years diluted his meals with an infusion of this fascinating plant, whose kettle had scarcely time to cool, who with tea amused the evening, with tea solaced the night, and with tea welcomed the morning." While Brady, in his well-known metrical version of the psalms, thus illustrates its advantages:—

" Over our tea conversations we employ,
Where with delight instructions we enjoy,
Quaffing without waste of time or wealth
The sovereign drink of pleasure and of health."

Cooper's praise of the beverage has been sadly hackneyed, nevertheless, as the Laureate of the tea table, his lines are worthy of reproduction here:—

" While the bubbling and loud hissing urn
Throws up a steaming column, and the cup
That cheers, but not inebriates, wait on each,
So let us welcome peaceful evening in."

That Coleridge, in his younger days, must have liked tea is inferred from the following stanza:—

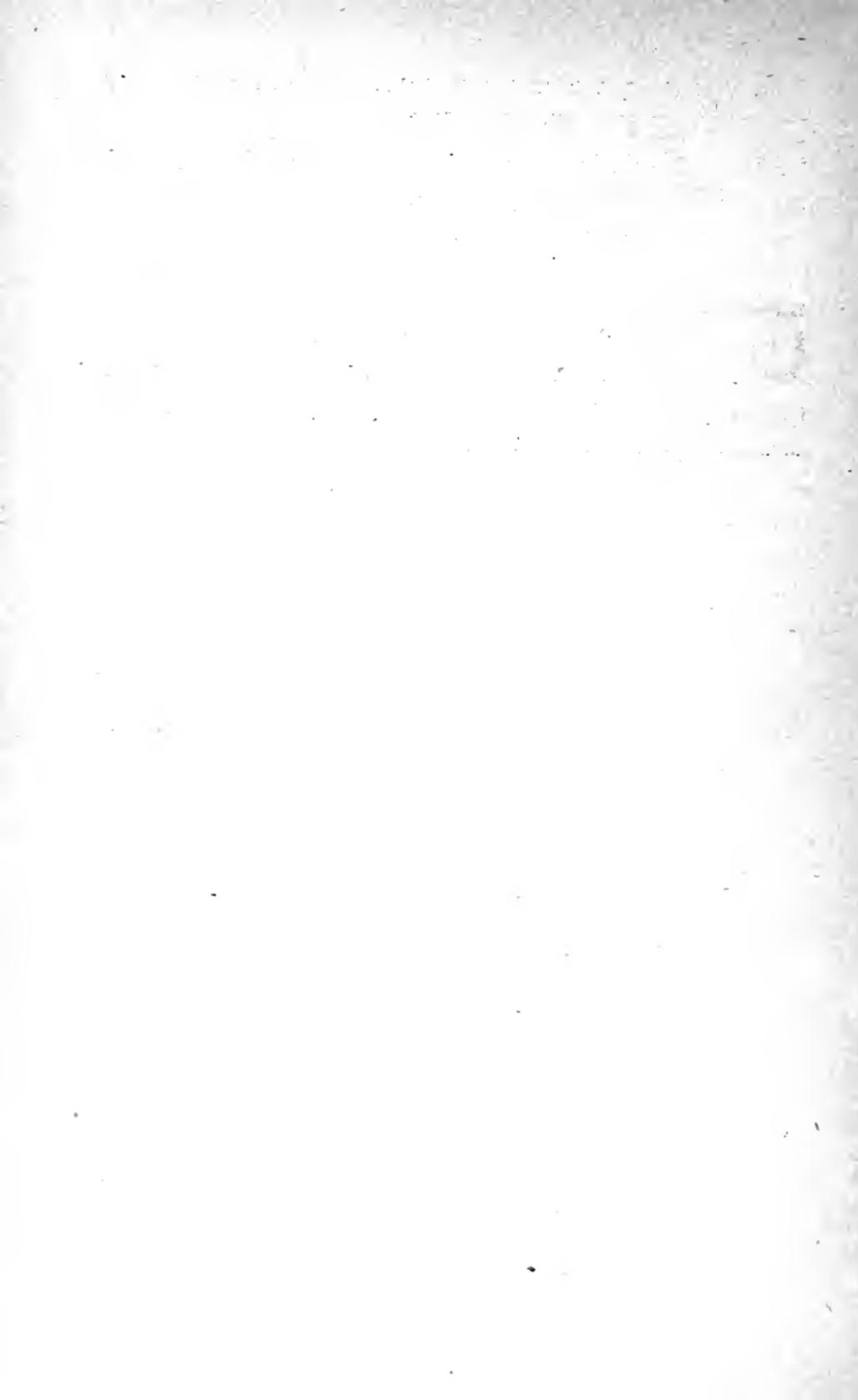
" Though all unknown to Greek and Roman song,
The paler Hyson and the dark Souchong,
Which Kieu-lung, imperial poet praised
So high that cent, per cent. its price was raised."

Gray eulogizing it:—

" Through all the room
From flowing tea exhales a fragrant fume."

Byron, in his latter years, became an enthusiast on the use of tea, averring that he " Must have recourse to black Bohea," still later pronouncing Green tea to be the " Chinese nymph of tears." And in addition to the praises sung to it by English-speaking poets and essayists, its virtues have also been sounded by Herricken and Francius in Greek verse, by Pecklin, in Latin epigraphs,

by Pierre Pettit, in a poem of five hundred lines, as well as by a German versifier, who celebrated, in a fashion of his own, "The burial and happy resurrection of tea." In opposition to the "country parson," who calls tea "a nerveless and vaporous liquid," and Balzac, who describes it as an "insipid and depressing beverage," the author of "Eothen" records his testimony to "the cheering, soothing influence of the steaming cup that Orientals and Europeans alike enjoy."



CHAPTER IX.

WORLD'S PRODUCTION AND CONSUMPTION.

THE first direct importation of tea into England was in 1669, and consisted of but "100 pounds of the best tea that could be procured." In 1678 this order was increased to 4,713 pounds, which appears to have "glutted the market;" the following six years the total importations amounting to only 410 pounds during that entire period. How little was it possible from these figures to have foreseen that tea would one day become one of the most important articles of foreign productions consumed.

