BULLETIN OF ASSOCIATED BROKERS PRIVATE LIMITED

July – September 2018

- courtesy Tea Research Association (TRA)

Monthly list of essential things to do for Field & Factory

September

FIELD

NURSERY • To harden the plants for autumn and spring planting thin out the overhead shade.Keep the shade and seed nursery free from weeds.

PLUCKING • Fill up the pockets by plucking upto the average level of creep. • Introduce black plucking in the event of excessive banjhiness. • Contain creep in LP / DS teas within the permissible limit. • Allow the peripheral shoots to come up to the level of the table.

PRUNING • Lop the side branches of MP/RP bushes if vacancy infilling was done.

MANURING • Apply second split of NPK fertilizer in waterlogged mature tea. • Where third split is practised, NPK fertilizer should be applied. • Apply a round of NPK (2:1:2) mixture @ 30kg N/ha in young tea. • Apply additional dose of 60kg P_2O_5 /ha in tea proposed for MP/RP.

REHABILITATION & GREEN CROP • Lop Guatemala at 30 cm above the last cut mark. • Cut the rehabilitation and cover crop from the areas to be planted.

MULCHING • Collect and apply mulch material in young tea.

WEED CONTROL • Apply weedicide as per need. Handweed the young tea areas. • Sickle the weeds at ground level to restrict flowering.

PEST & DISEASE CONTROL • Apply acaricides thoroughly as chances of resurgence of mite is more. • Assess the level of Helopeltis infestation to adopt proper control strategies. • Apply COC or Hexaconazole depending on the persistence of Black rot. • Spray appropriate termiticide in young tea. • Spray insecticides against caterpillar and borer in young shade trees. • Undertake insecticidal spray in seed baries. • Hand-collect or light trap the moths of looper & Red slug.

FACTORY

CTC – 1) For partially wet leaf, the leaf will be fluffed properly and temperature of hot air should ideally be kept around 90 to 100° F (32 to 37.77° C) for 45 mins to 1 hour, keeping h.d. at 7 to 8° F. Thereafter, turn the leaf and follow same again. 2) RPM of the Rotorvane should ideally be 18. CTC cut should be relatively harder. 3) Try to complete sorting of primary and secondary teas daily. 4) Apply dry steam at hourly intervals to all susceptible places where chances of bacterial contamination are high. 5) Calculate daily sorting capacity to finish secondary sorting and packing before end November.

ORTHODOX (ASSAM) – Even withering is essential for better roll. Check quantity of flakes and stalk content in third fine and coarse and do not force poor leaf to Orthodox production. Percentage of coarse at any time should not increase more than 20-24%.

ORTHODOX (DARJEELING) – 1) Maintain either one long first roll or two rolls depending on leaf condition. 2) Autumn character has woody taste. Manufacturing criteria will depend on the leaf condition.

GREEN TEAS – From mid September, better to avoid manufacturing green teas as very high percentages of secondary grades are usually produced.

October

FIELD

LAND PREPARATION • Use jungle jim for pulverizing Guatemala. • Minor depressions should be filled up.

NURSERY • Start autumn propagation of cuttings.
Allow the ready plants to be hardened after sorting out. • Start filling up the sleeves for seed nursery.
Hand weed the shade nursery.

PLANTING • Start autumn planting of tea.

MANURING • Apply last dose of YTD mixture in sleeve plants. • Apply foliar Urea and Zinc Sulphate at fortnightly interval. • Complete application of 3rd split if programmed.

PLUCKING • Maintain plucking rounds particularly in proposed UP teas. • Step up by a leaf in the proposed UP teas if status of maintenance foliage is inadequate.
• Rest the bushes severely damaged by Black rot as well as the teas to be medium pruned.

MULCHING • Mulch the newly planted tea.

WEED CONTROL • Hand weed the creepers and woody perennials. • Only spot application is required.
• Sickle the weeds where manual control is practiced.

PEST & DISEASE CONTROL • Spray pesticides on spot. • Apply bio-pesticides like Beauveria bassiana against Helopeltis and Bacillus subtilis against Black rot at a fortnightly interval. • Apply termiticide in the plantation having termite infestation. • Continue application of acaricide being vulnerable to mite attack.

