

Brazil as a coffee-growing country

G. A. Crüwell, A.
Scott Blacklaw

Cornell University Library
SB 269.C95

Brazil as a coffee-growing country: its c



3 1924 019 145 881

mann, hort



BAILEY HORTORIUM

ALBERT R. MANN LIBRARY

NEW YORK STATE COLLEGES
OF
AGRICULTURE AND HOME ECONOMICS
AT
CORNELL UNIVERSITY

A. D. Lamour
BRAZIL

AS A

COFFEE-GROWING COUNTRY:

ITS CAPABILITIES, THE MODE OF CULTIVATION, AND

PROSPECTS OF EXTENSION,

DESCRIBED IN A SERIES OF LETTERS

FROM THE LATE

Mr. G. A. CRÜWELL

AND

Mr. A. SCOTT BLACKLAW,

TO THE

"CEYLON OBSERVER,"

WITH THE LATEST INFORMATION FROM OTHER

SOURCES.

COMPILED FROM THE COLUMNS OF THE

"CEYLON OBSERVER."

COLOMBO:

A. M. & J. FERGUSON.

1878.

1878

INDEX.

Amazon, Discovery of the	...	...	...	3
Angelica Estate	...	...	...	13-14, 56
Anglo-Brazilian Times	...	...	...	1
Bahia, Exports of Coffee from	...	...	...	9, 119
Brazil : its area, 1, 4 ; climate, 1, 2, 5 ; discovery, 3 ; population, 4, 75, 87 ; provinces, 4-5, 88 ; agricul- ture, 8 ; geology, 10, 29-37.				
Burton, Capt., on Brazil	...	...	...	74, 82
Cabral, Pedro Alvares, Discovery of Brazil by	...	...	...	3
Camerado, The	...	...	...	64
Campo, The Brazilian	...	...	...	65, 69, 70, 76
Chinese Immigrants in Brazil	...	...	...	10
Christie, Mr., on Brazil...	...	...	...	81
Coffee, Exports of, from Brazil	...	...	...	8-9, 20, 51, 52, 79, 99, 106-108, 116-117, 120, 125, 132-138 142, 143-147, 148-150
Colonist System, The	...	...	...	56, 62-64
Commerce of Brazil	...	...	...	132-139, 142
Crops in Brazil...	...	...	...	44, 48, 51, 52, 79, 99, 106-108, 111, 116-117
Criwell, Mr., Visit of, to Brazil	...	...	...	28-99
Debt, Public, of Brazil	...	...	...	121, 140-142
Drought, Effects of	...	...	...	40, 80
Dunlop, Mr. Charles, on Brazil	...	...	...	1, 2, 3, 6-7
Eucalyptus Globulus in Brazil	...	...	...	112
Exports from Brazil	...	...	...	119, 120, 123-125, 142
Fazenda, A Brazilian	...	...	...	15, 41
Fazendeiro, The Brazilian	...	...	...	13
Felling for Coffee	...	...	...	16
Fires in Brazil	...	...	...	101
Hadfield, Mr., on Brazil	...	...	...	21
Hart, Mr., on Brazil	...	...	...	28, 29
Holing for Coffee	...	...	...	16
Hulling Coffee	...	...	...	17
Immigration to Brazil	...	...	...	2, 10, 119

Kidder, Mr., on Brazil...	...	...	...	...	6
Labour in Brazil	...	...	...	56, 62-65, 76, 91	
Leaf Disease	...	...	...	20, 38, 43, 49, 51-52, 60, 76, 95-99, 101, 103-106, 113-115	
Leaf Insect in Brazil	...	...	...	...	109, 112
Lining for Coffee	...	...	...	...	16
Macgregor, Mr., on Brazil	...	...	...	...	2, 6
Mineiro, The Brazilian	...	...	...	...	74
Pedro I., Dom	...	...	...	...	8
Pedro II., Dom, Emperor of Brazil	...	...	...	1, 8, 50, 86, 89	
Picking Coffee	...	...	...	...	16, 19
Pizarro, Gonzalo, Discovery of the Amazon by	...	...	...	...	3
Planting Coffee	...	...	...	...	16
Provinces of Brazil	...	...	...	...	4, 88
Pruning	...	...	...	...	60
Railways in Brazil	...	...	...	20-27, 54, 57-59, 76, 102, 110, 125-128, 129-132, 142	
Rainfall in Brazil	...	...	...	...	103
Rio de Janeiro, Exports of Coffee from,	...	...	...	8-9, 99, 116-117, 120, 133-138, 143-146, 148-150 ; Coffee Cultivation in, 11.	
San Paulo, Production of Coffee in...	...	...	...	...	9
Santos, Exports of Coffee from...	...	...	...	9, 99, 116-117, 125, 133-138, 143-146, 150	
Scully, Mr. W. M., on Brazil	...	...	...	...	1, 2, 24
Slavery in Brazil	...	...	...	4, 6, 7, 11, 17-19, 38, 46, 51, 82, 87, 91, 119	
Soil in Brazil	...	...	...	...	43
Taxation in Brazil	...	...	...	...	61
Tschudi on Brazil	...	...	...	...	20
Weeding	...	...	...	...	44
Yellow Fever in Brazil	...	...	...	...	2

Contents.

CHAPTER I. GENERAL REMARKS.

Population, &c.	...	...	...	...	...	4
The Climate	...	...	...	...	...	5

CHAPTER II. AGRICULTURAL ENTERPRISE.

CHAPTER III. COFFEE PLANTING IN BRAZIL.

CHAPTER IV. RAILWAYS IN BRAZIL.

Brazilian Railways	22, 26
--------------------	-----	-----	-----	-----	-----	--------

CHAPTER V. MR. CRUWELL'S VISIT TO BRAZIL.

Extracts from Hart's book on Brazil	...	...	29
Province of Espirito Santo	...	...	31
The San Francisco Basin	...	...	32
Province of São Paulo	...	...	33
Résumé of the Geology of Brazil	...	...	34
Eozoic Rocks and their Distribution	...	...	34
Tertiary...	...	...	35
Drift...	...	...	36
Mr. G. A. Cruwell on coffee-planting in Brazil			
—One kind of leaf-disease known there for fifteen years.—Labour difficulties prevent the extension of cultivation	...	...	37
The absence of villages and population in the low-country of Brazil—The drought and the mischief that it does—Crows and ageratum and Spanish needle to delight the heart of the Ceylon visitor—The Brazilian fazendeiro and the Ceylon planter having practically the same difficulties to contend with—Brazil plantation trees grown after Ceylon native fashion—Indisposition to change mode of work.			

ing a fazenda—Travelling in Brazil—The restraint imposed upon slaves—A fazenda—The splendid soil of this portion of Brazil—Preparing coffee: the machinery in use in Brazil—The good behaviour of the slaves—The silence of the women while at work—The German emigrants in Brazil—Rain at last ...	39
The exceeding courtesy of British attachés in Rio—A coffee leaf bouquet for the opera, with <i>Hemileia vastatrix</i> to give it value—An agricultural show at Petropolis—The Emperor of Brazil “uncommonly like” “G. A. C.”—The imperial family at a discount—Republicanism in the ascendent—San Paulo the “Uva” of Brazil ...	48
Railways: something like an incline, a series of ridges; a descending train pulling up an ascending one—Planters taking contracts for railway construction in the same way that Ceylon planters are ready to do—Leaf disease very bad in Brazil, and labour very dear—Ageratum in plenty, but grass the greatest weed-torment to Brazilian planters ...	53
Heavy hotel charges—Railways—Tuning the pipes—The “strength of will, energy, and determination” of Brazilian planters—A Brazilian town—Leaf disease—Brazilian dislike of foreign planters—Failure of colonist system of labour—Attacked by wasps—“G. A. C.” in full flight ...	56
Heavy taxation in Brazil: the country fenced with protective duties—The enormous difficulties in the way of continued culture—The German colonist—Crimping in Brazil—An unmannerly colonist—The contract system—The camerado—Ceylon, in the opinion of Brazilians, on the decline—The campo ...	61
Hunting in San Paulo—An expedition into the country districts—Stampeding mules—Doing the honours at a “venda” (arrack-shop)—The story of the “Bengal Tiger”—A gigantic botanical garden—Salubrity of the campos—The limit of coffee cultivation—Sport on the campos— <i>Toujours perdrix</i> —Three kinds of deer—The tapir (half elephant half pig)—Traveling and shooting in the forest... ..	66
Tapir hunting—A shot at a deer—The “anta” at last—Salted tapir-flesh—Excellent coffee, but no tea, to be had in Brazil—The mineiro—A Paulista country squire—An estate of 25,000 acres—Fine pasture but poor horses—Fecundity of the empire—Population of Brazil	

—Difference between the Ceylon coffee-planter and the Brazilian fazendeiro—Scarcity of labour and its results—The campo—The slave question—Leaf disease—Railways and their cost—The ladies—Disparity of marriages—Want of energy in the hybrid population—Murders of fazendeiros by slaves—The Rio crop	72
The bore of travelling in the same steamer with an Emperor and Empress—A week in Rio, with leisure to revolve impressions and to come to definite conclusions—Certain decline of slave labour: effect on coffee production—Cruel treatment of slaves—The campo of Brazil—Principal palms and other plants—Chief peculiarities of Rio as a city—The German Club—The usages in regard to the sale of coffee in Rio and in Santos... ..	79
Embarkation of an Emperor and Empress—Bungling officers in the Brazilian, as in the English, navy: narrow escape of repetition of the <i>Vanguard</i> disaster—A brave girl—An irate Emperor—Luncheon on board—An introduction to the Emperor—His Majesty's interest in Ceylon, and regret that he cannot visit the island—Pali among the royal daily studies—Music—Slavery in Brazil according to a Government publication—Education	84
Dom Pedro's not landing at Pernambuco a blunder—Shearing an Emperor of his honours and calling him "Peter"—Defects on the surface: Peter's tongue too large for his mouth, while his nails want cleaning—The members of the Imperial suite, from the "high-caste toad" to the "ladies of horror"—Mr. O'Kelly—Tropical cultivations snuffed out—Slavery in Cuba—The effects of war on plantations of Cuba	88
Going up the Amazon—Visit to Para—A dirty hotel, but a fine view—The "coloury" population of Para—A railway engineer's mistake	92

CHAPTER VI.

Postal irregularities in Brazil—The decease of old Ceylon men; Sir Richard Morgan and Dr. Sortain—Fire among Brazil estates—The "leaf disease" of Brazil—"G. A. C." in Rio de Janeiro—Experience of Brazilian railways	100
Leaf disease in Brazil	103
Sanitary measures... ..	108
Leaf insect	109
Railway guarantee	110

Grass seed	...	...	...	...	...	...	111
Coffee crops	...	...	...	...	...	...	111
Rainfall in the Fiji Islands	...	...	...	...	...	...	112
Specimen of leaves	...	...	...	...	...	...	112
Coffee leaf disease in Brazil	...	...	...	...	...	...	113
Coffee cultivation in Brazil, &c.	...	...	...	...	...	...	114
Brazil coffee growing	...	...	...	...	...	...	115
Coffee statistics	...	...	...	...	...	...	117
Bahia	...	...	...	...	...	...	119
Exports	...	...	...	...	...	...	119
Rio de Janeiro	...	...	...	...	...	...	119
General Remarks	...	...	...	...	...	...	121
The Public Debt	...	...	...	...	...	...	121
Santos	...	...	...	...	...	...	122
Exports	...	...	...	...	...	...	123
The Santos and Jundiahy Railway	...	...	...	...	...	...	125
Companhia Paulista	...	...	...	...	...	...	126
São Paulo and Rio de Janeiro Railway	...	...	...	...	...	...	126
Other Railways	...	...	...	...	...	...	127
Companhia Fluvial Paulista	...	...	...	...	...	...	128
General remarks	...	...	...	...	...	...	128
Brazilian railroads	...	...	...	...	...	...	129
Commerce of Brazil for 1877	...	...	...	...	...	...	132
Shipments of Coffee from Rio de Janeiro	...	...	...	...	...	...	133
Shipments of Coffee from Santos	...	...	...	...	...	...	133
Discount	...	...	...	...	...	...	139
Freights	...	...	...	...	...	...	139
Brazil	...	...	...	...	...	...	139
Brazilian debt and finances	...	...	...	...	...	...	140
Brazil's progress	...	...	...	...	...	...	142
Quantities exported	...	...	...	...	...	...	142
The Brazil coffee crop	...	...	...	...	...	...	143
Brazil : letter from Mr. A. Scott Blacklaw	...	...	...	...	...	...	147
Estimates of crop	...	...	...	...	...	...	149

CHAPTER VII.