Up to 1864 China and Japan were practically the only countries producing teas for commercial purposes. In that year India first entered the list as an exporter of tea, being subsequently followed by Java and Ceylon. In 1864, when India first entered the list of tea-producing countries, China furnished fully 97 per cent. of the world's supply and India only 3, the latter increasing at such a marvelous rate that it now furnishes 57, China declining to 43 per cent. of the total.

TABLE 1.
ESTIMATED TEA PRODUCTION OF THE WORLD.

Countries.	Production, (Pounds).	Exportation (Pounds).
China,	1,000,000,000	300,000,000
Japan,	100,000,000	50,000,000
India,	100,000,000	95,000,000
Ceylon,	50,000,000	40,000,000
Java,	20,000,000	10,000,000
Singapore,	20,000	10,000
Fiji Islands,	30,000	20,000
South Africa,	50,000	20,000
Total,	1,270,100,000	495,050,000

From these estimates it will be noted that China ranks first in tea-producing countries, followed by Japan, India, Ceylon and Java in the order of their priority; the total product of the other countries having little or no effect as yet on the world's supply.

This most important food auxiliary is now in daily use as a beverage by probably over one-half the population of the entire world, civilized as well as savage, the following being the principal countries of consumption :—

TABLE 2.
ESTIMATED TEA CONSUMPTION OF THE WORLD.

Countries.	Consumption (Pounds).	Per capita (Pounds).
Austria,	1,000,000	0.03
Australia,	18,000,000	4.50
Belgium,	130,000	0.03
China,	800,000,000	3.00
Canada,	23,000,000	4.00
Central Asia,	13,000,000	. . .
Denmark,	850,000	0.37
France,	1,250,000	0.03
Germany,	4,000,000	0.09
Holland,	5,000,000	1.20
Italy,	60,000	0.01
India,	5,000,000	. . .
Japan,	50,000,000	4.00
Java,	5,009,000	1.00
Norway,	165,000	0.09
New Zealand,	4 500,000	7.50
Portugal,	600,000	0.12
Russia,	100,000,000	1.70
Spain,	275,000	0.02
Sweden,	150,000	0.03
Switzerland,	150,000	0.08
South Africa,	600,000	0.80
South America,	12,000,000	0.03
Straits Settlements,	1,000,000	. . .
United States,	82,000,000	1.50
United Kingdom,	180,000,000	5.94
West Indies,	300,000	0.03
Total,	1,308,039,000	1.67

From these estimates it will be observed that England ranks first in the list of tea-consuming countries, the

United States second, and Russia third, the Australian colonies and Canada coming next in order, comparatively little tea being used in France, Germany and the other European countries. It is rarely used in some parts of the globe, and is practically unknown in a great many other countries. It is also apparent that 90 per cent. of the world's supply is chiefly consumed by English-speaking people, fully 75 per cent. of this being used by England and her dependencies alone, the United States being next in importance as a tea-consuming country. And it may here be noted that while the world's production of tea has been very largely increased during the last quarter of a century in greater ratio than that of any other of the great staples of commerce, the production of China and Japan having increased at least 50 per cent. in that period, to which must be added that of India and Ceylon, from which countries little or none was received until a few years ago. Yet it cannot be said that the consumption has increased in anything like the same proportion, which will account for the great decline in price in later years, and to prevent prices from going still lower it is evident that new markets must be opened up for its sale in other countries where it has not yet been introduced.

TABLE 3.**SUMMARY.**

World's Production,	1,377,600,000
“ Consumption,	1,307,130,000
	<hr/>
Surplus,	70,470,000
	or
Quantity exported,	503,100,000
Consumption in non-producing countries,	432,630,000
	<hr/>
Surplus,	70,470,000

In England, particularly, the increase in the consumption of tea in late years borders on the marvelous, the

figures for 1890 reaching upwards of 195,000,000 pounds, which, at the present rate of increase, will, in all probability, exceed 200,000,000 in 1892, as in the quarter of a century between 1865 and 1890 the consumption rose from $3\frac{1}{2}$ to 5 pounds *per capita* of the population. But as in the latter half of that period strong India teas were more freely used, being increased appreciably by the similar Ceylon product in the closing years of that time largely displacing the lighter liquored teas of China, a larger consumption is indicated by the number of gallons of liquid yielded. This is calculated on the moderate estimate formed in a report to the Board of Custom to the effect that if one pound of China leaf produces five gallons of liquor of a certain depth of color and body, one pound of India tea will yield seven and a half gallons of a similar beverage. Then by allowing for an apparent arrest of the advancing consumption when the process of displacement was only commencing, the increase in the consumption of tea in the British Islands has not only been steady but rapid; thus, from 17 gallons per head in 1865 to 24 in 1876, 28 in 1886, reaching $33\frac{1}{2}$ gallons per head per annum in 1890, the figures of last year almost exactly doubling that of the first year of the series, so that in consequence of the introduction of the stronger products of India and Ceylon the people of Britain have been enabled to double their consumption of the beverage, although the percentage of increase in the leaf has been only from $3\frac{1}{2}$ to 5 pounds during the same period. Ceylon tea, which a decade ago was only beginning to intrude itself as a new and suspiciously regarded competitor in the English market with products so well known and established as the teas of China and India, has recently made such rapid progress that its position in the British market in 1890, rated by home

consumption, occupying third place on the list. India teas 52 per cent., China 30 per cent., Ceylon 18 per cent.

TABLE 4.