FACTORY

CTC – 1) Excess flow of leaf than capacity of the processing unit will be faced on many occasions due to strike,

bonus settlement, absenteeism and puja holidays. If leaf load on troughs is high, run fan as forward for 3-4 hrs first and thereafter as 1:1. 2) RPM of the ghoogie may go up to 26-28 as style and appearance is important for backend season. 3) Complete cleaning and sorting of side rejections at earliest if carried over from past weeks/months. 4) In VFBD dryer, reduce the r.p.m. of the ball breaker to 450 so that percentage of brokens is not reduced.

ORTHODOX (ASSAM) – 1) Same as September. Check quantity of flakes and stalk content in third fine and coarse and do not force poor leaf to Orthodox production. 2) Withering will be at 60-62% for better rolling. Market demands black and cleaner teas. 3) For good roll, usually more rolling duration and high pressure will be required as 50-40-40 or 40-30-30 minutes depending upon the quality of shoots. Coarse is likely to be around 35%. 4) Separate sorting line for fine and coarse will be highly beneficial to complete the carryover unsorted tea.

ORTHODOX (DARJEELING) – 1) Based on the fine percentage of leaf, set Rolling and Drying standard. For good and soft leaf, maintain 2nd Flush Rolling and Drying setting. If leaf is hard and coarser, maintain rain flush rolling and drying setting. 2) From mid October there is Autumnal character in the tea. This quality is somewhat close to second flush and has good demand from overseas buyers. Hence the manufacturing parameters are to be oriented more towards 2nd flush.

GREEN TEAS – All balance secondary grades and residues of green teas are to be sized and sorted.

Editorial

Dear Readers,

We begin this issue with the Tea Research Association's (TRA's) monthly 'to do' list of field and factory essentials. With the kind permission of the TRA, we reproduce the priority areas for the months of September, October, November and December.

The previous issue of 'The Associated' was our newsletter's 8th anniversary edition. The anniversary issue was released by Mr. Bharat C. Arya, Chairman, Federation of All India Tea Traders Association (FAITTA) and Director of J. V. Gokal & Co. Private Limited on the 7th of April, 2018 at the Bengal Club, Kolkata. We thank all members of the tea fraternity for gracing the occasion.

At the height of the British colonialism in India, the malaria fever was a leading cause of death in the early 19th century. A contributing factor was the establishment of railways and irrigation networks without providing for efficient drainage of flood water and rain water. This created many reservoirs for the propagation of mosquitoes. The heavy loss of life and resultant economic loss resulted in research to control malaria. During the 1840s, proper drainage as well as the extraction of quinine for its use in drugs against malaria became priorities for the government and cinchona plantations were established both in the southern and northern parts of India. We reproduce extracts covering the cinchona industry of Darjeeling district from the Bengal District Gazetteers series.

We end the issue with an article on the interesting history of Earl Grey tea and wish you a pleasant read!

November

FIELD

LAND PREPARATION • Uproot tea and shade. • Fill up the pits formed from uprooted tea bush and shade tree. • Fill up the subsidiary and sub main drains.

NURSERY • Complete autumn planting of cuttings.
Water the sleeves/rooting bed with hand sprayer.
Sow the crack seeds in the sleeves/beds and cover with a fast degradable mulch.

PLANTING • Complete planting of tea.

PRUNING & SKIFFING • Start pruning of mature teas in non droughty areas from middle of the month retaining a healthy breather and knife clean the bush frame.
Prune clonal mother bushes and knife clean thoroughly. • Apply alkaline wash or Trichoderma 5% suspension on the bush frame.

MANURING • Apply foliar MOP at fortnightly interval in all proposed UP teas. • Spray MOP (2%) two rounds at fortnightly intervals in proposed MP areas.

PLUCKING • Complete stepping up of the table wherever necessary to keep unprune. • Pluck off the banjhis from the table regularly. • Keep under rest the proposed medium prune teas and Black rot infected bushes.

MULCHING • Mulch the newly planted teas.

PEST & DISEASE CONTROL • Restrict use of acaricides and insecticides only to the infested patches. • For blanket application use only Neem or other botanical products and Sulphur formulation. • Apply bio-pesticide like Beauveria bassiana against Helopeltis and Bacillus subtilis against Black rot if not applied in the previous month. • Treat the Black rot infected areas with two fortnightly rounds of Carboxin in absence of biocides. • All Helopeltis punched shoots should be plucked off.