BRAZILIAN MEASURES, WEIGHTS, AND MONEY.

COFFEE CULTIVATION IN BRAZIL :—

ITS

CONDITION AND PROSPECTS.

BRAZIL.

CHAPTER I.

GENERAL REMARKS.

THERE have been several books written on Brazil lately, of which some have the tendency to praise the country, to paint in strong colours, and to invite immigration. Allowance being made for these circumstances, they contain some valuable information. Among them there is a book by Mr. Scully, the late editor of the *Anglo-Brazilian Times*, written in 1868, which has that tendency ; another called ‘Brazil as a Field for Emigration,’ by Charles Dunlop, date not given, but also a little old—and in tropical semi-barbarous states the history of ten years is equivalent to fifty years in a civilized country. Mr. Dunlop’s book starts with a dash and a cry of defiance almost. “Brazil,” it says, “is one of the most magnificent of Empires. It comprehends the great Eastern Sections of the South American continent, being situate between 4° 15’ North latitude, and 33° 43’ South latitude, and 34° 32’ and 75° 3’ West longitude. Its length from North to South may be computed at about 2,600 miles, and its greatest breadth at 2,540 miles, embracing a total area of not less than 2,524,140 geographical miles, a territory almost equal in extent to twenty-three times that of the United Kingdom of Great Britain and Ireland. It has a sea coast of 1,200 leagues, and its boundaries, which on the land side are not very accurately defined, are the Atlantic Ocean, Guayana and Venezuela on the North ; Equador, Peru, Bolivia, Paraguay and the Argentine Confederation on the West ; the Argentine Confederation and Uruguay on the South ; and the Ocean on the East.” Another book says : “Dom Pedro is monarch of a fifth portion of the globe.” As we have only to do with coffee cultivation, and it so happens that coffee is at present the only profitable agriculture in that vast empire, it may be stated that all this semi-bombastic language seems somewhat ill-timed, since the area occupied by coffee in Brazil does not amount to half that of the United Kingdom of Great Britain, and that the fifth part of the globe of which Dom Pedro claims suzerainty contains vast territories inhabited by Indians who don’t know Dom Pedro by name even, and there are people, should he with an army come there to proclaim it, who would quickly induce the invaders to leave a portion of the fifth part of the globe to the Indians, and be thankful to be allowed to return safely. Mr. Dunlop goes on to say :—“The Northern and Western provinces of Brazil present vast alluvial plains, bearing a rich and exuberant vegetation. The Central, Western, and Southern provinces are very variable, both as regards climate and products ; but, with some local

exceptions, these regions are not inferior in point of fertility and salubrity to the most favored of our English Colonial possessions. The whole of the Southern and Eastern provinces, Mr. Macgregor assures us, may be considered as one grand plateau, that, rising rather abruptly from the Atlantic, extends westward for several hundred miles, with undulations, hills, rivers, streams, and gentle declivities towards the North and South. The highest part of this plateau culminates in a chain of mountains running parallel to the coast, and east of the great Rio San Francisco." The regions described by Mr. Dunlop as "the paradise of Brazil," in point of fertility and salubrity, and which he compares to "the most favoured of our English Colonial possessions," have since been tried by English and German immigrants. Any one conversant with the *status quo* of these regions will admit that these plains, these campos, in reality proved to have been an egregious disappointment if not something worse. Not only that, but the poor immigrants, of whom "Brazil is in need," as Mr. Dunlop admits, there being only about three inhabitants for every geographical mile, after they did settle, have been persecuted, deceived and harrassed by the native-born Brazilians themselves to such a degree, that most of the immigrants able to return to their native country have left the fifth part of the globe called Brazil, in disgust and with execrations. Mr. Dunlop, after exhausting his enthusiasm on the magnificence of the country, is profuse in praises of the climate. In this somewhat thankless task, he is gallantly supported by Mr. W. Scully, who says on this subject:—"Far from being unhealthy, the climate of Brazil can rank with the healthiest and most enjoyable in the world, and its ill-repute has had its origin chiefly from the sanitary conditions of certain regions best known, and therefore judged characteristic of Brazil, and from the occasional existence of yellow fever in certain parts, just as in New York not many years ago, before proper sewage existed, and as still in New Orleans and elsewhere." The real truth is, yellow fever visits Rio, Santos and Bahia, chiefly Rio, regularly every year in the months of February, March and April, and carries off victims daily by hundreds. The funeral cars are seen during those months from early dawn till late at night in all the streets of Rio. To compare the climate of Rio and Santos with that of New Orleans or New York is absurd. The mountain plateau is free from yellow fever, and the climate of the campos is very fair and even fine, except near the rivers where *maléita* exists in those months, i. e. a kind of jungle fever. But it is in the vicinity of the rivers where cultivation of any kind is capable of being carried on, be it tropical,

agriculture or that of a more moderate zone, such as corn and grasses; or be it the rearing of cattle and horses. This is inadvertently exemplified by Mr. Dunlop in his brochure, page 5, when describing the way in which Brazil was discovered, as follows:—

“As Brazil itself was first accidentally discovered in 1500 by Pedro Alvares Cabral, so also do we owe the discovery of its mighty river to a fortuitous and unpremeditated concurrence of circumstances. In 1541 Gonzalo Pizarro, the brother of the conqueror of Peru, set out from Quito at the head of 300 soldiers and 4,000 Indians in search of the fabled ‘El Dorado,’ believed to exist somewhere east of the Andes. The most extravagant notions were entertained respecting this imaginary kingdom, whose monarch was said to live in a city called Manoa, his capital, in one street of which there were asserted to be no less than 3,000 workers in silver. This potentate was reputed to govern amid unparalleled magnificence, and to reside in a palace whose columns were of porphyry and alabaster, while its body was of white stone, ornamented with golden suns and silver moons. The entrance to this royal mansion was alleged to be guarded by living lions, restrained by massive auriferous chains. His throne was of ivory, and its steps were of pure gold. To subdue so great a king, and take possession of so rich an Empire, was to far eclipse the glory achieved by Cortes and his brother in the conquest of Mexico and Peru; and Gonzalo Pizarro, with his infatuated companions, impelled alike by avarice and ambition, marched on despite of numerous and almost insurmountable difficulties, until at last fatigue, famine, and death reduced their ranks by more than a thousand men. They had arrived at the river Napo, a tributary of the Amazon, and still the beams of the rising or the setting sun found no reflection in the golden gates of Manoa. There were yet no signs that the marvellous riches of El Dorado were nearer at hand than when they turned their backs upon Quito; and their bodies had grown weak and feeble with their arduous journey, and their hearts were sick with hope deferred. They had but one desire—to return again to the haunts of civilised men, and to escape out of the wilderness with their lives. But it was more difficult to go back to Peru than to advance. Behind them were the towering Andes, and bitter experience had taught them how toilsome, and dangerous, and hopeless would be any attempt to cross the barrier they presented to them in their then debilitated and deplorable condition. Gonzalo Pizarro determined, therefore, to navigate the Napo, and for this purpose caused such a vessel to be built as circumstances permitted. He then sent this craft down the stream under charge of Orellana and fifty men, who

had instructions to stop so soon as the water was found deep enough to admit of all being taken on board. Orellana did not, however, further concern himself about Pizarro or his companions, but rapidly descending at last entered the channel of the main river. Pursuing his course downwards, he fought with the natives, whom he called Amazonas, as women were seen to command them, built a larger and more convenient vessel, and finally at the end of a voyage of five months reached the anxiously looked-for sea in safety. He forthwith proceeded to Spain, and, being pardoned for deserting his commander, received a charter to conquer the regions he had discovered. To accomplish this he succeeded in raising funds and enlisting adventurers for an expedition; and in 1554 he arrived with a fleet on the coast. He failed, however, amid the numerous channels at the mouth, to find the main branch of the great river, and after a month or two spent in fruitless efforts, fell a victim, with many of his followers, to disease and death."

Population, &c.—The vast Empire of Brazil is divided into twenty provinces, and the following table will show their estimated area and population:—

Provinces.	Square Leagues.	Geographical Miles.	Population.	Slaves.
Rio de Janeiro.	2,460	21,600	850,000	200,000
Matto Grosso...	51,000	459,000	80,000	10,000
Pernambuco ...	6,000	54,000	1,180,000	250,000
Goyaz	21,000	189,000	200,000	15,000
Maranhão	12,500	112,500	400,000	50,000
Paraná.....	6,000	54,000	105,000	20,000
San Pedro do Sul	9,000	81,000	392,725	77,000
Santa Catharina	2,200	19,800	120,000	15,000
Minas Geraes...	20,000	180,000	1,350,000	150,000
Espírito Santo.	1,400	12,600	55,000	10,000
Para.....	39,000	351,000	250,000	39,000
Ceará	4,500	40,500	48,600	30,000
Piauí.....	11,000	99,000	175,000	10,000
Rio Grande do Norte	1,500	13,500	210,000	20,000
San Paulo	11,000	99,000	800,000	60,000
Alagoas	1,200	10,800	250,000	45,000
Bahia	14,000	126,000	1,200,000	25,000
Amazonas	64,000	576,000	70,000	—
Sergipe	1,200	10,800	250,000	500,000
Parahyba	1,500	13,500	26,000	5,000
Total	280,460	2,524,140	8,012,325	1,306,002*

* Since still further reduced: an official return dated May 1874 gave the total at 1,016,262. In 1850 they numbered $2\frac{1}{2}$ millions.

"The populations as given in the above table in some cases includes and in others excludes the wild and settled Indians. In the territory of Amazonas, for instance, where the proportion of slaves is also unknown, we have no reliable statistics as to the number of the savage Indian population comprised in the many tribes still inhabiting the banks of the Great River and its tributaries. These are therefore excluded in the 70,000 souls representing the population of this part of the Empire, whereas, on the contrary, the 200,000 representing that of the Province of Goyas includes, as well as 15,000 slaves, about 25,000 Indians, some of whom, indeed, apply themselves to agricultural pursuits, while others are unsettled and exceedingly fierce. The figures we have been able to furnish may be taken, however, with the exception of Amazonas, to approximate very nearly to the actual population including all races, and they demonstrate how greatly Brazil is in need of inhabitants, and especially such as Europe alone can supply. The total population is, more or less, about 8,012,328, which, being territorially distributed, allows only, about 3 inhabitants for every geographical mile.