Showing relative positions of kinds of Tea consumed in England, and increase in pounds of same since 1880:—

Kind.	1880.	1885.	1890.
China, . . .	126,000,000	113,500,000	60,000,000
India, . . .	34,000,000	65,500,000	95,000,000
Ceylon, . . .	.....	3,000,000	24,000,000

In 1868, when the price of tea was reduced in England to an average of 36 cents per pound, the consumption increased to the heretofore unprecedented figures of 107,000,000 pounds, while in 1888, when the average price was again reduced to 20 cents, owing to the enormous increase in the production of India and Ceylon teas, the total consumption became augmented to 185,000,000 pounds, comprised as follows, in round numbers:—

Kinds.	Pounds.
China teas,	80,000,000
India and Ceylon teas,	105,000,000
Total,	<u>185,000,000</u>

The latter, for the first time on record, exceeding that of China teas, being an almost exact inversion of the figures of 1886 in favor of India and Ceylon teas, by which it will be seen that China is year by year becoming of less importance as a source of tea supply to English consumers. And as the demand becomes greater the importations from India and Ceylon are constantly expanding, prices being correspondingly reduced to an unprecedentedly low figure, being now so cheap in the United Kingdom as to be in daily use in almost every household. The

relative positions of China, India and Ceylon teas in England at the present writing being

Kind.	Consumption, Pounds.
India (estimated),	105,000,000
China "	50,000,000
Ceylon "	35,000,000
Total,	180,000,000

The proportion of Black tea consumed in England is about as 5 to 1, the *per capita* consumption ranging from 5 to 6 pounds for the entire population.

Ceylon teas continue to grow in public favor to a marvelous extent in England and beyond anticipating in the natural growth of consumption, they help fill up the yearly displacement of China teas. The total production for 1890 was nearly 38,000,000 pounds against over 30,000,000 pounds for 1889, and 18,500,000 pounds for 1888, thus showing an increase of 19,500,000 pounds for the two years. The supply for 1891 is about 40,000,000 pounds, the stock being increased 3,000,000 pounds, which may be considered very moderate and quite steady considering the steady all-round demand there is for Ceylon teas in that country. But there is not the slightest doubt but that the check which the consumption of China tea appears to have sustained in England is entirely due to the *forced* use of India and Ceylon teas in that country and her dependencies, there being a positive revulsion of taste in many sections in favor of the truer, purer and more delicate and richer of China teas. Medical opinions have been recently given to prove that the excessive quantity of tannin contained in India and Ceylon teas is very injurious to health, and a revival of the Chinese tea-trade may be confidently expected in the future.

So far as the English tea-trade is concerned the market for China and Japan teas is now but a tame affair to

what it was only a few years ago, little interest being taken there in the tea product of these countries. Year by year since 1885 China and Japan teas has had less hold upon the English market, and it is remarkable to note how continuously the consumption of these varieties have been on the decline there from that time, notwithstanding their superior merits in drawing and drinking qualities over both India and Ceylons. In that year their consumption in the British isles amounted to over 113,000,000 pounds, but fell off to less than 105,000,000 pounds in 1886, to about 90,000,000 in 1887, to 80,000,000 in 1888, to 60,000,000 in 1889. The quantity of China and Japan teas consumed in the whole United Kingdom declining to about 50,000,000 pounds in 1890, although the prices for them were exceedingly low during that period. There are two main causes for this serious reduction which have been in operation simultaneously and for a length of time. The first was the great competition of India teas stimulated for the reasons already named, and the second cause the extraordinary favor that Ceylon teas found with English consumers in 1888, when the quantity imported for use from that island amounted to 18,500,000 pounds, or nearly double of what it was the preceding year, the quantities cleared for 1889 and 1890 being respectively 28,500,000 pounds and 34,500,000 pounds, showing an astonishing increase within the short space of three years, and which fully accounts for the decadence of the English demand for China and Japan teas. The consumption of the latter varieties has retrograded there, while that for India and Ceylon teas has increased proportionately, so that, although the market for the former descriptions has occasionally given signs of revival, they have been only spasmodic efforts at recovering, the much expected and promised reaction

soon subsiding. And instead of the phenomenal cheapness of China and Japans being regarded as a recommendation to consumers it has been used as an argument by British dealers as an evidence of their unpopularity, and so completely has the demand been transferred from China and Japan teas to Indias and Ceylons that it has been no uncommon occurrence for the latter kinds to be selling at improving rates whilst the former descriptions have been disposable only at drooping prices.

The enormous size of the tea estates in India and Ceylon as compared with the small gardens of China and Japan give the growers in the former countries several advantages over those in the latter as they can be worked more systematically and with less expense in larger areas. The use of machinery in curing and firing also lessens the cost of preparation for market, together with a saving in freight and quicker sale consequent to English preferences giving a speedier return for the money invested. The advantages which India and Ceylon tea-growers have over those of China are greater command of capital, as in both India and Ceylon tea estates are generally owned by companies consisting of shareholders whose living is not dependent on the product of the plantations. The companies can consequently afford to carry on the business at a loss for several years, can purchase extensive tea lands, and can spend large sums on machinery, labor and experiments as well as on agents to introduce and distribute them. The India and Ceylon tea-growers can obtain loans at a lower rate of interest, borrowing money at from 4 to 5 per cent., while their Chinese competitors have to pay from 20 to 30 per cent. for the same accommodations, in addition to a command of better chemical and agricultural knowledge. But against these admitted advantages of India and Ceylon,

China possesses one great advantage, that is, that the Chinese grower, working for himself instead of wages, brings greater care and more industry to the task. Experience with him takes the place of science, and he is thus enabled to produce a finer flavored tea than has yet or ever will be produced in either India or Ceylon. Again the great decline in the consumption of China teas in England and her dependencies cannot be attributed, as is so loudly proclaimed by her statisticians, to any falling off in the quality of China teas or any inherent merit possessed by those of India or Ceylon, but simply to the narrow and contracted policy of her merchants of favoring and forcing the product of her colonies to the prejudice if not positive exclusion of that of the older tea-growing countries.