FACTORY

CTC – 1) Load thin for natural withering as hardly any effect of running fan during night. 2) Roll-Rotorvane-CTC is better for desired bloom, appearance and liquor than Rotorvane-CTC. 3) Lay thicker on floor and CFM. In CFM, regulate flow of humidified air and the same will be bare minimum if necessary. Avoid raking be it CFM or Floor. Opt for CFM than floor if both the systems are there. 4) To increase BP %, the RPM of the ghoogie can be increased to 24-26 in Dooars and Cachar.

ORTHODOX (ASSAM) – 1) Withering will be a bit harder as 58-60 % for good rolling as market demands black and cleaner teas. 2) For good roll, usually more rolling duration and high pressure will be required as 50-40-40 minutes or 40-30-30 depending upon the quality of shoots. Coarse is likely to be around 35%. 3) Fermentation will be of longer duration, say around 3 hrs to 3 hrs 10 mins at early morning. With the progression of the day, the time will be reduced. Do not force poor leaf to Orthodox production. One may try for extraction Orthodox.

ORTHODOX (DARJEELING) – 1) Harvest reduces significantly from mid of November. Time is appropriate for the planning overhauling of the machineries during winter. 2) Have a complete critical examination of machinery from each section. List out the work to be done from mid November. 3) Prepare the indent, float quotations and formalize the order to be placed for spares, inputs and accessories which are to be outsourced.

GREEN TEAS – Overhauling of machinery like dryer, rolling table, sorting machine etc. should be started.

December

FIELD

LAND PREPARATION • Mark the location of sub-main and main drains to avoid ploughing. • Soil should be tested for necessary amelioration. • Follow a sequence of cross ploughing - cross harrowing - sub soiling - cross harrowing- levelling.

NURSERY • Do watering as and when necessary in both tea and shade nursery. • Continue sowing of tea seeds and cover the sleeve or bed with a thin layer of dry mulch.

LIGHT PRUNE • Continue pruning and knife cleaning operation.

MEDIUM PRUNE • Start the operation from mid of the month and complete preferably by the end of the month. •Apply Indopaste or Trichoderma 20% paste on cut surfaces quickly after prune. Leave a healthy breather in each bush.

DEEP SKIFF • Start the operation from the middle of the month.

PRUNING (MOTHER BUSH) • Prune mother bushes for spring propagation. • Thorough knife cleaning is essential.

BUSH SANITATION • Complete hand de-banjhi and knife cleaning out operations in already pruned and skirled teas. • Apply alkaline wash or Trichoderma biocide (5%) suspension on the bush frame.

MANURING • Continue foliar application of MOP and Magnesium Sulphate. • Collect soil samples for analysis to prepare manuring programme.

PLUCKING • Maintain a flat plucking surface. • Bushes suffering from moisture stress should not be plucked.

DRAINAGE • Deepen and re-grade the drains. • Complete contour survey of areas to be planted in next spring.

PEST & DISEASE CONTROL • Only spot control if noticed. • Take control measure for termite, removing the earth runs and dead branches. • Collect Chrysalides of bunch and Red slug caterpillars from dried leaves on the ground as well as from the fork of the bush. • Handcollect or light trap the moths of Red slug.

FACTORY

CTC – 1) Natural withering is better. If one fan runs occasionally, open the side windows partially to release some inlet air. 2) Dryer mouth tea should have 2.8 to 3% moisture. 3) Complete sorting of excess, composed of vibro collected lighter teas mixed with fibre, dryer fluff and blown out teas etc. after gapping, before 31st December. Complete reprocessing also by end of the month. 4) Stock should be taken correctly after adjusting the excess.

ORTHODOX (ASSAM) – 1) Avoid Orthodox production as green leaves are not suitable. Clear unsorted orthodox teas lying on floor. 2) Like CTC, avoid carrying over unsorted teas to the next season. Take final stock after adjusting the excess.