"*The Climate.*—Brazil lies, as we have already indicated, for the greater part within the tropics; but a very considerable portion is nevertheless situate in the southern temperate zone. The climate, as a matter of course, varies greatly in different regions of so extensive an Empire. The valley of the Amazon and the low lands along the coast are very hot, but healthy even for Europeans generally, numbers of whom spend many years of their lives in the principal commercial cities of Pernambuco, Bahia, and Rio de Janeiro without injury to the constitution such as ordinarily results from a lengthened residence in our own East Indian possessions. This, no doubt, is in a great degree owing to the prevailing winds from the sea, which so temper and subdue the intensity of the tropical heat as to admit of white labour being used to advantage and without seriously deleterious effects even in the warmest, or sugar and cotton growing districts of the north. Indeed, in the northern part of the Empire white or free labour is at present of necessity coming into more extensive requisition than hitherto, in consequence of the withdrawal of the slaves to the coffee provinces, the culture of which plant offers very superior inducements, being at once comparatively easy and profitable. A significant result of this movement is that the proportion of slaves in the population of the extreme southern and northern provinces is not now calculated to exceed one in fourteen; and the friends of emancipation can only regard the concentration of the servile population in the

more advanced portions of the Empire as a means to wards the ultimate abrogation of the institution of slavery itself. To the south of the valley of the Amazon, and east of the low-lying land of the coast, the temperature is so greatly and favourably affected by the physical aspects of the country that 'even the most northern part is moderate in its heat, while in the southern half slight frosts occur in winter, and the climate is healthy and pleasant, though somewhat warmer in summer than in England, the barometer usually ranging between 65° and 80° Fahrenheit, and at times, but rarely, reaching 90°.' Speaking also of this part of the Empire, Mr. Macgregor remarks:—'Towards the southern extremity of Brazil, and in the higher mountainous districts, the air is comparatively cool, and the soil yields European grain in great perfection.' And again:—'Within many of the elevated districts of the interior fertile valleys are found with a temperate and salubrious climate, where the vegetables and fruits of Europe will ripen. Such is the climate of portions of Minas Geraes and San Paulo.' Kidder also observes:—'The climate of Brazil is remarkably mild and regular. At Rio de Janeiro there cannot be said to be any regular rainy season. It would be difficult to fix on the months in which most rain may be expected. During the rains there is generally but little wind, and the temperature changes but slightly throughout the day. In dry weather the mornings and evenings are always cool, and the heat of the day is almost invariably mitigated by a strong sea breeze. The south-east trade winds sweep the whole coast. From March to September, during the southerly monsoon, the prevailing winds are from east by north to east south-west. During the northerly monsoon, from September to March, the winds are from north by east to north-east by east.'

"The above facts will show how unfounded is the common impression which obtains in this country and throughout Europe that the climate of Brazil is unhealthy. Referring to this erroneous idea, Mr. W. Scully, in his recently published work, gives his testimony as follows: "Far from being unhealthy, the climate of Brazil can rank with the healthiest and most enjoyable in the world, and its illrepute has had its origin chiefly from the sanitary conditions of certain regions best known, and therefore judged characteristic of Brazil; and from the occasional existence of yellow fever in certain parts just as in New York not many years ago, before proper sewage existed, and as still in New Orleans and elsewhere.'"

In the same strain Mr. Dunlop writes of the Government and Administration of Justice. But as an illustration of the other side to the picture it may be stated

here that an Englishman of several years' residence gave it as his opinion that, from the highest to the lowest judge in the empire, a bribe was expected, and that, without it, the best case in law would have no chance of success. Mr. Dunlop says :—

“Blessed with a political machinery unexcelled by that of any other country, and with a monarch whose wise and benignant sway has been fruitful of the most glorious and gratifying results, there is one curse that yet cleaves to and afflicts the Brazilian nation. We allude to the institution of slavery, which still survives, a baneful relic of the old Portuguese domination ; but it is only right to state that the treatment of the blacks, or pretos, is, as a rule, kind and humane. Indeed, the inherent evils of a condition of servitude are greatly modified by the presence of a healthy tone of public opinion and the total absence of those antipathies of race which existed and continue to exist in so large a degree in the Southern States of North America. There is no sort of prejudice against the negro, and the institution of slavery rests upon a purely legal basis. It is not embedded in feelings of scorn and contempt, or a perverted conviction of the negro have been destined, like the ox of the field, to an involuntary servitude, and when free he exercises without the slightest hindrance or question all the rights and privileges of citizenship. This state of public opinion is decidedly favourable to the emancipation of the slaves, and legislative policy has for some years tended in this direction. In fact, the extinction of slavery throughout the country is only a work of time, and it cannot reasonably be expected that Brazilian statesmen will act otherwise than most cautiously and prudently in adopting measures calculated to gravely affect the social and material interests of the nation. Meantime, let the friends of human freedom encourage the Government and people of Brazil to encounter and overcome the difficulties that undoubtedly lay in the way of emancipation, and especially deprecate the conduct of those zealous but unwise advocates of abolition who, in many cases, so bitterly and so unjustly attack the institutions of the Empire.”

CHAPTER II.

AGRICULTURAL ENTERPRISE.

THE chief agricultural productions of Brazil consisted, at the time of its severance from Portugal,—viz., 7th September, 1822, when Dom Pedro I. (father of the present Emperor) declared “*Independencia o morte*,” which created the present Empire,—of sugar, cotton and tobacco, coffee occupying a subordinate position. Only in the second quarter of this century, after Dom Pedro II., then a boy of ten years, ascended the throne, vacated by the death of his father, was a significant impetus given to coffee, and this, steadily increasing, left sugar, cotton and tobacco far behind, having for result the almost abandoning of sugar and cotton, owing to heavy export duties on the one hand, but principally to the fact of beetroot sugar cultivation and the refinery thereof having developed so excessively in Europe and the United States of North America, that the cultivation of the sugar-cane in Brazil now does not remunerate sufficiently the growers, and the production of cotton in the United States having also increased, instead of diminishing, after the emancipation of the slaves in the States, Brazil has been compelled now to give in to her more fortunately situated neighbour on the continent of North America. The labour employed in Brazil being entirely composed of slaves, and the slaves in the provinces where sugar and cotton had chiefly been cultivated not finding a field of usefulness, these slaves in the provinces of Bahia and Pernambuco were gradually directed, and their services were diverted, from sugar and cotton to the coffee districts, and to aid also in extending the coffee cultivation in the southern districts, Rio de Janeiro and San Paulo; thus accounting in a great measure for the increase of production of coffee for the year 1876, in an export of crop shipped from Rio to the figure of three millions of bags of 120 lb. each, leaving coffee cultivation the leading, if not almost the sole pursuit of the owners of the land and slaves of the Empire.

Exports (in bags) of coffee from Rio de Janeiro for eleven years ending 31st December, 1876 :—

1866.	1867.	1868.	1869.
2,213,792	3,171,780	2,712,058	3,116,916

1870.	1871.	1872.	1873.
2,582,190	2,861,249	2,359,115	2,371,566
1874.	1875.	1876.	
2,636,495	3,128,942	2,544,680	

The first province of Brazil which attracted the attention of the proprietors of vast tracts of land and slaves to the profitable cultivation of coffee was the province of Rio de Janeiro, the rich bottoms of the Parahyba river, which, beginning at the hill plateau where the present railway station of Belem is situated, continues in the valley of the above river as far as Entre Rios and then ascends another valley ending at Juiz de Fora, a distance of about one hundred miles in length, on which lands chiefly coffee was and is produced, excepting always a certain acreage allotted on each plantation for the cultivation of Indian corn, beans, rice, grass and cassava, for the maintenance of the slaves. Along this valley of the Parahyba the plantations are situated, occupying all the easy slopes of the mountains on each side thereof, covering a distance of fifty miles across, in some places more, in others less. Another valley in connection with this valley is that of Novo Friburgo and Canto Gallo, both equalling in extent that of the Parahyba, and the production of these plantations situated in the province of Rio de Janeiro formed in the middle of this century and still form the chief contributors of coffee in the empire, amounting to two millions of bags of 120lb. each. At this time Bahia, the province to the north of Rio, produced 100,000 bags of coffee, and Santos, distant a day's sail from Rio, the port of the province of San Paulo 140,000 bags. To the latter province, as unto the valley of the Parahyba, a railway was constructed, and one notable fact from this circumstance has arisen: that since 1855 the production of coffee in this province of San Paulo, which was 170,000 bags, has risen in 1875 to one million—(in Bahia the production has remained stationary)—viz., in 1867, the year the railway from Santos to San Paulo was opened for traffic:—

		18,327 tons.
1868	...	29,504
1869	...	41,535
1870	...	29,720
1871	...	41,107
1872	...	24,811
1873	...	40,221
1874	...	45,368
1875	..	41,107

These are the railway returns—the discrepancies are

caused by coffee not always being sent in the year it is picked down to the shipping port.

Hitherto the tendency to the extension of coffee cultivation all over Brazil has met with no opposition, and although now slave labour is to cease when the present slaves have died out, there has been as yet no great want of hands felt; but this want, as the old slaves die off, and no new ones come to take their places, is manifesting itself now. European labourers have been imported at great expense to supplement the labour of slaves: for example, in some plantations for a great deal of labour for which Europeans are fit, viz. building, roadmaking, ploughing, carting, &c., Europeans have answered the purpose, leaving the field works to the slaves, but, where European labour solely has been employed on plantations, such labour has been found not to answer at all. Chinese have been experimented with, but these likewise have shrunk from the duties involved in tropical field labour. About 75 % of the Chinese immigrants, during their term of contract (not less than five in most cases ten years), have died; the rest have settled in the towns as fishermen, carpenters, blacksmiths, and so on. And now comes the question where to find labour to employ on the plantations of Brazil, a question which will have to be answered within the next ten years.

Agassiz and Professor Hart, an American geologist, place Brazil among the glacial epoch of our earth's existence, and to the "drift" ascribe its peculiar shape, resulting in the great depth of soil from the decomposed gneiss on the one hand, and in the Campo (synonymous with prairie and Pampas) and forest vegetation on the other. In the Campo you see the huge waves of the drift; each wave is crested with a belt of timber and watered by a river. Brazil is fenced in by a mountainous coast. After gaining the summit of this chain you find yourself on a vast mountain plateau varying in elevation from two to three thousand feet above the level of the sea. At Rio the mountains rise in some places abruptly from the sea, in others through marshy lowlands. In the province of San Paulo at Santos the approach to the mountains is through a swampy strip of level sand of ten miles' length, which Tschudi, who describes the old road, leading from Santos to San Paulo, constructed 100 years ago, puts down at $2\frac{1}{2}$ legoas. In the province of Rio de Janeiro the mountain plateau in or was covered with forest as far as Juiz de Fora in one direction and Novo Friburgo in another, where the Campo, the open country, commences. In the province of San Paulo, the Campo country begins almost at San Paulo, continuing uninterruptedly as far as the Rio Grande near the frontier of Paraguay.

In the province of Rio de Janeiro, the plantations, vast in extent, varying from twenty to one hundred thousand acres, are contiguous to one another. In the province of San Paulo, the plantations, equally large in dimensions as those in the province of Rio de Janeiro, being formed on the crests of the Drift waves, there are stretches of Campo between them varying in extent between ten and fifty miles. Beyond Juiz de Fora and Novo Friburgo in the province of Rio de Janeiro coffee cultivation does not thrive, on account of climatic influences, frost making its appearance between the months of May and August. Frost does not kill the coffee trees; but it destroys in some years when its intensity is heightened the crop and the foliage, leaving nothing but the stem, which however as soon as the temperature becomes warmer, *i. e.*, in November, December, January and February, sends out new foliage, and, if the frost is not so intense, the following season, new blossom and fruit will appear. But experience has taught the Brazilian planter that beyond Juiz de Fora and Novo Friburgo in the province of Rio de Janeiro, and beyond the towns of San Carlos de Pinhal and Pirasinunga in the province of San Paulo, he dare not grow coffee, except at a risk of having his crops destroyed and his labour unrewarded.

We cannot blame Brazil for the introduction of slavery. It was imported by force of circumstances. It ceased simultaneously with the suppression of the slave trade all over the world. By virtue of the law of 1871, no more slaves are born in Brazil. By the latest census there were in the Empire 1,016,262 slaves. According to Tschudi there were more than double that number in 1855; and it is computed that with every ten years a million slaves have died. Ten years hence at this rate there will be scarcely half a million of slaves left.