In 1865 China exported over 120,000,000 pounds of tea, in 1870 nearly 170,000,000 pounds, in 1880 over 214,000,000 pounds, reaching the enormous total of 221,000,000 pounds in 1890, thus China's export has also been increasing in a proportionate degree. But although the figures for 1870 and 1890 show that in twenty years it has nearly doubled, still it is not such a remarkable increase relatively when compared with that of India, which during the same period has increased nearly fourteen fold in quantity. In estimating the probability of a recovery in the position of China teas in the markets of the world the following considerations are of interest on the subject: First, It is well known that the heavy *Likin* (grower's tax) *Kutang* (transit dues) and export duties levied on tea have contributed in a great measure to the decadence of the tea-trade in that country and to the development of that of India and Ceylon, where the article, at least, starts free and unencumbered. The Chinese laboring under this disadvantage, at

the outset, have endeavored to compete with India and Ceylon by reducing the cost of production and lowering their standard of quality with a consequent deterioration in the grade of the leaf. This changed condition of the tea-trade may be attributed to these specific causes. Fifty years ago India and Ceylon produced no tea, as it was not until 1840 that the export from the former began with a small venture of 400 pounds, since that year, however, the increase has been both rapid and striking. Thus, commencing in 1840, the export has steadily increased year after year until now, when the average annual production reaches 100,000,000 pounds, of which England consumes some 97,000,000 pounds, the balance going to Australia and other of her colonies. It is contended by the Chinese themselves that if the Likin and export duties were removed entirely or the export duty alone reduced to an *ad valorem* charge of 5 per cent. it would greatly help those engaged in the China tea-trade in their competition with the growers and shippers of India and Ceylon, others holding that a simple reduction of the duty will not permanently benefit the China tea-trade unless it enables China to lay down teas in Europe and America at a less price than can be done by either India or Ceylon.

Russia is now regarded as the main hope of Chinese Congous and sorts, the British islands consuming Indias and Ceylons almost exclusively, the United States favoring Olongs and Japans principally. The trade in China teas with Russia is increasing annually, while it is decreasing with England. In former years tea was first shipped to England and thence to Russia, the Russian tea-dealers now purchasing direct from China. The Russian demand seems, in fact, to grow as fast as that from England declines, constituting a total which is

hardly suspected by those who are interested in the trade, so that, although ousted from her monopoly, China has still a great market for her produce.

Great quantities of tea are consumed in the domains of the Czar and it is believed that the Russians use as much tea *per capita* as the Chinese themselves. The "Samovar" or tea-urn is always steaming and the natives never cease sipping tea while there is water left to make it. It is served at all hours of the day, in palace as well as hovel, being regarded as much a necessary of life there as bread or tobacco. Shops abound for its sale in the principal cities; bargains made and business transactions sealed over steaming tumblers of tea.

TABLE 5.

The earliest official record of the importation of Tea into the United States is in 1790, the order of increase for its importation, value and consumption in the country by decades since that year being as follows:—

Year.	Imports, Pounds.	Value.	Consumption per capita.	Average Import Price.
1790, . . .	3,022,983	. . . . .	. . .	. . .
1800, . . .	5,119,341	. . . . .	. . .	. . .
1810, . . .	7,708,208	. . . . .	. . .	. . .
1820, . . .	. . . . .	. . . . .	. . .	. . .
1830, . . .	8,609,415	\$2,425,018	0.53	22.3
1840, . . .	20,006,595	5,427,010	0.99	24.1
1850, . . .	29,872,654	4,719,232	0.87	27.9
1860, . . .	31,696,657	8,915,327	0.84	26.3
1870, . . .	47,408,481	13,863,273	1.10	29.4
1880, . . .	72,162,936	19,782,631	1.39	27.2
1890, . . .	84,627,870	13,360,685	1.40	20.00

The first duty levied on tea by the United States was in 1789, when a tax of 15 cents was imposed on all Black teas, 22 cents on Imperial and Gunpowder, and 55 cents on Young Hyson. But in order to stimulate American

shipping these duties were reduced to 8, 13 and 26 cents respectively, the following year, when imported from Europe in American vessels, and to 6, 10 and 20 cents when imported direct from China in the same manner. In 1794, however, the rates were increased 75 per cent. on direct importations, and 100 per cent. on all teas shipped from Europe, but again reduced to 12, 18 and 32 cents in 1796, the latter rates being doubled during the War of 1812. In 1828 this tax was again reduced, being entirely removed in 1830, except when imported in foreign bottoms, when a duty of 10 cents per pound was collected. The latter rate continued in force up to the outbreak of the Rebellion in 1861, when a uniform duty of 15 cents per pound was placed on all teas, which was eventually increased to 20 cents and finally to 25 cents per pound. In January, 1871, this duty was reduced to 15 cents, being entirely removed in July, 1872, since which year tea has been uninterruptedly on the free list in the United States.

TABLE 6.

Showing net imports, value and per capita consumption of tea in the United States, from 1885 to 1891, inclusive:—

Year.	Net Imports, Pounds.	Value.	Per Capita, Pounds.
1880,	69,894,760	\$18,983,368	1.39
1881,	79,130,849	20,225,418	1.54
1882,	77,191,060	18,975,045	1.47
1883,	69,597,945	16,278,894	1.30
1884,	60,061,944	12,313,200	1.09
1885,	65,374,365	13,135,782	1.18
1886,	78,873,151	15,485,265	1.37
1887,	87,481,186	16,365,633	1.49
1888,	83,944,547	13,154,171	1.40
1889,	79,192,253	12,561,812	1.28
1890,	83,494,956	12,219,633	1.33
1891,	82,395,924	13,639,785	1.32

TABLE 7.

Estimated average annual Quantity and Value of tea imported into the United States :—

Countries.	Quantity, Pounds.	Value.
China,	43,000,000	\$7,000,000
Japan,	38,000,000	5,500,000
India,	100,000	20,000
Java,	200,000	30,000
Ceylon,	100,000	20,000
England,	3,000,000	650,000
Ireland,	1,000	500
Scotland,	12,000	2,500
Germany,	10,000	2,000
Russia,	200	60
Belgium,	50	25
Canada,	300,000	50,000
Total,	85,000,000	\$13,000,000

The average annual exports range from 1,000,000 to 5,000,000 pounds.