ORTHODOX (DARJEELING) – 1) At the most, harvest continues till first week of December and requires a limited number of machinery during this period. Start overhauling (check/ clean/ service) of a) Withering troughs: motors, switch and starter in batches which are not under use. If required, motor could be varnished. Undertake the wooden work required in withering troughs, including repairing of sagged welded mesh, torn/ cut teelon/ netlon if required. b) Rolling table: Moving parts like ball bearing, leg bushes, greasing, and correction of asymmetric well, discharge door, pressure plate, pressure screw at factory workshop or at commercial engineering workshop if major overhauling is required. c) Dryer: Feeder tray, perforated tray, driving shafts, rail chain, etc. d) Stove: Thorough cleaning of carbon shoots, replacement of bent/ broken stove tube, tube banks, forward fan, etc. e) Sorting: Check and service all the driving parts, wire mesh tray and discharge shoots. f) Take a stock of existing sorting gumla, boxes, etc. and make a provision of adequate numbers for the season. g) Arrange to procure packing materials, bulking sheets, sample pouches and other manufacturing stores for the coming season.

GREEN TEAS – Overhauling of machinery like dryer, rolling table, sorting machine etc. should be started.



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Mr. Bharat C. Arya, Chairman FAITTA (left) with Mr. Dipankar Chatterjee and Mr. Rudra Chatterjee of Luxmi Tea at the event

Anniversary issue bulletin launch

Associated Brokers invited all sections of the tea trade to celebrate the 8th anniversary issue of 'The Associated'. The anniversary issue was released by Mr. Bharat C. Arya, Chairman, Federation of All India Tea Traders Association (FAITTA) and Director of J. V. Gokal & Co. Private Limited. The occasion was graced by producers, buyers and members of the tea broking fraternity as well as several luminaries associated with the industry.



Mr. Bharat C. Arya (right) and Mr. A. Baroowa of Associated Brokers (left) at the release of the anniversary issue of 'The Associated'

The evening was enjoyed by one and all

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In previous issues of 'The Associated', we had reproduced extracts from a series compiled by L.S.S. O'Malley of the Indian Civil Service under the Bengal District Gazetteers, first published in 1907.

In this issue, we reproduce extracts from the publication on the cinchona plantations in the Darjeeling district. At the time, the manufacture of cinchona was an important industry in the district, second only to the tea industry. The cinchona plant yielded quinine and other alkaloids that were the only effective treatments against malaria during the height of colonialism.

(These extracts are a reproduction and the formation of sentences and spellings are presented in their original form as written by the author)



The first cinchona seeds received in Bengal were, sent by Sir J. Hooker, in 1861, to Dr. Anderson, Superintendent of the Calcutta Botanic Garden

Cinchona

History of the Plantations

The cultivation of cinchona in Darjeeling was commenced in 1861-62. It had for some time, in fact since 1835, been considered desirable to extend to the hills of the Bengal Presidency the experiment of cultivating cinchona which had succeeded so well in the Nilgiris, the plants or seeds having originally been brought to the Madras Presidency from Teru under the superintendence of Mr. Clements Markham. The first cinchona seeds received in Bengal were, some sent by Sir J. Hooker, in 1861, to Dr. Anderson, Superintendent of the Calcutta Botanic Garden, who conducted all the cinchona experiments in Bengal until he left in 1869. In 1861 Government took up the matter in earnest, and deputed him to inspect the cinchona plantations in Java. He received every assistance and attention from the authorities there, and brought back with him a large number of healthy plants. A few were retained for experiments in Bengal; the rest he took to the



Here the cultivation, on an extensive scale, of those species of cinchona which contain quinine and allied febrifuge alkaloids in their bark was begun in 1864.

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The plantation was started with one hundred plants each of Cinchona succirubra and Cinchona officinalis, and two plants of Cinchona Calisaya, at an elevation of about 4,000 feet. The stock of plants rapidly increased, so that ten years after the inception of the undertaking, there were nearly three million trees in existence, mostly of Cinchona succirubra, and the original clearing on the slope of the Rangbi had been extended in a south-easterly direction to the Rishop and Mangpu ridges in the Rangjo valley, while new extensions, comprising in 1881 about 750 acres, had been opened at Labdah on the northern and Sitong on the southern slope of the Rayeng valley. It was soon discovered that Cinchona officinalis, the species yielding crown or Loxa bark, did not thrive, so that its further propagation was discontinued. For about the first decade the majority of the trees on the plantation were Cinchona succirubra, the species which yields red bark, poor in quinine but rich in a mixture of febrifuge alkaloids allied to guinine. The remainder of the trees were mostly of Cinchona Calisaya, or Ledgeriana, as it is now called, the species yielding yellow bark, rich in quinine.