To reap the greatest benefit from his slaves the coffee planter is aided by the easy lay of his land and by the fertility thereof. The mode of planting, when contrasted with the care demanded by the system in other coffee countries, the easiest method is adopted. Always with an eye on the proper season, the coffee planter collects young plants in the adjoining forest, cuts these plants down into stumps, and places them in holes such as are made, or ought to be made, in all coffee countries. He covers the holes with pieces of bark or wood, always ready at hand, to protect the young plants in their first career, as much as possible, from the rays of the sun. Then he plants between the rows, generally 8×8 , Indian corn, that is to say, the coffee trees are intended to be 8

feet by 8 feet apart, and in the vacant space between he plants the Indian corn, not only once but as many times as the young coffee seems to be able to stand it, which generally is at the time it begins to blossom and to bear fruit. Nothing is done to the coffee in the meantime, and the only labour bestowed on the young clearing is the supplying of vacancies. He picks the crop, and the easy lay of the land and the width of the coffee trees apart, leaving always bare spaces to the eye, enables him to pick every bean from off the ground. If he is well supplied with slaves he will pick twice during crop; if short-handed only once, and make a clean sweep of it. He eradicates the weeds by holing with the mamotie in the dry season, and by ploughing with mules, which has a two-fold advantage to him, viz., that of weeding and that of fertilizing his land, the width of the rows enabling the free usage of the plough. This labour he gets performed in a great many cases by contract. There are a good many Americans in Brazil attracted thither during the war and after the emancipation of slaves in America, who own small gangs of slaves and a number of mules. With these they offer their services to the highest bidder for ploughing purposes. If the Brazil planter has the labour to spare, he will sometimes go over the ploughed portions with a gang of slaves to eradicate patches of weeds and grass untouched by the plough. For other work than actual field work he uses German and Portuguese immigrants. The only work besides field work his slaves have to do is the curing of the crop, and in this process the majority of Brazil planters do not bestow much more labour on the drying, hulling and sorting of the bean than the Java planters and the natives of Ceylon. There are exceptions, and in such instances the same system as that employed by Ceylon planters or a similar one is adopted by them. He has now only to transport his crop to market. Formerly he had a great deal of trouble and risk to contend with in this work, inasmuch as mule owners did at a great cost what the railway does now at little expense comparatively with much more security, although now as formerly his slaves have nothing to do with this operation. They were employed either hoeing, planting corn, rice, beans and cassava, grass, till the crop came round again. Thus with a few hundred slaves an extensive plantation could and can easily be worked. The largeness of his property enables him, as soon as he detects the seeds of decay in his coffee, to open up new clearings, by contract generally, and so he continues till he gets to the end; but, as previously re-

marked, the plantation or *fazenda* of a Brazilian planter is generally so large that none of them have been compelled to turn their eyes in the direction of new land. The majority of the Brazilian planters, *fazendeiros*, are the descendants of courtiers, Portuguese noblemen who often received their land in token of regard from their sovereign for services rendered. They have intermarried considerably, and therefore the spirit of clanship is very great amongst them. They will stand by each other through thick and thin, and, since they remain in the country, are all well-known by the Government, and, when the railway enterprise stepped in to facilitate the transport from far distant plantations, it was fostered by unanimity in spirit, and by capital and credit out of the pockets of the *fazendeiros*. Thus it has come to pass that all the coffee districts possess railway communication with the shipping port, that they have been enabled to draw the slaves from the sugar and cotton provinces to their coffee estates, which could not have occurred if, in the first instance, that intimacy which relationship gives were wanting, and if they had no railways to get the slaves sent up to their very doors or very nearly so. All the land available for coffee is owned by "fazendeiros," except when the latter sold portions thereof, as was the case with the plantation "Angelica," which the 'fazendeiros,' indebted to the Bank of London and Brazil, made over to that establishment, and which that banking establishment advertised to be made into a company, but which effort seems not to have succeeded. Englishmen are prohibited from employing slaves. So this bank of Rio de Janeiro was compelled to employ what other labour it could get, chiefly German immigrants collected in the towns, composed of individuals totally unfit for agricultural labour at home, much less so for tropical agricultural labour. It is true the climate during a portion of the year is to a certain degree moderate, but the greater part of the year very hot; with this unsatisfactory sort of labour the estate had to be worked. The slaves on the plantations of the Brazilian 'fazendeiro' must work, whether the day be a wet one or a dry one, but the German immigrant had the option to work or not to work. The consequence was he worked as little as possible, and when his debt, already considerable from the advances he received in Germany, the passage money from Europe to Brazil, his fresh advances of cash in Brazil on starting from the shipping port to the plantation, had accumulated to a figure he fancied he could never overcome, he absconded. The law, which in Brazil is not equal to all labourers, prescribed that he should be brought before the

magistrate to be reprimanded for desertion if he could be overtaken and apprehended, and to be warned that after the next attempt at escape from his liabilities he would be punished. It is easy to understand how the German immigrant, if he was caught, which rarely occurred, managed to be successful the second time. A clause in the contract between the Brazil Bank as owner of "Angelica" and the German immigrant enacted the compelling the superintendent of the plantation to explain to the immigrant at any time his financial position; so the immigrant labourer, bent on evading his contract by cunning, came with two or three witnesses, at meal times, to have his contract and his position made plain to him, provoking a quarrel or something like it, sufficient for the deserter to base a release from his bondage upon. The outcome of all this is to shew how difficult it is, nay how impossible, to manage a large coffee property with this sort of labour, and irrespectively of excellency of soil, position, or, as it is termed, lay of land, facilities of transport by a railway close at hand, merely by the absence of an efficient body of labourers such as slaves or Indian coolies whom no other labour in the world, in coffee cultivation, can compete with.

CHAPTER III.

COFFEE PLANTING IN BRAZIL.

THE slaves are made to work from 4 A. M. till 8 P. M., with two hours' rest in the middle of the day. Their meals are prepared and served out to them in the field, where sheds for this purpose have been erected all over the plantation. They are divided into different gangs of twenty-five each, in charge of a leader, also a slave, who is answerable for the whole gang. This leader is a slave of superior intelligence, a man who has distinguished himself by good behaviour. Several gangs working together are under the supervision of a *feitor* : overseer, a free-born Brazilian. From eight to ten in the evening, the slaves are allowed to mix freely among themselves. At ten a bell sounds, and the male slaves are locked up and the female slaves are also locked up in different buildings. These buildings are opposite each other, and the dwelling-house of the administrator or proprietor lies between them. The whole set of buildings forms a square surrounded by a substantial wall; there is besides, in this enclosure, which is also called *fazenda*, like the plantation, an apothecary's shop, a chapel, and the stables where the riding horses and mules are kept. Such a *fazenda*, appearing in sight at a distance, has quite the appearance of a castle. They are all alike, only some are bigger and some smaller. One day in the week is allotted to divine service, but not always on a calendar Sunday. On one plantation this day of rest may be on a Sunday, then the adjoining ones have theirs on Monday and Tuesday respectively, and so on, to avoid the possibility of a disturbance and to hinder any disquieting influence having the slightest tendency to subversion of order. Each slave has his number and the name of the *fazenda* printed on the various articles of his dress, a coarse cotton suit. They all speak the Portuguese language ; but they receive no instruction to read or to write, only religious comforts are given them, and the doctrines of christianity explained to them. The women are very fond of hymn-singing, which they indulge in generally of an evening. The men never sing, and are not near so facetious as their brethren in more northern latitudes of America. In the severest drought, when the thermo-

meter may be 150 in the sun, or in the heaviest rainy season, when for a week it rains on end, these slaves toil on. Fever is the general result of exposure to a continued hot sun or to a constant wetting, but their food is so simple and their habits so regular that a few doses of quinine generally bring them round. They do not attain old age. They get paralytic strokes, heart, lung and liver diseases, which carry them off almost in their prime. The women last longer than the men and are prone to progeny; the pregnant women and those with infants are found in work suited to their conditions: in the machinery house where the coffee is warehoused and treated to be fit for despatching to the shipping port. That portion of work called felling and clearing, *i. e.* cutting down by axes the forest trees and undergrowth by knives, and placing the land to be cultivated with coffee, in a fit state to be lined, holed and planted, is done in Brazil by contract, and native Brazilians of a mixed race generally offer themselves to do this work, which costs about as much as it does in other countries where coffee is grown, all except Coorg in India, where this work is performed cheaper than in any other country. There is not that attention paid to lining, *i. e.* drawing a line over the land with knots, indicating where a hole for the reception of the coffee plant is to be dug, inasmuch as these lines are often very irregular and offensive to the eye; but since width between the plants, which are placed in the holes that are at eight feet apart from each other, is an essential thing in Brazil to enable the slaves to pick up all the fruit which may have dropped, and also to allow the coffee trees fully to develop themselves without interfering with each others' roots, this inattention to neatness does not so much matter. This work is done by slaves, as well as that of digging the holes. The time for planting is in the rainy season. In Brazil, as in the West Indies and Ceylon, coffee is not planted under shade. The roads on the plantations are all cart roads, and since rock-cutting is not required, and the easy lay of the land does not even demand a scientific tracing, these cart roads are also cheap of construction. The fruit, the ripe coffee berries, are placed in carts where the slaves are occupied picking it in the field, and the carts, drawn by four or as many more mules as required, convey it to the machinery house. By the same roads the Brazilian planter also gets his Indian corn, rice, beans, and cassava brought to the store. These are the chief works to which the Brazilian planter puts himself—and for which he avails himself of his slaves. The only other work besides weeding is that of preparing his crop for despatching, in the machinery house—the coffee berries gathered in

two, sometimes only in one, picking do not admit of being passed through a pulper or machine, termed so in Ceylon, by which the pulp of the fruit is severed from the berry which lies within. Mr. A. Brown of Ceylon, in his *Manual on Coffee Planting in Ceylon*, compares the pulper to "a nutmeg grater on a large scale standing on a frame about four feet high, consisting of a cylinder set horizontally, covered with copper punched on wood, about two feet long by one foot diameter, which, on being turned, presses against two bars or chops, one set close enough to crush off the skin or pulp, which is dragged backward by the cylinder," and it might be added that, the berry freed from its skin, or over-coat, drops forward into a cistern. Such a process may be resorted to if the fruit is quite ripe, but if this ripeness be not quite attained, or exceeded by too long an adhesion of the berry to the branch, not being picked off in fact when it was ripe, when the fruit in both cases is in a skin too hard or too dry to be operated on by a pulper, it is evident that such a machine would not answer the purpose of freeing the coffee berry of its skin. Therefore, in Brazil, it is spread on drying grounds and exposed for days, and, the weather permitting, for weeks to the rays of the sun, until it becomes quite hard. During this process the coffee berries are raked into heaps when rain comes, and these heaps are spread out when the rain ceases. As soon as the desired hardness of the skin becomes evident, the coffee berries pass through a peeler or are exposed to a set of stampers, both machines moved by water-power, which process is termed *hulling*, by which process the skin gets beaten into powder like sawdust. For this operation they have excellent machines of American construction. But, the beans and the dust being mixed up together, the mass is then placed in a machine also driven by water-power which removes the skin dust called *chaff*, and allows the coffee to fall by itself into a receiver, whence it passes into another machine called a *sizer*, which separates the large from the small berries, each size falling into different receptacles. From these the coffee is given to the slave women to pick any black and uneven berries from out of the good coffee.