TABLE 8.

Showing varieties most in demand in the United States :—

Varieties.	Kinds.	Quantity, Pounds.
Oolong,	(Formosa),	10,000,000
"	(Amoy and Foochow),	8,000,000
Green Teas,	(all kinds),	10,000,000
Japans,	"	38,000,000
Pekoes and Congous,	(China),	10,000,000
India, Java and Ceylon,		6,000,000
Total,		82,000,000

During the fiscal year ending June 30, 1890, there was imported into the United States, at all ports, 84,627,870 pounds of tea, of which 43,043,651 pounds were received from China and 37,627,560 pounds from Japan, the balance consisting of imports from India, Java and Ceylon,

received *via* England and Holland. The United States official reports show that tea represents 27 per cent. of the total value of imported merchandise into this country. The gross trade in the article, however, even at retail prices, does not exceed \$35,000,000, the total annual value of all food products being about \$220,000,000, of which tea only represents a value of \$13,000,000, equivalent to about 6 per cent. of the whole.

In round numbers the consumption of tea in the principal importing countries has increased from 350,000,000 pounds in 1880 to upwards of 400,000,000 pounds in 1892. To which may be added for the minor consuming countries another 60,000,000 pounds, in which case we get a grand total of 460,000,000 pounds. Tea consumption in India and Ceylon is scarce worth computing, and it is also claimed that the consumption in China has been greatly exaggerated, for although the Chinese drink tea constantly much of the liquor is little different from hot water, so that to credit China and her feudatories with another 500,000,000 pounds would be an extravagant estimate. But, admitting it to be near the mark, we may then take in round numbers 1,000,000,000 pounds of leaf, or say 6,000,000,000 gallons, as the world's annual consumption of tea. But it is confidently predicted that if peace be preserved and wealth and civilization continues to advance that much greater increase during the closing years of the present century and the whole of the twentieth century—for large portions of mankind are at length discovering that alcohol with its "borrowed fire" is a deceiver and a curse. If the civilization of an age or a community can be tested by the quantity of sulphuric acid which it uses, much more certainly can the moral status of a time and a people be judged by a comparison

of the quantities of alcoholic and non-alcoholic stimulants it uses.

All teas have declined one-half in value during the past ten years, owing to the increased production of India and Ceylon, the position of the market at the present time is, however, unique and unusual. Heretofore the rule has been for the supply to exceed the demand, particularly of China tea, it being the custom to claim that the market would never run short of the latter, as the production could be increased to meet any sudden or excessive demand. Now, however, the position is entirely different, the shortage in China tea the past year reaching some 21,000,000 pounds, to which must be added the increase in consumption of 11,500,000 pounds, due in a measure to the reduction of the duty in England, against which deficit is to be placed the increase of production in India of 3,000,000 pounds, and that of Ceylon of 15,000,000 pounds, but still leaving a shortage of 14,000,000 pounds. This position has led to an advance in China common grades, part of which is undoubtedly due to speculation. With decreased imports and increased consumption in the market, however, appears to have all the requisite of strength to sustain it, and it will be years before it reaches its late low point again.

With the great reduction in importation price and keener competition the retail prices have been brought down to a very low figure, and as the dealer has educated the public to the purchase of poor teas at low prices it is not likely that the retail prices of teas will ever reach any higher figure unless war or other cause should lead to a duty being placed on the article. Yet, notwithstanding these unprecedented low prices, the *per capita* consumption of tea is comparatively very low in this country at the present time, one of the chief causes

being traceable to the custom prevalent among dealers of charging exorbitant profits in order to make up for the losses made in other goods. This impolitic practice may be forgiven were it not for the greater mistake they make of sacrificing quality to profit, which in articles of daily use like tea is an important consideration. By rectifying this error, and giving more attention to the careful selection of their teas, there is no valid reason why the consumption of tea in this country could not at the least calculation be doubled, more particularly in the present state of the coffee market, as it is generally calculated that one pound of good tea equals four pounds of coffee in amount and strength of its extract, besides being cheaper and more convenient to prepare. Under these circumstances it may be assumed that there is no probability of any material change in the cost of tea to the dealer and there should be no further reduction in the selling price to the consumer, any further reduction in the retail price involving a diminution of profit which the trade can ill afford to bear at the present time.

CHAPTER X.

TEA-CULTURE, A PROBABLE AMERICAN INDUSTRY.

IN 1858 the United States Government ordered and received about 10,000 tea-plants from China in Wardian cases in which the seeds were sown just previous to shipment, many of them germinated during the voyage, the plants averaging 18 inches in height on their arrival in this country. Being immediately placed under propagation they were in a very short time increased to over 30,000, which were widely distributed throughout the Southern States, the propagation and distribution of tea-plants forming a prominent feature in the operations of the Agricultural Department up to the commencement of the civil war in 1861, which put a stop to all experiments in the industry. For several years after its close but little attention was given to the propagation of the plant in this country, still at no time was it entirely abandoned by the Department during this period. It being fully understood, that so far as the growth of the plant was concerned it could undoubtedly be successfully cultivated over a large extent of the country. But many of those interested sharing in the belief that the amount and cost of the manual labor required in its manipulation for market was so great as to preclude the probability of competing with low-waged Asiatics, no special efforts were again made to disseminate plants or to multiply them further than to supply such applicants as desired to make experimental tests.