In 1868-70 proposals were submitted by Dr. Anderson for the manufacture at the Rangbi plantation of a cheap but powerful febrifuge, well suited for use in native hospitals and charitable dispensaries, by separating the cinchona alkaloids from the young cinchona bark. The purchase of machinery for the experiment was sanctioned; and a factory was established at Mangpu in connection with the Rangbi plantation. This factory was equipped with the simplest of appliances for the extraction, by a combined acid and alkali process, of the mixed alkaloids from the red-bark trees; and in 1874 just ten years after the opening of the Rangbi clearing, the manufacture of cinchona febrifuge was begun, the first year's working yielding about 50 pounds of febrifuge. For the next fourteen years, up to' 1887, only cinchona febrifuge was manufactured; but just before 1880 Dr. King, who was then Superintendent, initiated the policy of converting the plantation from one in which red-bark trees, poor in quinine, preponderated, into one of quinine-yielding species. In pursuance of this policy, the yellow-bark quinine-yielding species par excellence (Cinchona Calisaya or Ledgeriana) was planted out in gradually increasing numbers, together with a quinine which appeared spontaneously on the plantation about this time, yielding a natural hybrid between Cinchona succirubra and Cinchona officinalis. This substitution was pushed on with such vigour that, whereas in 1880 there were 4,000,000 red-bark trees to 500,000 yellow-bark and hybrid trees together, in 1890 there were over 3,000,000 of yellowbark and hybrid to 11/2 million of red-bark trees, and in 1901 over 2 million yellow-bark and hybrid to 200,000 red-bark trees.

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A photograph taken in the 1870s and described as 'A cinchona tree (succirubra) at the Government Plantation at Rungbee'

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Tea Market Scenario

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North India Crop in M. Kgs.

350.0	All Figures are provisional & subject to change Year-2017								
300.0 -							_		
250.0 -							_		
200.0 -							_		
150.0 -						Year-2016	_		
100.0 -				Voor 2017	Year-2017		_		
50.0 -	Year-2016 Tear-2017								
0.0	Year-2009 Year-2009 Year-2009								
0.0 -	Jan	Feb	Mar	Apr	May	Jun	Jan to Jun		
Year-2018	5.3	1.9	46.7	63.2	89.8	120.2	327.1		
Year-2017	6.0	2.0	41.5	65.9	98.3	121.4	335.1		
🛧 Record Crop	10.1	3.1	55.3	65.9	98.3	122.1	335.1		

Source - Tea Board of India

South India Crop in M. Kgs.



Source - Tea Board of India

All India Crop in M. Kgs.

500.0	All Figures are provisional & subject to change							
450.0 -			0		0			
400.0 -								
350.0 -								
300.0 -								
250.0 -								
200.0 -						Year-2017	_	
150.0 -				Vear-2017	Year-2017	10012017	_	
100.0 -			Year-2016	Tear-2017			_	
50.0 -	Year-2010	Year-2010		_	_		_	
0.0 -	Jan	Feb	Mar	Apr	May	Jun	Jan to Jun	
Year-2018	17.7	13.5	61.0	85.7	111.9	142.7	432.5	
Year-2017	19.2	13.6	56.2	92.4	123.5	148.4	453.3	
📥 Record Crop	27.1	18.0	70.7	92.4	123.5	148.4	453.3	

Source - Tea Board of India



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Exports in M. Kgs. (Jan to Jun)



Source: Tea Board of India & Others.

Kenya Crop in M. Kgs.



Source - Tea Board of India

Sri Lanka Crop in M. Kgs.

210.0	All Figures are provisional & subject to change								
180.0 -			,	igures are provisio		ange			
150.0 -								_	
120.0 -								_	
90.0 -								_	
60.0 -								_	
20.0	Year-2010	Year-2001	Year-2011	Year-2013	Year-2014	Year-2010	Year-2014		
30.0									
0.0 -	Jan	Feb	Mar	Apr	May	Jun	Jul	Jan to Jul	
Year-2018	24.5	21.1	28.7	27.9	33.0	23.2	23.8	182.2	
Year-2017	21.7	18.6	26.6	32.9	29.7	27.2	25.7	182.4	
📥 Record Crop	28.6	26.4	34.0	33.9	39.2	31.3	29.0	202.6	