As respects slavery, the following extract from the "Statesman's Year-Book" for 1877 has been corroborated as correct by recent observation:—

"Brazil is the only country in America where slavery legally exists. But the number of slaves has greatly decreased since the year 1850, when they were estimated at two millions and a half. According to an official return published in May 1874, the number of slaves at that date was 1,016,262, distributed as follows:—

Number of		Number of	
Districts and Pro-	Slaves.	Districts and Pro-	Slaves.
vinces :		vinces :	
Municipality of Rio		Maranhao..	45,121
de Janeiro	47,260	Para ...	15,683
Provinces :—		Amazonas..	996
Rio de Janeiro...	207,709	S. Paulo ...	82,843
Espirito Santo...	18,126	Paraná ...	8,012
Bahia... ..	103,095	Santa Catharina...	10,641
Sergipe ...	25,351	Rio Grande do Sul	83,760
Alagoas ...	33,242	Minas Geraes ...	208,103
Pernambuco ...	66,499	Goyaz ...	1,819
Parahyba ...	14,174	Matto Grosso ...	2,253
Rio Grande do Norte	6,087		
Ceara... ..	17,899		
Piauhv ...	17,591	Total...	1,016,262

“A law for the gradual emancipation of the vast slave population passed the Senate and Congress in the session of 1871. The law, which received the Imperial sanction on the 28th of September, 1871, taking effect from this date, enacts that children henceforth born of slave women shall be ‘considered of free condition’ *considerados de condição livre*. Such children are not to be actually free, however, but are bound to serve the owners of their mothers for the term of twenty-one years under the name of apprentices. The apprentices must work, under severe penalties, for their hereditary masters, but if the latter inflict on them excessive bodily punishments—*castigos excessivos*—they are allowed to bring suit in a criminal court, which may declare their freedom. A final provision of the Act emancipates the slaves who are state property, to the number of 1,600, with the proviso that ‘slaves liberated by virtue of this law remain for five years under the inspection of the Government.’ They are bound to hire themselves out—*Elles são obrigados a contractar seus serviços*—under penalty of being compelled, if living in vagrancy, to labour in the public establishments.”

In other works on Brazil it is stated that “all children born of slave parents are free”—even in a Government brochure lately issued in English on all sorts of matters connected with Brazil, with a view chiefly to induce immigration, it is stated emphatically “that children born of slave parents since 1871 are free,” and nothing said about apprenticeship. The fact is they are NOT free, and are employed by the masters of the parents on the plantations. However the mortality among the slaves is so great that in ten years, all the slaves old and young will have died, parents and children : then they will be free. The work demanded and performed by the slaves is enormous. It is beyond

the utmost of what human beings are capable of performing without derangement to the physical resources of the individual. In Brazil a slave is made to pick twelve bushels of coffee a day, in crop season, when in Ceylon two bushels is the coolie's task while for anything beyond extra pay is given, and although he may bring in one or two bushels more, and the picking of only the ripe berries be a more difficult labour in Ceylon, than a sweeping off the ground, including earth and stones, and an indiscriminate picking of the berries in Brazil plantations, four bushels in Ceylon is what an able cooly or cooly woman can do and no more, and to do this the whole time. Weeding is a very important work on all coffee plantations. In Brazil, where the custom is to weed as little as possible, the cost of this item of expenditure must be considerable. On one of the best *fazendas* in the province of Rio de Janeiro the custom is to cut the weeds down with the mamoty or hoe two or three times a year, when the weeds, composed of all the rank tribes of tropical flowers, thorns and grasses, owing to the richness of the ground, and owing to the coffee never covering the superficial surface of the land in which it is planted, attain a most alarming height ; but, it is managed there, somehow or another, to have the ground clear of weeds just before crop, so as to be able to pick up any fallen off fruit. It has been estimated by competent observers that such weeding would cost from ten to fifteen shillings per acre, each time. Viewing it in the light of ploughing or liberating of the soil, since the earth by this process of hoeing gets thoroughly stirred up, the cost would be another name for cultivation. In the province of San Paulo, actual ploughing with ploughs, drawn by single mules, is resorted to. This procedure answers the two-fold purpose of weeding or liberating the soil ; and on easy-laying or level land, which peculiarity and advantage most of the plantations in that province possess, this is an excellent way of doing both works, getting rid of the weeds and getting the soil free to work and to stimulate the roots to renewed exertions, at a very moderate cost.

CHAPTER IV.

RAILWAYS IN BRAZIL.

It is necessary now, in order to arrive at a distinct understanding of the importance of railway communication in the coffee districts of Brazil, to look back fifteen or twenty years before the cutting of a single sod for this purpose had become a *fait accompli*. Tschudi, one of the best writers on Brazil, the only one who condescends to enter minutely into the question of agriculture, whilst all the others confine themselves to the mineral treasures of that country, says, twenty years ago, that there were then 180,000 acres of coffee in cultivation, and after travelling all through the provinces on mule-back, describing in graphic language the difficulties the planters have to contend with in respect of bad roads, a thousand times worse than in Ceylon where these ways of communication are of the highest order, after describing the effects of the "*Gracilaria coffei foliella*," or "*Cemistoma*," a leaf disease of the most virulent nature which infested Brazil and has not quite disappeared, and which we will describe under another heading hereafter, he says as to the future prospects of Brazil:—"I believe, from what I have stated, that I am not far from the truth if I repeat that it is my opinion that the coffee enterprise in Brazil has reached its culminating point, and that 2½ million bags will hardly be reached as the average total figure of coffee exports in future years." What, we may ask, has now been the actual result: the result since the introduction of railways and their full development? Why, the production has increased nearly one hundred per cent, inasmuch as almost four million bags last years was the total export of coffee from all the ports in Brazil, consequently the total acreage of coffee under cultivation must be now about five hundred thousand acres at least. It was stated in a previous article on railways in Brazil and their influence on coffee cultivation in that country that the cost of the line from Santos to Jundihay had been no less than thirty thousand pounds per mile, although at present the engineers of the extension of this line say that the line should have been constructed for half the figure. Mr.

Hadfield, another traveller, who describes this line as it then was in 1868, says on this subject:—"Engineering mistakes have, undoubtedly, been made. It is also questionable whether another and less costly route could not have been selected to be worked by locomotives, instead of the old-fashioned, but dangerous, lifts. However, for the present, this is mere matter of controversy or opinion. The railway is made. My impression was that I had seen the heaviest works on the line, but this was a great mistake, as I soon found out. The first few miles were not of much interest; afterwards, as we approached the mountain scenery, the view revealed deep gorges and huge hanging forests. It is difficult to imagine a country less adapted for a railway, making it against nature, as some one significantly observed. It is a succession of deep cuttings, high embankments, curves, and heavy gradients the whole distance. It is really wonderful how people could be found to make such a railway in this country. The ordinary mule-road crosses and runs parallel to the railway for some distance, and a wretched state it appeared to be in, deep mud-holes and quagmires, through which the poor mules have to struggle.

"The first actual gap occurs some 17 miles from San Paulo, where the river current has carried away a large culvert, the rails and iron bowls (sleepers) attached to them having suspended for some twenty feet. They were at work rebuilding another culvert. We had to leave the carriage, cross the stream, and, walking some little distance, to get to another engine which with a ballast truck was waiting there. On we went again, at times having to pull up or go slowly over slippery places, until we passed the tunnel, with water dropping from the roof. On the other side of the tunnel occurs the most serious stoppage, the whole side of a huge hill having apparently moved forward, the advanced portion of it blocking up the road. Some undercurrent has raised the rails several feet in places, notwithstanding the immense piles of timber that have been driven in to prevent encroachment. The conclusion is that a mass of quicksands, swollen by the heavy rains, has forced its way under the hillside and under the bed of the railway.

"After walking past this obstruction, we again mounted on the ballast truck, and went along until we came to a place where the river had quite overflowed the rails, and the engine had to force its way through two or three feet of water, of course at a very slow and cautious pace. It is not my intention to comment further on the errors that have been made in the construction of this railway. No doubt obstacles had to be met at every step; nor can share-

holders be supposed to know much about engineering details of this kind. They subscribe their money on the faith of a Government guarantee.

"The question as to maintenance of way must always be a very important one, whether in such a mountainous country, subject at seasons to heavy rains and flooded rivers and with a treacherous soil, the nature of the works is such as can be relied on, for unless this be the case, as the journals of San Paulo justly observe, the real utility of the railway is destroyed. Coffee growers and cotton planters have been looking to it as a sure and certain means of getting their produce down to Santos, and unless this can be depended on they will have to resort to the old, cumbrous and expensive mode of carrying it upwards of one hundred miles on the backs of mules as heretofore."

So anxious was the Government to finish their railway, to establish its usefulness, stability and success, that premiums were held out to contractors to complete their work before the stipulated time, and these contractors on many portions of the line worked day and night: at night with torch-light. The number of labourers and the variety of languages used by them were so considerable that pickets of soldiers had to be placed along the line to prevent disturbances. This, as was shewn in the first article on railways in Brazil, is now the best paying railway in the world.

BRAZILIAN RAILWAYS.

(*Ceylon Observer*, July 28 1876.)

At a time when the Government of Ceylon is giving a final consideration to a scheme of Railway Extension which will have more influence on the future prosperity of the Colony than any public work undertaken since the main line to Kandy, it is of interest to learn what our great rival has done in Railway Extension. Sir William Gregory might well refer to the progress made in Brazil in writing that Lord Carnarvon, pointing out the necessity for the Ceylon coffee planters being put up on an equally good footing with their Brazilian brethren, if their enterprise, on which the welfare of this Crown Colony chiefly depends, is to be maintained and extended.

In considering the Brazilian railways, it will be necessary first to contemplate the difficulties Brazil had to content with in her means of transport, before these powerful auxiliaries to coffee agriculture came into play. But we may say at once that the characteristic distinction between Brazil, as one coffee-producing country, and Ceylon, as another and also very important coffee-producing country, consisted in the course of action of the two in their efforts to acquire

a mode of transport for the coffee from the interior to the shipping port, and for food and merchandise as return loads, so superseding the labour of slaves, coolies, mules and bullocks. Brazil, with virtually not much more area adapted for coffee cultivation than Ceylon,—although with much larger space of country to lay her railways upon, and therefore, having treble the ground to travel over that Ceylon had, where the coffee cultivation area is far more contracted and, therefore, far more favourably situated than in Brazil,—has hitherto constructed her railways entirely for the benefit of her coffee interest. What railways she constructs now, as, for instance, the narrow gauge line connecting Rio de Janeiro with San Paulo, and other extensions, are chiefly for state or strategical purposes. Brazil received from England—where she had to apply as a foreign supplicant, and where Ceylon possesses the rights of those owning the nearest family ties, based on far better security than Brazil could offer—what money she wanted, eight or ten millions, and she might have asked for as many more had she so chosen. Whilst Ceylon has only constructed one line of railway about ninety miles long, after ten years of consideration, hesitation and irresolution, and is still discussing the advisability of extending this line, a line paying not only well but brilliantly, and adding about one hundred miles of railway to it, promising to pay equally well, she has not yet, after four years of examination of routes, and so on, come to a decision. Brazil, on the other hand, has made her railroads, and has made enormous strides in her exports of coffee, whilst Ceylon, if anything, has diminished her exports, which, with a policy similar to the one pursued elsewhere, might compare much more favourably with those of Brazil. One is staggered at the short-sightedness of our Government on the one hand, and of the coffee plantation proprietors on the other, for not having demanded or come to a satisfactory understanding about this extension ten years earlier. But, if Ceylon is behindhand compared with Brazil in this respect, and her Government guilty of short-sightedness, what shall we say of Java, the second coffee-producing country of the world? Fortunately for Brazil and Ceylon, the Government of Netherlands India has been stone-blind in this respect, and very soon there will be no need for her to possess railways to connect the coffee plantations with the shipping ports, beyond those few and small lines she already has, namely, one from Batavia to Buitenzorg, and the other from Samarang to Sulu.