Meanwhile the progress of tea-culture in India was watched with interest. The successful results of modern methods of cultivation and the introduction of various labor-saving machines for preparation which were being made from time to time by the planters of that country, suggesting the probability that the production of tea could eventually be made a profitable industry in many sections of this country, where labor-saving appliances usually follow closely upon the knowledge of their necessity. Basing their hopes on these results, fresh supplies of tea-seed were subsequently imported from Japan, which enabled the Department to again distribute many thousand of plants throughout the country. These renewed efforts being materially enhanced, when about 1867 it was found that an abundance of tea-seeds could be procured in many of the Southern States from the plants which had previously been disseminated from the importation of 1858. Encouraged by the reports of successful culture which were in many cases supplemented by samples of manufactured tea, of undoubted good quality, in a number of instances, more decided and energetic efforts were made toward establishing the industry. More than 100,000 tea-plants were distributed during the past ten years, the Department having under propagation, at the present time, over 20,000 plants which are ready for dissemination in localities where they are most likely to succeed. By this means it is expected to popularize the cultivation of tea as a domestic product in this country, with the hope that public interest will in time be directed to its cultivation as an article of commercial value also.

The cultivation of the tea-plant is as simple as that of the currant or gooseberry, and tea-gardens may be established in a similar manner to those of other economic

plants. They are usually divided into five and ten-acre sections, and in laying out must be kept as much as possible together, being easier to supervise and cheaper to work in this manner. The usual custom is to begin at one end and dig through to the other, as different parts of the garden may require different treatment owing to a variation in the soil or other causes. The lines of plants must run as far as practicable in geometrical regularity, particularly in sloping ground, never up and down or directly across the slope. If planted in the former manner, gutters or watercourses will form between the lines and the soil will be washed away, and if in the latter, the same injury will result between the shrubs, The lower side of each plant having its roots laid bare, the sun will act upon them, thereby causing the plants to shrivel up, languish and die. But if the lines are laid diagonally across the hill so that the slopes along the lines shall be moderate ones, this drawback is reduced as far as can be under the circumstances. The closer the lines to each other and the closer the plants in the lines the less will be the wash. While on flat lands it does not signify in which direction the lines run, the gardens so situated always looks best when the lines run at right angles.

That the successful cultivation of the Tea plant is entirely practicable in the United States has been abundantly proven, and that we may by a more extensive and intelligent effort in this direction, save the large amount of money which we now annually pay to foreign countries for this staple is at least worth a trial. So far as its practicability is concerned there can be no question, as we have within the various latitudes of our borders the soil and climate to produce any plant that is or may be grown in any other country. The doubts expressed as to the

suitability of our soil and climate to produce as good an article of tea as is now grown in India, Java and Ceylon are untenable, all practical farmers being aware that soils and climates exert certain influences upon all vegetation, these same influences being potent everywhere, and that natural causes are not spasmodic in their operations anywhere. The latitudes in which teas are grown in China, Japan and India correspond exactly with those of Delaware, Maryland, Virginia and Florida in the south, and with that of Kentucky, Tennessee and Alabama in the southwest.

But while the question of making its production a commercial success is conceded by many authorities, some contend that while we can undoubtedly cultivate tea of fair quality in many sections of the country, we cannot supply the cheap and skilled labor necessary to prepare it for market, advancing the argument that from the time the leaves are picked until they are packed for export they are subjected to a continued series of manipulations, demanding an immense amount of such labor without which it is next to impossible to produce a merchantable article. But while it is admitted that the greater part of the cost of tea in the producing countries is that of labor, it must be taken into account that much of the manipulation and packing of tea in these countries is for the purpose of fitting it for the ocean voyages, and to protect it during transportation the leaves must be repeatedly fired and sorted before shipping, in order to better protect them from damp and moisture in transit. But even with all these extra firings and precautions the original aroma developed by these processes is largely dissipated before the tea reaches its destination in the importing countries. It is a well-established fact that the best teas are only to be had in their highest

excellence in the countries of growth, and then only before they have been submitted to the severity of all the home processes which they have to undergo previous to being packed in the lead-lined chests for the long voyages in the holds of vessels. This superior article is entirely unknown in the consuming countries, and is one of the luxuries in store for us when tea-culture becomes one of our industries. Thus, seeing that much of the care bestowed upon the manufacture of tea is merely for the purpose of meeting these commercial exactions, both in regard to protecting its flavor as well as to its appearance on arrival, it may be that by ignoring mere appearance and style, as equally good a beverage may be produced by an entirely different system of preparation of the leaf for the home market. What has already been accomplished by modern tea-manufacturers in the way of improvements in India and Ceylon for instance, upon the older pessimistic Chinese methods only too aptly suggests that still further innovations are yet possible. We secure the essential virtues of other herbs and leaves without subjecting them to such complicated and intricate processes, which, after all, are mainly for the purpose of preventing the leaves from moulding and decomposition in transit, and there is no valid reason why tea should differ from the leaves of other plants in this respect.

Yet while admitting that the manufacture of tea as at present conducted is, no doubt, a very particular and tedious one, and that much of its supposed value is dependent upon the uniform accuracy with which the various processes are performed, this is more particularly true of China tea where the difficulty is largely attributable to the primitive nature of the methods employed there, as contrasted with the more modern specific and

exact system in use in India and other tea-growing countries. It is yet possible for our inventors to produce machinery for still further simplifying many of the intricate processes now in use even in India and Ceylon. The planters of the latter countries soon discovered that they could not profitably follow the various minute and detailed processes practiced by the Chinese and set themselves to study the philosophy of the whole subject of preparing the leaf for market, eventually mastering it. The result has been that many operations which were previously considered essential have now been either reduced or dispensed with altogether in that country. Instead of following the antiquated Chinese methods, which involved some twelve different operations, occupying three days, the best India teas are now prepared in less than five operations, the entire process being completed inside of two days. It may therefore be found that for home use a less elaborate method of preparation may suffice and that the article might enter into domestic commerce. It could be prepared after the simple but effective manner of Paraguayan tea, or put up in bales as with hops, or it may be pressed into layers of dried leaves, as is done with senna tea, and many other herbs at the present time. The firing, which develops the aroma, might be done immediately before use, as is now the case with coffee, or better still, roasted and ground like that article, the modern cylindrical method of roasting coffee being a great improvement on the old style of hand and pan roasting. Machinery being unknown to the Chinese is probable the strongest reason why they still adhere so closely to the antiquated methods now in use there.