Source - Tea Board of India





10ET

North India Assam Orthodox Leaf Sold Quantity & Average Price



North India Dooars + Terai CTC Leaf & Dust Sold Quantity & Average Price



North India Cachar + Tripura CTC Leaf & Dust Sold Quantity & Average Price





JOET M

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Africans (Mombasa) Sold Quantity & Average Price





Comparative Graph of Assam CTC Total viz Africans (Mombasa)



Comparative Graph of Assam Orthodox Leaf viz Sri Lanka





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A log felled in 1885 from a Cinchona Calisaya or Ledgeriana tree in Darjeeling

From page 7

The object of Government in maintaining these plantations was to supply the hospitals and the people with a cheap remedy for malarial fever, which, as already stated, consisted up to 1887 of the preparation of cinchona bark, called cinchona febrifuge, a whitish powder composed of the alkaloids existing in the bark. In that year the manufacture of sulphate of quinine was commenced in the Mangpu factory by a process of extraction by fusel oil elaborated by Mr. Wood, formerly Quinologist, and Mr. Gammie, the Deputy Superintendent of the Plantations. From 1887 onwards the factory has continued to produce, in addition to cinchona febrifuge, sulphate of quinine in yearly increasing quantities; and the factory is now being extended in order that it may turn out in the future a minimum of 20,000 pounds. The issue of sulphate of quinine in 1887-88 was about 250 lbs.; in 1900-01 over 11,000 lbs., and in 1905-06 the output was nearly 16,000 lbs. In 1892 was instituted the system of selling sulphate of quinine to the public through the post offices in small packets, containing 5 grains (subsequently increased to 7 grains) at the price of one pice per packet, so as to enable even the poorest native to purchase a dose of the drug. In 1892-93 475 lbs., in 1900-01 3,400 lbs., and in 1905-06 4,200 lbs. of sulphate of quinine were issued for this purpose.



A bottle of anti-malarial pills dating back to 1891-1894



Cinchoninesulphate crystals, England, 1860-1910

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Method of Cultivation

Where land is occupied by heavy jungle, the forest is felled and burnt a year before planting operations are to be carried out. As soon as the succeeding rains are ended, the ground is cleared again of its light growth of jungle, trenched to a depth of 11/2 to 2 feet, roots taken out and stones collected in low transverse walls across the steeper slopes to arrest wash of soil in wet weather. The land is then staked out, from 5 or 6 feet apart according to the species to be planted out; and pits are dug in which the soil is again loosened and clods broken, the work being completed to admit of planting being done during the early spring.

In appearance the cinchona seed is small and chaff-like, weighing 60,000 to 70,000 to an ounce. This is harvested during February and March, and at once sown in prepared beds, protected from the weather by thatched watertight lines, with sloping roofs constructed some 5 feet high in front and 2 feet high behind, and facing north to prevent sunshine drying up the seed beds. When half an inch high, the seedlings are replanted in other beds an inch apart ; and later, when they have attained a height of 3 to 4 inches, they are again transplanted to other thatched nurseries similar to those prepared for seed beds, and near to the land to be planted out. By October the seedlings will have completed their first year's growth and be a foot in height. The thatched covering of the lines is then removed, and the seedlings hardened off by

exposure to sun until February, March or April, when they are planted out in their permanent places in the land prepared for them. Once growing weather has set in, the young plantation for the first year is kept clear by hand-weeding about the plants and by sickling the intervening spaces. From the second year onwards, weeds are kept down by repeated light hoeing and hand-weeding.

Barking operations are carried out equally throughout the whole year, and are first begun when the trees are three years of age. Thinning then becomes necessary wherever overcrowding exists, and individuals that show signs of Cinchona seeds being planted in Bengal (late 1800s)





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Scraping cinchona bark from a plantation in Bengal (early 1900s) unhealthiness are uprooted. Every year the whole plantation is thus gone over and trees removed where necessary. To collect bark, the trees are uprooted and divided into three parts—root, stem and branch. All the bark is completely scraped off with blunt knives, and the three kinds—root, stem and branch— dried in open-air sheds, or in a heated godown during wet weather. Each kind is stored separately, and they are then taken for the extraction of the alkaloids to the quinine factory.