The following is the summary of Railway progress in Brazil, which we have gathered from an authentic source, and which we now lay before our readers:—

The first railroad constructed in Brazil is a line about 40 miles in extent, connecting Rio de Janeiro with Petropolis. It is chiefly a passenger line. The first traffic line is the Dom Pedro Segundo railway running from Rio de Janeiro to Juiz de Fora about 170 miles. The second line in the province of Rio de Janeiro 80 miles in length, both tapping the chief Coffee Districts of the Province of Rio de Janeiro is the Canto Gallo line to Novo Friburgo and Canto Gallo. All these lines have been opened since 1856. Being the first railways attempted in Brazil the cost of these lines have been excessive; but they pay and they have kept the province of Rio de Janeiro up to the mark in its coffee exports. The fourth line is the one from Santos to San Paulo or rather to Jundihahy subsequently extended to Campinas, and finally to Rio Claro, a distance of about 200 miles. From Campinas two narrow gauge lines diverge one over 80 miles and the other fifty miles by which the Province San Paulo is satisfactorily tapped. The first line commenced in 1858 was opened in 1866. Since the opening from Santos, the shipping port, the exports of coffee have just doubled themselves, in ten years. A writer on Brazil, Mr. Scully, wrote of this line when it was projected :—

“The benefits that will be derived by the country from this must be enormous. We see from the statistics of the toll bridge of Culatoo that the great number of 513,542 mules crossed it, paying toll of 115,043\$900, during the past year, and, in addition to a great mass of other articles up and down, 26,178 tons of coffee passed over; (in the same period in 1874 : 45,368 tons.) All this great amount of produce must travel by the Railway once it is opened, and so great will be the advantages of its speedy opening, and the saving of interest and guarantee upon the £1,800,000, it will cost, that we cannot doubt the Government will not permit any delay in carrying out this object. Of its construction we feel sure that when once in operation the shareholders will have no need to call upon the Government for any portion of the 7 per cent. guarantee, and we trust that they will feel encouraged to carry on the line at least to Campinas [as since completed and 80 miles beyond] which is the finest Coffee-growing district in the province.”

This railway as far as Jundihahy was constructed by an English company at an expense of thirty thousand pounds per mile. Subsequent experience has induced the engineers of this line to state that it ought not to have cost more than about one-half, for reasons not necessary to dwell upon in this article. The extensions, certainly not nearly so difficult of construction,

only cost ten thousand pounds a mile. The extensions from Jundihahy to Rio Claro were begun in 1873, by the "Compagnie Pauliste," and the traffic thereon has been opened as far as Santa Barbara, and will be opened to Rio Claro in the month of October this year. The construction of these eighty miles has chiefly been effected by Italian and Portuguese labourers at an average rate of about four shillings day; a great deal of earthwork removing was done when we inspected the line, by American contractors with mule carts. There are other lines in the Province San Paulo which were constructed for the benefit of the cotton and mineral interest with which we will not encumber our pages, such as the narrow gauge line from San Paulo to Sorocabu forty miles in extent, mentioning merely that it was begun in 1874 and has been open for traffic since the beginning of the year. These narrow gauge lines have cost about seven thousand pounds per mile.

These lines completely satisfy the coffee districts. There are other lines in Pernambuco and Bahia and the line to connect Rio de Janeiro with San Paulo built for strategical purposes which we will only mention as possessing some importance to the coffee interest inasmuch as they will help to facilitate the moving of labourers from one place to another. As regards the financial aspect of these lines the Government Report of 1875 says:—

"The San Paulo railway is, of all the lines in Brazil, the one which requires the smallest proportion of its receipts for its upkeep. In fact, inaugurated on the 16th February in 1867 [curiously enough in the same year and only 6 months before the first Ceylon railway!—Ed.], this line gives, after a period of eight years, an average for upkeep on receipts equal to 34·8 per cent, a much better result than the Dom Pedro Segundo line and the Pernambuco line, which have attained respectively 59·5 and 56·16 per cent., during the period of 1858 to 1873 in the first instance and from 1864 to 1873 in the second.

"To this favorable result the very considerable increase in exports has contributed not a little. The proportion of expenses on receipts in 1874 was actually so low on the San Paulo line as 29·341 per cent. There is not, in Brazil, nor in any foreign country, another line of railway presenting a result so favorable. Consequently, thanks to the conditions of the trace which unites the only shipping port of the province with the interior, to the remarkable convergence of the five lines of railway, to inexhaustible resources of revenue and prosperity, to the progressive development of agriculture, the San Paulo railway is destined to occupy, among its competitors, the first rank."

The Brazilian Government Engineer, from whose work we quote, is quite right in priding himself on the wonderful financial success of the San Paulo railway. So low a percentage of receipts on working expenses is, we suppose, unprecedented. We have been accustomed to boast of the prosperity of our Ceylon line in this respect, and with good reason; but our Traffic Manager has never got below 35½ per cent. We may hope, however, notwithstanding the expense of working our proposed extensions, that when railway communication is open from Matala to Uva, and our reserve lands well developed, the Ceylon railways will defy competition for their profitableness to the proprietors—namely, the Government as trustees for the public—and that we shall be able to point to our planting enterprise in coffee, tea and cinchona, as established on a permanent basis of perennial prosperity.

BRAZILIAN RAILWAYS.

(From the Brazil River Plate Mail, April 23, 1877)

OUR present number contains reports of meetings held by the managers of the leading railways in Brazil, which show an improved traffic, with better prospects for the future, caused by an augmentation of products finding their way to the seaports under more encouraging circumstances, and this is likely to continue, so that the onus on the Government in reference to guaranteed dividends will be lessened. The enhanced value of sugar in European markets has stimulated sugar planters in the northern provinces, where the cultivation of coffee is also being rapidly extended, rendering them less dependent on a single article than heretofore. An extension of the lines further inland will also be a material advantage, and this work is being already prosecuted by native engineers with capital raised in the Empire itself. The San Paulo dividend of 7 per cent. is less than on recent occasions, but the position of the railway is a very satisfactory one, and it is well administered, a considerable surplus remaining over to meet possible contingencies. As regards the Recife and Pernambuco Railway it is to be regretted that means cannot be found to carry the terminus into the Recife, where the real business lies, thus affording greater facility for traffic, but it is simply a question of time, and we doubt not the Government will come to some arrangement with the company so as to secure this important advantage. It is an imperial as well as a provincial necessity that the utmost possible facility should be afforded to these railways, to which the authorities are fully alive, so that the line may be rendered remunerative and self-supporting.

Whilst on this subject we may as well add particulars of railways now under construction in Brazil, taken from the Rio papers, as follows:—

Up to the end of 1876 the length of the railways constructed in Brazil was 2,051 kilometers.

The length of the lines guaranteed under the law of September 24th, 1873, is 1935 kilometers and the guaranteed capital 83,424,762 mils.

The preparation of the bed (metre gauge) of the Pernambuco railway extension is expected to cost about 46,600 mils. the kilometer, and the estimated cost of the line and stock is 65,000 mils. per kilometer. The estimate of the surveyor was 98,701 mils. the kilometer.

Like the extension of the Pernambuco railway that of the Bahia railway is being effected by a schedule of prices.

In 1875 the net receipts of the D. Pedro II. railway amounted to 4,186,084 mils., being 6.64 per cent. on the cost of the line in traffic. The cost of working was 48.19 per cent. of the gross receipts of 8,079,700 mils. In 1874 it was 44.47 per cent. The receipts from goods were four times those from passengers.

Up to the end of September, 1876, there was a falling off, compared with the same 9 months of 1875, of 221,878 mils, and an increase of 121,956 mils. in working expenses.

At the end of Sept. 1876 the sum of 73,368,515 mils. has been expended on the D. Pedro II. railway.

As regards the extension to the S. Francisco the report of Mr. Bayliss advocates strongly the valleys of the Paraopeba and S. Francisco to the foot of the Pirapora Falls, where the S. Francisco becomes navigable, as much preferable to the valley of the Rio das Velhas, which has a much greater extent of bad ground. The distance from S. Gongalo da Ponte to Pirapora is 507 kilos. and the cost per kilometer of metre gauge is estimated by Mr. Bayliss at 75,345,578 mils.

The same engineer reports that a railway of 293 kilometers, over very fair ground, will suffice to connect the valleys of the S. Francisco and the Tocantins, starting it from points whence a tributary of each river furnishes free navigation of 3 feet draught. Therefore, when the D. Pedro II. railway reaches the S. Francisco the work of completing a line of mixed inland communication between Rio and the Amazon will neither be difficult nor costly.

CHAPTER V.

MR. CRUWELL'S VISIT TO BRAZIL.

(*Ceylon Observer*, February 25, 1876.)

Mail Steamer "Neva," Christmas Day, 1875.

To-morrow we hope to be at Pernambuco, just one week's voyage from Saint Vincent. This is a very fine steamer, with splendid accommodation. I have a cabin all to myself, there being only a limited number of passengers and many cabins empty; the saloon is very handsomely decorated with flags, holly, etc., brought in the ice-house from England. So we are all comfortable and jolly. It has never been hot, there is a very good piano on board, and some nice young ladies who can play and sing. We have a musical practice after breakfast and a concert every evening *pour passer le temps*. I send you an extract from Mr. Hart's book on Brazil, which you may not have. It is the last book out, and the geological observations of the author would seem to explain the great fertility of Brazil. I don't understand why none of the savants who have written books on Brazil have not ascended the Itatiaiossú, the highest mountain in Brazil, where there are said to be two extinct volcano but disbelieved in by Hart. You will also notice that Hart speaks of some very fine coffee, "free from blight"—which implies that there is coffee not free from blight. The question is: What blight? a question I hope soon to be able to solve. None of the passengers, old residents in Brazil, though none of them coffee-planters, has been able to give me any account thereof; they tell me that the coffee planters buy and hire the slaves from the sugar planters in Bahia and Pernambuco to extend operations with; that slavery will not be abolished till the old slaves die out, their offspring only being free. It remains to be seen what rate of mortality there is annually among the old slaves, and whether the transferred slaves from the sugar estates make up the deficiency; how long the coffee planters may count on the help from the sugar districts, which are said to be all in a state of bankruptcy; and whether sugar cultivation in Bahia or Pernambuco will not soon recover its prosperity. Again, I am told that the price

of a slave has risen a hundred per cent. in the labour market. This is at present all the information I have been able to obtain, certainly not much, and, perhaps, not worth much, but it was given me from old residents in Brazil, one being a Dr. Paterson from Bahia, and a Mr. Saunders, merchant from Bahia, who has also been a long time in Rio de Janeiro and the interior.

This letter will go in a few days to England, and so I thought of sending you a token of my existence by this opportunity, since I won't be in Rio before another week, and there my work will commence, so that you won't hear from me for a while.

G. A. C.

(Extracts from Hart's Book on Brazil.)

The province of Rio de Janeiro is almost entirely composed of gneiss, and much of this gneiss region is mountainous and high. The Serra do Mar, skirting the coast of the province of San Paulo, enters the South West corner of the province of Rio, and, composed of a great number of parallel ridges often much broken, traverses it from one end to another. These mountains form the edge of the great Brazilian plateau, which consists along its eastern border of a broad band of gneiss; the gneiss plateau is bordered in the eastern part of the province by low plains, tertiary and recent. The minor ridges of the grand Serra do Mar break down abruptly on the edge of these low grounds. In the western part of the province, where the Serra skirts the coast, that coast is often high, bold, very irregular in outline, and bordered by numerous rocky islands. South of the Serra do Mar, at Rio, lie several isolated mountains and ranges of hills, really belonging to the same great mountain system, but separated from the plateau by low plains similar to those north of Cape Frio.

To the north-west of the Serra do Mar, and separated from it in part by the valley of the river Parahyba do Sul, is another great mountain range called the Serra do Mantiqueira, which is also composed of gneiss, and belongs to the same system of upheaval as the Serra do Mar. This range separates itself from the coast range near the city of San Paulo, and, lying inside the Serra do Mar, skirts the coast to a much greater distance to the north than the latter does. The ridge properly called the Serra do Mantiqueira accompanies the northern part of the province of Rio for a few miles, when the province boundary line leaves it and runs off to the eastward.

At a distance of four or five miles from the north-west corner of the province, in the Serra do Mantiqueira, is the pico do Itatiaiossù, which appears to be the highest point in Brazil and, according to the Revista Trimensal do Instituto Historical-Geographico Braziliario has an altitude of 10,300 feet. It is said to be volcanic in structure, and two craters are reported to exist on it, together with sulphur springs and sulphur deposits. (Burton, vol. 61.) He does not speak here from personal observation. I have never seen the Itatiaiossù, but I have the strongest doubt as to its being a volcano. The gneiss region of Rio, where uncultivated, bears a most vigorous virgin forest growth, and its soils are particularly favourable for the cultivation of coffee; the great valley of the Parahyba above San Fidelis, and the valleys of its affluents, are largely occupied by coffee plantations. The same is true of the gneiss regions of the north, whose topography and soils are, over large districts, favorable for coffee planting.