But while it is probable that many years will elapse before tea-culture will engage the general attention of farmers and planters in this country, still there is no good

reason why it should be so. True, the profits of tea-culture are as yet not clearly established, the management of the plant and the proper application of the various processes must be for many years, as in India and Ceylon, of a purely experimental character, and even when seemingly fair tests have been made failures will still occur, and although these efforts may be traced to causes, which persistent effort would eventually overcome, yet when there is a large outlay and loss, accompanied with some doubts of ultimate success, the efforts in most cases will be abandoned.

It has been suggested that the United States Government could, at a comparative small cost to it, materially assist in determining and demonstrating the feasibility of tea-culture in this country, finally solving the question of profit. These questions could all be answered satisfactorily and definitely in a very few years if our Government were to secure say twenty acres of land in a suitable locality and plant a portion of it yearly with tea plants, until ten or more acres were planted. Then, when the plants had become sufficiently matured, provide a small laboratory fitted with the necessary modern apparatus, placing it in the charge of a competent manager who could make such experiments in the preparation of the leaf as may be suggested by those interested in the enterprise.

In a special report of the Department of Agriculture issued in 1877, we find the following extracts from letters submitted by cultivators of the tea-plant in the United States:—

Mr. Thomas M. Cox, Greenville, S. C., says:—

I obtained, in 1857, from the Patent Office, a box of tea-plants. I gave the most of them away, and retained a few myself. They have grown well without any protection, in the open air, and have attained

a height of from 8 to 10 feet. They have frequently matured the seed, and there are a number of the seed on the ground at this time. They are an evergreen in this climate, and are now in flower, with the seed of last year's growth fully matured upon the bush. I have never succeeded in making tea from the leaves, not knowing the process of manipulating it.

Mr. J. J. Lucas, Society Hill, S. C., states :—

The tea-plant has been grown successfully in this State, Georgia and Louisiana ; General Gillespie's particularly thriving well. On the Middletown place, Ashley river, near Charleston, tea-plants are now growing for ornamental use only, and are 10 feet high. A gentleman in Georgia obtained 441 pounds of tea from one acre of land, which, at 50 cents a pound, would bring \$220.50 ; while our average yield of cotton is only about \$15 per acre."

Dr. Turner Wilson, Windsor, N. C., writes :—

I have been raising tea since 1858, but without much cultivation. My yard and garden are sandy soil, and the plants or bushes, without any cultivation, are of slow growth. I plant the seed about the 1st of April, but they come up under the bushes very thick from the fallen seed. Sometimes I throw a little dirt on the seed which I do not pick up. I have several hundred plants under the bushes, from 4 to 12 inches high, and about fifty in my front yard. I send you a package of Green tea-leaves, blossoms, and a few seed in capsules. I have no person that understands curing the leaves, but will send a package of the dried leaves, as I term them. I frequently drink a sample infusion of the leaves dried in the shade, and though not so good as the Chinese preparation, yet I know that I am drinking the *pure* tea, without any coloring matter.

James H. Rion, Esq., Winsboro, S. C., says :—

I have no experience in the making of tea, but can certify to the adaptability of the soil and climate of my section to the growth of the plant itself. In the fall of 1859, I received from the Patent Office, Washington, a very tiny tea-plant, which I placed in my flower-garden as a curiosity. It has grown well, has always been free from any disease, has had full out-door exposure, and attained its present height (5 feet 8 inches) in the year 1865. It is continually producing healthy seedlings. This shows that the plant finds

itself entirely *at home* where it is growing. There cannot be the least doubt but that the tea-plant will flourish in South Carolina

Mr. W. M. Ives, Jr., Lake City, Fla., suggests:—

Tea cultivation might be made profitable here, but our people do not pay enough attention to such objects as promise returns in future years. The method of drying the leaves is a very simple process. Many families already possess a number of tea-plants, but they grow them simply for their beauty and novelty. It has been proven that tea can be grown in Georgia as well as in Florida.

Dr. A. W. Thornton, Portland, Ore., declares:—

That the tea-plant is admirably suited to Northern California and Southern Oregon I have no question; more especially as the light on the coast is so abundantly charged with actinic rays, as shown by the richness of the foliage and gorgeous tints of the fruits and autumnal foliage, which supports the view that any plant, the active principle of which is located in the leaves, would *prima facie* yield a richer product where actinic rays are abundant (which are known to have an important influence upon chlorophyl and leaf development) than in less favored climes. Some years ago, Mr. Samuel Brannan started the cultivation of tea at Calistogo, in Napa county, California, but through some mismanagement at the outset the crop did not succeed. But to this day solitary plants can be seen in that locality, exhibiting vigorous growth, proving the suitability of both soil and climate. Since that time a gentleman has started a plantation of tea at Modesta, in the foot-hills of the Sierra Nevada mountains, Stanislaus county, California, in which the plants have done so well that from the last accounts he was so far encouraged as to extend his plantation.

Mr. Arthur P. Ford, Charleston, S. C., says:—

About four or five years ago I obtained from a friend some seeds of the tea-plant, and planted them in my garden, twenty-one miles from Charleston, inland. The plants came up readily, were duly transplanted, and are now fine shrubs three feet high, and seven in number. The foliage is luxuriant; and the plants bear the coldest weather here without any ill effects, the mercury on more than one occasion marking 16°, the plants being encased in ice at other times also.

William Summer, Esq., Newberry, S. C., states :—

There are several healthy, vigorous tea-plants growing in Columbia. I have seen, at the Greenville residence of the late Hon. J. R. Poinsett, the tea-plants growing finely from those introduced by Dr. Junius Smith. We have here also the *Olea fragrans*, with which we can flavor the tea equal to any prepared for the special use of the Emperor of China. The fragrant olive blooms freely from early spring until midwinter, and the flowers, when gathered fresh and put in the caddy among the tea, impart a delightful aroma to the tea. I have, at different times, imported a few tea-plants from Angiers, France, and these have been disseminated from the Pomaria nurseries, and found to succeed. So that I have no doubt of the success of the tea-plant in the middle and upper portions of this State.