Manufacture

The dry cinchona bark is first mixed with slaked lime and ground to a fine powder. It is then moistened and tipped into vats containing dilute caustic soda solution, which is heated by a steam coil lining each vat and continually stirred by a mechanical arrangement. Oil



is then run on to the homogeneous mixture, the stirring kept up for two hours, and afterwards the whole allowed to stated till the oil has again separated completely from the bark sludge, carrying with it most of the quinine in solution. The remainder of the quinine is extracted by repeating the stirring with a second quantity of oil. The oil layers are run off from the top of the exhausted bark, and in another vat are stirred with water and sulphuric acid, which extracts the guinine and leaves the oil ready to be used again on more bark. The excess of acid in the aqueous quinine solution is then neutralized, and the crude quinine sulphate separates out as a crystalline powder. It is purified from the other cinchona alkaloids by recrystallization from water, and from colouring matter by the aid of precipitants. The liquors from which quinine sulphate has been obtained are still saturated with it, and also contain all the other alkaloids from the bark. They are mixed to give a product of definite composition, colouring matter is removed, and then all the alkaloids are precipitated together by addition of caustic soda. This mixture of alkaloids after washing. drying and powdering constitutes cinchona febrifuge.



A cinchona plant

The tea house at Howick Hall where visitors are served the Grey family's version of Earl Grey tea

Earl Grey - the man and the tea



Charles Grey, the 2nd Earl of Grey

Known the world over as a quintessentially British tea, Earl Grey usually comprises of black tea as a base to which oil from the rind of bergamot orange, a citrus fruit native to the Mediterranean region, is added. The bergamot orange has the appearance and taste between an orange and a lemon with a little bit of lime and grapefruit thrown in.

This tea is generally accepted to have been named after Charles Grey (1764-1845), an English aristocrat and the 2nd Earl of Grey. He was educated at Eton and Cambridge and was elected to the House of Lords at the age of 22. Outside of a few affairs, most notably one with Duchess of Devonshire, Georgiana Cavendish, Grey's contemporaries mention him as a remarkably boring man, though of a few significant achievements.

There are impressive bouquets of rumours surrounding the origins of Earl Grey tea, most of them

apocryphal. Among the more dramatic versions is that a Chinese mandarin blended the tea for Earl Grey — adding the bergamot oil to compensate for a high proportion of lime in the local water of Northumberland. The Chinese mandarin offered the tea in gratitude after the Earl saved the mandarin's son from drowning. An astonishing tale, especially since Charles Grey never travelled to China himself!

According to the version of the Grey family, a Chinese tea master blended the first Earl Grey tea as a gift for Charles Grey. The tea master used bergamot as a flavouring to offset the taste of the lime-laden well water on Earl Grey's estate, Howick Hall in Northumberland. Lady Grey, the Earl's wife, loved the tea so much that she entertained with it exclusively. The tea became so popular amongst her guests and London society, she asked tea merchants in London to recreate it.





The truth on the origins of Earl Grey tea may however be more mundane.

The Earl of Grey spent a short though politically important four years as Prime Minister of the United Kingdom, from 1830-1834. His administration is responsible for notable reforms, including the abolition of slavery throughout the British Empire in 1833. His link to the world of tea came in 1834, shortly before retiring from public life, when he removed the trade monopoly with China held by the East India Company. The newly opened trade routes allowed the newly designed tea clippers, a sleek and fast trade ship, to be entirely packed with tea, drastically reducing the import cost and causing a surge in the popularity and consumption of tea in the United Kingdom. With this in mind, it seems likely that a Chinese ambassador presented Charles Grey with a gift of highquality Chinese tea out of gratitude for the sudden profitability of the tea business.



The bergamot orange

While these stories make for interesting reading, it is likely that the Earl Grey tea originally had nothing to do with the Prime Minister. Bergamot was being added to black teas in the 1820s, sometimes to enhance the taste of low quality tea and at other times in order to mimic the flavour of particularly fine Chinese tea. It is likely, though, that Charles Grey received a bergamot flavoured tea named Earl Grey in his honour and that his wife popularised this blend among the British upperclasses. Thus, Earl Grey tea came to be associated with tradition, with power, and with a certain degree of poshness.

Regardless of the origins of Earl Grey tea, its sophisticated take on standard black tea has made it one of the most loved teas the world over!

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Associated Brokers Private Limited

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blue cornflower petals with the base

black tea