The gneiss of the vicinity of Rio and of the Serra do Mar is remarkably unproductive in useful minerals. Indeed I do not know of any mineral deposits of economic value in the region, except gold, which occurs in these gneisses in San Paulo, at Cantagallo, and elsewhere, but not very abundantly. The almost entire absence of limestone is remarkable. I have nowhere seen any trace of graphite.

Late in the tertiary period, long after the hills of Rio were upheaved, and when the country stood at a slightly lower level, the stratified clays were deposited over the whole area of the basin of the Bay of Rio and the adjoining flat country; these were afterward upheaved by water and glacial action. If we examine the gneiss hills at Rio de Janeiro and the vicinity, we find that they are invariably covered by the same coat of red soil which we have observed on the Cantagallo railroad. This may vary more or less in the coarseness or fineness of its ingredients, but it invariably presents everywhere the same general character of a sheet of structureless, unarranged material, composed of ground-up gneiss, perfectly devoid of stratification, and always of a deep red colour, passing into yellow near the surface. There is rarely any humus; this clay sheet varies in thickness from a few feet to a hundred; the surface of a gneiss on which the drift rests is always *moutonné* and remarkably evenly rounded down; the gneiss *in situ* is almost invariably decomposed beneath the drifts to a depth varying from a few inches to one hundred feet. The felspar has been converted into clay, the mica has parted with its iron, but the altered

crystals of the gneiss still occupy their relative position with reference to one another. This extraordinary decomposition of the Brazilian gneiss and other rocks has long attracted attention, and Darwin has described it very accurately in his "Geological Observations." Brazil is not the only country in which the rocks have softened to a great depth. The same phenomenon has been observed in the Southern States of the Union and in India. Dr. Benza says that in the Neilgherries granite is sometimes decomposed to a depth of 40 feet. Prof. Agassiz has spoken of the valley of Tijuca in a locality where the drift is very beautifully exhibited. On my first visit to Tijuca, I was struck with the appearance of some trap masses, which looked remarkably like erratics, but a close study of them satisfied me that they resulted from the surface decomposition of a great trap dyke. Descending far enough into the valley, and satisfying myself that a great proportion of the gneiss masses that I examined at the time were not erratics, I came most decidedly to the conclusion that the surface deposits were not drift, but were in some way due to the decomposition of the rock, as has been heretofore supposed. I desire to record here the fact, that I began my studies of the Brazilian drift with a conviction that Professor Agassiz was wrong, and I feel much gratified that my independent observations have so fully confirmed the results of his own.

Province of Espirito Santo.

The Rio São Matheos rises in the province of Minas, south of the Colonia de Urnai; but I have no information as to the exact point, for the region of its headwaters is in a forest inhabited by savages and quite unexplored. In a manuscript map kindly furnished me by my friend, Herr Robert Schlobach, imperial engineer of the *Mercury*, the Rio São Matheos is represented as taking its rise a few miles south of Philadelphia. Its ancient name was Crikare. It is formed by the union, at a distance of about sixty miles above its mouth, of two branches, called, respectively, Braço do Norte and Braço do Sul. I made a journey to the Fazenda de Capitão Grande, distant some forty miles from the city of São Matheos, and situated on the Braço do Norte, a few miles above its junction with the Braço do Sul, and, descending to the sea, mapped the river as far as São Matheos, below which I was prevented from continuing my work. At Capitão Grande, the river, a stream some one hundred feet wide, shallow and swift, flows in the bottom of a valley, cut through tertiary formation, which has a thickness, above

river level, of three hundred feet. On both sides of the valley, the country is plain for the most part heavily timbered, especially on the slopes. At the Fozenda the soils on the slopes appear to be drift, and are exceedingly fertile. The coffee on the slopes was vigorous and healthy, without blight, and it was very heavily fruited with a berry of excellent aroma. I do not remember having seen anywhere better coffee trees than those at Capitão Grande. The tertiary slopes are very fertile and largely cultivated, as are, to a considerable extent, the lands of the upper plain.

The San Francisco Basin.

Lund told Burmester that he had examined one thousand caves, and out of these only 60 contained bones in any quantity. The number of caves is astonishing, and Burmester tells us that every bank has its cavern. The bones are not all of the same age, and a large proportion of those in same caves belong to now existing animals, but in other caverns there are found remains of extinct animals of high antiquity. Some of these caves contain immense quantities of small bones belonging to bats and small animals of existing species. Near Caxoeria is a cave one hundred and twenty feet long, forty feet high, and six to nine feet broad; over a part of the bottom lay quite a thick bed of earth filled with small bones. Lund determined the number of under-jaws, and calculated that in the whole mass there were the remains of not less than 6,881,500 individuals of caviars, opossums, porcupines and rats. Beside these there were immense quantities of small birds, lizards, etc., and all these bones had been brought into the cave by owls! Now owls are unsocial birds, and we cannot resist the conclusion of Reinhardt, that the deposit must have been gathering for many thousand years. While these bones belong to the present geological epoch, those buried in the red clay below the stalactite accumulations belong to a more ancient time, and are for the greater part of extinct forms; and it is from this source that the bones of the Megatherium and other giant animals are derived. Of these animals there have been discovered by Lund and Claussen one hundred and fifteen species of animals belonging to fifty-eight different genera. Among the extinct quadrupeds may be mentioned the Mastodon, whose remains have been only rarely found in caverns. There were bones of species of the Macranchenia, Toxoru, Chlamydothorium and of the gigantic Glyptodon, Mylodon, and Megatherium. In six of the holes Lund found stone implements and remains of man, so buried with the

remains of the extinct fauna, as to leave no doubt that man was contemporaneous with it in Brazil, and in Europe. In the Sumidouro cavern they were found mingled with bones of the extinct cavern jaguar (*felis protopanther*) an immense capibara (*hydrochaerus sulis dens*) together with remains of llamas and horses, which last certainly existed in Brazil, as in North America, long before the conquest. According to Reinhardt, the race of men whose remains Lund has found appear to have been well built, but slender.

Reinhardt has come to some interesting conclusions with reference to the history of the cave fauna, and I translate them in full. They are:—

1. That Brazil, in the postpliocene time, was inhabited by a very rich mammalian fauna, of which the present may be said to be a fraction or stunted remainder, since many genera, nay, even large systematic groups, such as families and suborders, have disappeared, and only very few have come down to our day.

2. That the Brazilian mammalian fauna, in the whole postpliocene time, had the same peculiar stamp which at present distinguishes the South American fauna in comparison with that of the old world, while the extinct genera belong to families and groups which till to-day particularly characterize South America. Only two of these genera, one extinct, the mastodon, the other still existing, the horse, belong to families which are entirely confined to the eastern hemisphere, and form exceptions, to the rule.

Province of Sao Paulo.

The so-called Serra do Mar is seen in sailing along the coast of the provinces São Paulo and Paraná on the edge of the great Brazilian plateau, which along the coast of São Paulo has a height of 2,500 to 3,000 feet; towards the sea it presents a very steep declivity, but on the opposite side there is no corresponding slope. Climbing the Serra at Santos, one finds himself on an immense tableland of gneiss, roughened by a line of considerable hills a few miles from its edge, but soon growing gradually lower in going westward, until at Campinas broad plains are reached, that stretch off with more or less interruption towards the Paraná, lying in with the great plains of Paraguay and the Argentine republic. The united provinces of São Paulo and Paraná lies like Ohio in North America, on the western slope of the border of the great interior continental basin of South America. Creeping up at an angle of one in ten until, one reaches the summit, a railway runs from Santos to São

Paulo, beginning near the foot of the Serra. An examination of some of the cuttings through the massive corrugations of the hillside reveals a yellow unstratified clay. Major James says that this is generally the colour of the drift clay even to its whole depth. He compares the drift paste on the São Paulo railroad on the slope of the Serra to that exposed in the deep cutting near Rodeio on the Dom Pedro Segundo railroad. The decomposed rock is seen gullied away underneath the drift; this clay sheet may be fifty or more feet in thickness; this earth goes by the name of "terra roxa." The terra roxa of Campinas Paulo is the continuation of the drift paste of the higher lands and seaward slope of the Serra. It forms a most fertile soil, and the country covered by it is clothed by an exceedingly luxuriant vegetation. No soil is better suited to the coffee tree, and in this part of the country it is extensively cultivated on the upper lands, but never on the slopes or the intervalles. Coffee flourishes exceedingly well on the Campinas, west of São Paulo, and it is probable that there is no more valuable coffee region in Brazil.

Resume of the Geology of Brazil.

Eozoic Rocks and their Distribution.—The gneiss of the province of Rio da Terra is an orthoclase variety, varying from Setintose to coarsegrained and porphyritic, or homogeneous and granitic. So far as I have been able to observe, it is everywhere stratified, and consists of metamorphic sedimentary deposits, though much of the rock would be described as granite if seen in the hand specimen or in a single quarry. I have never failed to find the large masses stratified, so that in this work I have included all the varieties under the general head of gneiss. These rocks of Rio are of great thickness, and the Serra do Mar and the Serra da Mantiqueira are wholly composed of them. The system of upheaval of the gneiss of the Serra do Mar Dornbigny calls the Brazilian, and Elie de Beaumont in his report on the "Consideration Générales su la Géologie de l'Amérique Meridionale" says that this system is one of the oldest known, and that perhaps it preceded the "soulèvement" of the most ancient system of mountains hitherto described in Europe. It is certainly the oldest of the rock formations of the Brazil plateau. When we compare the Brazilian gneiss with the Laurentian rocks of Canada and Europe we find such strong resemblance in lithological character, and in the system of upheaval, that we can see no reason why we should not refer them to the eozoic. The axis of upheaval is the same as that of the

Lauren hills in the North America ; heavy beds of limestone are interstratified with the gneiss of the Laurentian. In the Serra do Mar beds of limestone are very rare, and the thin bed I examined at Pirauhy is the only one I have seen in the Serra do Mar. In the preceding chapters I have shown that gneiss is found in every province of the empire. The highlands, Venezuela and Guiana, are largely composed of gneiss, similar to that of Brazil, and disturbed by the same system of upheaval, as has been remarked by Humboldt, d'Orbigny, Agassiz and others, and this gneiss area bounding the Amazonian valley of the north was doubtless an island at the opening of the palaeozoic lime, the highlands of Brazil formed another island, while the Chiquitos gneiss region to the south-westward was probably another.

Since the foregoing was written and sent to the printer I have been honored by a visit from Dr. T. Sterry Hunt, who has examined with care the large suit of metamorphic rocks I brought home from Brazil. Dr. Hunt has kindly furnished me with the following note for publication. The gneissic rocks of Rio de Janeiro and the Serra do Mar present the characteristic types of the Laurentian of North America, including as they do coarse granite and porphyritic varieties, with red orthoclase and fine-grained gray and white-banded gneisses, often hornblendic. The white crystalline limestone with pale green serpentine which occurs with these Brazilian gneisses is not distinguishable from that of the North America Laurentian. The fine-grained tender-misaccous and hornblendic schists which in Brazil succeed the gneisses are very like the similar rocks which in some parts of New England and Acadia appear to follow the Laurentian, and are associated with stauroid eyanite and chiastolite slates, while the auriferous argillites and quartzites which follow these schists in Brazil strikingly resemble those which in Nova Scotia occupy a similar stratigraphical position. This triple parallelism in lithological and mineralogical character in the rocks of regions so widely separated is in itself a strong argument in favor of their geological parallelism.