Col. S. D. Morgan, Nashville, Tenn., says :—

Of all the plants for the South Atlantic States that of the Chinese or Japanese tea promises most success. Before the war I had a few of the shrubs growing in a small parterre attached to my town dwelling, from which I obtained leaves as rich in aroma and *theine* as is to be found in tea from any country whatever. The shrub grows luxuriantly in Central Georgia—even 100 miles north of Augusta, to my personal knowledge—as I there used the domestic article for several weeks' time and found it excellent. There may, however, be a difficulty about its culture, for want of a very cheap class of laborers to pick and prepare the leaves. This, however, is a subject I have not investigated, but I think it is worthy of a thorough investigation.

Mr. Alex. M. Foster, Georgetown, S. C., says :—

The original plant I brought from Columbia. It is a genuine *Thea viridis*, from seed, I think, produced from the tea-plants brought to this State some years since by Dr. Junius Smith, and cultivated near Greenville. After my plant had attained the height of two or three feet, it began to bear flowers and seed. From these seeds, or nuts, I have now 50 or 60 plants of various sizes ; some of them bearing fruit also. I might have had 500 plants as 50, so easily are they propagated and so abundantly do they bear seed. The only care necessary is to preserve the tap-root as carefully as may be in removing the young plants from the nursery

bed. My plants are in a rich dry soil, and grow very rapidly, requiring only three or four years to reach the height of 4 feet, they are as thrifty and bear the vicissitudes of our climate as well as the native *Cassina*. If there could be invented some machine to imitate this hand labor, to effect the same slow process by means less expensive than the man-hand, I think that the cultivation of tea might become not only practical, but profitable to a large portion of our Southern country.

Rev. W. A. Meriwether, Columbia, S. C., says :—

I obtained a Chinese tea-plant from North Carolina nine years ago, and set it out in open ground in a plot of Bermuda grass. It has received no cultivation, and is now a fine shrub, measuring to-day six and a half feet in height by nine feet across the branches at the base. The soil where it grows is light, sandy land, with no clay within two feet of the surface. The plant is not affected by the severest cold to which our climate is subject. It was not the least injured by the intense cold of December, 1870, when my thermometer registered 1° above zero; the coldest weather I have ever known in this latitude. That the climate of the Southern States is well suited to the cultivation of the tea-plant, I think there can be no question. I sincerely hope you may succeed in your efforts to arouse our people to the importance of its cultivation. If only enough tea were made to supply the home demand, what an immense annual saving would result.

Hon. James Calhoun, Trotter's Shoals, Savannah River, S. C., says :—

Eighteen years ago some half-dozen tea-plants, brought from China, were sent me. I set them in what had been a strawberry bed, in a soil friable, of medium quality, unmanured. Nothing had been done beyond keeping down the weeds with the hoe. The plants have had no protection: but during a portion of the first summer, seedlings have some shelter. As yet there has been no damage from blight or from insects. Frequently leaves are clipped in moderation from all parts of the bush, care being taken not to denude it. They are parched in an iron vessel at the kitchen fire, constantly stirred, and immediately afterward packed in air-tight boxes. I enclose leaves plucked to-day, measuring from 3½ to 5 inches, and, as you will perceive, exhibiting three varieties.

Mrs. R. J. Screven, McIntosh, Liberty Co., Ga., says:—

My experience is that the tea-plant does best in land somewhat low, but not such as water will lie upon or is overflowed. I sow the seed in the fall, as soon as they ripen and drop from the bushes, in drills eighteen inches apart. They come up readily in the spring, and by winter are from three to six inches high. Under the shade of some large tree is usually the place selected for sowing the seed, for if the plants are exposed to the hot sun while young, they invariably die the first summer. When six months old they are ready for transplanting; have generally a good supply of roots, and can be set out at any time from the first of November to the last of March. In putting them out, I have generally prepared holes to receive them, to give a good start, so that fine, healthy bushes will be obtained. In April, 1867, I think it was, Mr. Howard, from Baltimore, who had been engaged on a plantation for several years in the East, visited my father's plantation in this country, and expressed himself as surprised at the splendid growth of the tea. Being there at the time of gathering the young leaves, he plucked from one bush alone, prepared the tea himself, and took it on to Baltimore, where he had it tested and weighed. He wrote back that it had been pronounced stronger and of superior flavor to the imported, and that by calculation he was satisfied that four hundred and fifty pounds of cured tea could be made here at the South to one acre of ground

Mr. J. W. Pearce, Fayetteville, N. C., writes:—

My plants are now about five feet high, very thick and bushy near the ground; have no protection from any kind of weather, while the mercury has been as low as 10° below zero. They do not seem to suffer from drought, as evergreens, and bear a beautiful white flower, with little scent until nearly ready to fall. The seed are like the hazel-nut; have a hard shell and bitter kernel, and take a long time to germinate. Hence it is better to plant them on the north side of a fence or house, where they will remain moist. They come up readily when left under the bushes where they have been dropped. The plants then can be set out successfully if care be taken to avoid breaking the long tap root peculiar to them. Half a dozen plants furnish my family, of five or six persons, with more tea than we can use. We prepare it by heating the leaves

in an oven until wilted, then squeeze them by hand until a juice is expressed from them, then dry them again in the oven. The tea is then quite fragrant and ready for use, improving with age.

About 50 pounds of a fairly marketable article of American tea has recently been produced by a Mr. Shepard of Summerfield, S. C., who grew and cured the leaves in an ordinary fruit evaporator. On being tested, the sample was pronounced equal to the average of China Congous and much superior to many of the India, Java and Ceylon growths. With other and more proper methods of curing, the quality and character could undoubtedly be much improved. Much more evidence could be selected as to the quality of tea produced by ordinary domestic processes, but it is sufficiently well ascertained that it is within the capacity of hundreds of thousands of people in this country to grow and prepare all the tea they require, leaving the question of its profitable commercial culture to be settled by practical test later.







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