Tertiary.—The clay and ferruginous sandstone forming the coast plains outside the cordilheira are undisturbed and overlies the cretaceous unconformably. They are overlaid by the drift-clays which descend from the cordilheira and cover their glaciated surfaces, so that though I have nowhere found fossils in them I have felt justified in referring them to the tertiary. The horizontal beds of clays, sandstone, etc., of the Tequitinhonha and San Francisco valley are everywhere undisturbed, even where they closely approach

the coast. They resemble the coast beds except that they are thicker, stand at a much higher level, and in some cases form beds of pure sandstone and conglomerate with limestone and iron ore. They, too, are covered by the drift clays. I suppose that they are also Tertiary, but older than the coast clays. To the same evidently belong the horizontal deposits of the plateau of São Paulo, similar strata occupying the upper part of the valley of the Parahyba do Sul and the clays and sandstones of the elevated plains of the North. Those beds must have been deposited when the continent stood at a level full 300 feet lower than at present. The material was evidently derived from the decomposed gneiss rocks, and it appears to have been deposited rapidly in a muddy sea, not favorable for the existence of life. After these beds were deposited the coast rose uniformly, and they suffered very extensive denudation. Along the coast outside the cordilheira there were deposited, probably in a large part made up of the results of the older beds, the coast sandstone and clays. According to my own observation the upper level of the coast clays south of Bahia is always much below the level of the lowest beds of the older beds. I have never seen them tie in with one another, but I strongly suspect that in the vicinity of Monte Pascoal an outlier of the older beds lies surrounded by the newer. The stratified and loose sands and clays of the Taboleiros at Alagovianas appear to be older than the drift; they are certainly newer than the coast Tertiary group. They need much study, and I must confess that there are some puzzling points in connection with them.

Drift.—In South America, from Tierra del Fuego northward to at least 41° Sglacial phenomena have been observed and reported by Darwin and others, and these phenomena appeared to be identical with those so well studied in the Northern hemisphere. Drifts occur in the Falkland islands (Darwin), Australia and New Zealand. The Antarctic continent is buried in ice and snow. No doubt can exist, that a drift period prevailed over the Southern part of the Southern hemisphere. D'Archias has already called attention to the fact that no mention of either striae, furrows, or polished surfaces has been made by those who have studied the drift of South America, which seems very remarkable. He suggests that it may be perhaps owing to a want of attention on the part of the travellers.

It is not to be wondered at that when Prof. Agassiz claimed in 1865 to have found glacial in the vicinity of Rio, scientific men were astonished and doubted the correctness of the Professor's deductions, and when from under the equator he reported the discovery of glacial moraines, the statement seemed past belief.

I believe that during the time of the drift the country stood at a much higher level than at present, and that it was covered by a general glacier. Over the coast region, where decomposition of the rocks had largely obtained, and where the surface of the rock, rendered even by this agent, had been covered by a thick layer of loose material, the glacier remarked this loose material when it disappeared left it as a paste in which the harder materials, such as fragments from quartz veins, etc., more or less rounded, were embedded. The layer of quartz pebbles underlying the paste appears to have consisted of coarser fragments borne along by the bottom of the glacier, while the paste seems to have been more or less distributed through the body of the glacier. A glacier moving over the gneiss regions of Rio or Espirito Santo to-day would find few loose rocks to transport, for the precipices are smooth and unbroken, and little falls from them, so that one could not expect to see moraines of coarse materials formed by the glaciers of that region, and if the ancient glaciers moved over a country whose surface was decomposed, it is not wonderful that the drift consists of paste with but few boulders. On the contrary, over the dry zone the cliffs are ragged and broken, and the rock surface is apt to be broken up, and we should expect to find over such a region drift of a different character from that which obtains over the moist coast region, and resembling more closely the drift of North America. In the drift paste I have never seen the slightest trace of organic remains of any kind.

Mr. Hart is an American; his book appeared in 1870 in Boston and in London (Trübner & Co.)

MR. G. A. CRUWELL ON COFFEE-PLANTING IN BRAZIL.
ONE KIND OF LEAF-DISEASE KNOWN THERE FOR FIFTEEN YEARS.—LABOUR DIFFICULTIES PREVENT THE EXTENSION OF CULTIVATION.

(*Ceylon Observer*, Feb. 29, 1876.)

A copy of the following letter has been kindly placed at our disposal in accordance with the wish of the writer:—

Messrs. A. G. Milne & Co., London.

Rio de Janeiro, 2nd January, 1876.

DEAR SIRs,—I arrived here yesterday, and found two of your letters, of 29th November and a previous one, for which I beg to thank you.

We touched at Pernambuco and Bahia. As in the latter province coffee to the amount of 150,000 cwts. per annum is shipped, I called on the British Consul to elicit from him information on the subject of coffee.

I heard previously from English gentlemen, passengers, who had long resided in Brazil, that sugar

cultivation in Bahia being at present unprofitable, the sugar planters had hired out and sold their slaves to the coffee planters in distant districts. This news the Consul confirmed, telling me that from his province (Bahia) alone 2,000 slaves had been sent to Rio. He shewed me a despatch (copy) he had written to Lord Derby on the subject, since this transferring of slaves in vessels approached the knotty point of transporting slaves from the West Coast of Africa, whence they would not require much more time nor suffer as much cruelty if they were bona fide imported from Africa as slaves. 'However, the thing has been done; and it would seem to prove the straits to which the coffee growers are put to obtain labour. The second question I asked was when slavery would be abolished in Brazil. I was told that the President of Bahia, member of the Brazil Parliament, had told the Consul that "the last word on slavery had been uttered," meaning that slavery would not be abolished. The children of slaves were considered free, but as there were still 1,200,000 slaves in Brazil, and the children always remain with the parents, it would leave the slave labour question where it was and had been. The third question I put to this gentleman was, Has there ever been leaf-disease among the coffee plantations of Brazil? And the Consul kindly shewed me another copy of despatch to Lord Derby in answer to one received by him from the Foreign Office, emanating from the Governor of Ceylon, in which Dr. Thwaites was mentioned. The reply was leaf-disease to a great extent had attacked the plantations during the last 15 years, chiefly those of San Paulo and Rio de Janeiro, that the papers had occasionally been teeming with complaints on the subject of the pest coming and as rapidly disappearing. This despatch was dated April, 1875. Since a correspondent in the *Ceylon Observer* residing as a planter, formerly of Ceylon, in San Paulo, distinctly denied leaf-disease ever having been heard of in Brazil this information from the consul would seem to settle this question. About eight years ago I found an article on leaf-disease in Brazil in a German brochure which I translated and communicated to the paper above mentioned, but which, when it was denied by an old Ceylon planter in Brazil, lost credence. Not only that, but a writer in the *China Express* based a new theory on this communication, and said that since the coffee estates in Brazil had never had leaf-disease, and since manuring coffee was unheard of in that country, he doubted whether manuring coffee in Ceylon had not a deleterious effect rather than a good one, and that we in Ceylon had all

along been in the wrong. I shall give this matter the greatest attention when visiting the plantations in the interior. In the meantime what with labour difficulties and leaf-disease coffee cultivation in Brazil appears to have received a check. I shall have an opportunity of discussing these questions shortly with the British Minister here and the merchants to whom you favoured me with an introduction.

Brazil appears to me to have a totally different climate from that of Ceylon, and a different soil, accounting for its undoubtedly great fertility, enabling the planters to pay 9 o/o export duty and 6 o/o local (provincial taxation) ditto, 15 o/o, besides being laden with other difficulties. The value of slaves has risen in the last three years nearly one hundred per cent, being now £200 per head. Facilities for people without capital do not exist such as we have in Ceylon, where the value of a property can be ascertained and does not depend upon the labourers on the estate as it does in Brazil. The finest property in Brazil, if bare of slaves, is not worth anything. Hence constant difficulties in courts of law when proprietors have died, and the slave, have died or the number been reduced or sold, and when involved proprietors have sold their slaves, etc. The survey of properties is beginning to give great trouble to the planters. The Consul at Bahia told me that this was an additional obstacle the planter had to contend with.

I remain, dear sirs,

Yours very faithfully,

(Signed) G. A. CRUWELL.

THE ABSENCE OF VILLAGES AND POPULATION IN THE LOW-COUNTRY OF BRAZIL—THE DROUGHT AND THE MISCHIEF THAT IT DOES—CROWS AND AGERATUM AND SPANISH NEEDLE TO DELIGHT THE HEART OF THE CEYLON VISITOR—THE BRAZILIAN FAZENDEIRO AND THE CEYLON PLANTER HAVING PRACTICALLY THE SAME DIFFICULTIES TO CONTEND WITH—BRAZIL PLANTATION TREES GROWN AFTER CEYLON NATIVE FASHION—INDISPOSITION TO CHANGE MODE OF WORKING A FAZENDA—TRAVELLING IN BRAZIL—THE RESTRAINT IMPOSED UPON SLAVES—A FAZENDA—THE SPLENDID SOIL OF THIS PORTION OF BRAZIL—PREPARING COFFEE: THE MACHINERY IN USE IN BRAZIL—THE GOOD BEHAVIOUR OF THE SLAVES—THE SILENCE OF THE WOMEN WHILE AT WORK—THE GERMAN EMIGRANTS IN BRAZIL—RAIN AT LAST.

Juiz de Fora, Brazil, 11th Jan., 1876.

In a cloud of dust I drove from my hotel to the Dom Pedro Segundo railway station at 10-30 A. M. on

Saturday last, the 8th, and took my ticket for Spirangha, the station near where the fazenda of the Baron Rio Bonito, Sant' Anna, and two others equally large are situated, and where, by previous arrangement, I was expected. In Ceylon and in India, travelling by rail, you pass by many not unimportant and always pleasant-to-look-at villages. Not so on this line, where the word village does not exist, and for the first forty or fifty miles you are whirled through the most uninteresting country imaginable, which the drought and its partner, dust, made intensely more so. From or near the station Belem, where you begin to ascend the mountain, the country becomes more interesting: you see clearings of coffee and Indian corn, both looking very miserable on account of the drought and the weeds. You are told the latter do no harm whatever. The drought, which is not man's doing, is of course blamed at Belem and everywhere I have come to. Every possible harm is piled on this drought; the buyer of goods or property or anything, who may have six, nine, and twelve months' credit, says to his creditor: "How can I pay with this drought? You must wait." If the train is half an hour late, it is the drought. So after all what is one man's misfortune is another man's windfall. I was told even that the weeding of the coffee in this drought would be bad. That the coffee trees are allowed to grow as best to them seems proper is to you no news; even on the largest and finest fazenda in the valley of the Parahyba. How could they prune, you are asked, and handle? What a labour that would entail. Those things were all well and good for little fazendas like those of Ceylon.

Hurrah, there goes a flight of crows, and there they are again, the darlings. And, yes, it is, there is *Ageratum Durai* attended by a large crowd of Spanish needles and the sweetest angels of weeds we wot off. The Parahyba river I was told comes from the Province of San Paulo, and near Spirangha station it is like the Mahaweliganga at Lewela ferry. The Parahyba valley is not unlike Dumbara on a much larger scale: elevation the same; for, in this rich valley, as much coffee is grown probably as in all Ceylon. Such soil your eyes never feasted upon. But for all that you pass through thousands of acres of abandoned coffee, and when coffee once takes a turn for being shuck it is soon all UP. The Brazilian fazendeiro has an advantage in this respect over his Ceylon rival. He has not only the few thousand acres in coffee but twenty thousand as good virgin soil to fall back upon, so unlike our Ceylon swell with his three hundred acres and that's all, and nothing to fall back upon: except to go to Kukulu Korale, Bambarabotawa, and

Ambagamuwa. No fear of a drought there ! Both can argue on this point. Our Ceylon laird can say : " I make this three hundred acres estate last twice as long as your big fazenda with its thousands of acres, and I have no Indian corn to plant, no beans to put out, no sugar to squeeze for my coolies." The Brazilian fazendeiro says : " That's so, my friend ; but the labour we bestow on the growth of Indian corn and beans and sugar cane, you must bestow on manuring, on pruning and handling and sending your crop on coolies' heads to far distant stores. You may say of slavery what you like, but such abominable drudgery our slaves, thank God, have not to perform. We have all the railway within easy distance, and when our land becomes all exhausted we move our slaves to other fields where the railway will follow us ; whilst you will one fine day discover that for the stupidity, supineness and meanness in opposing the help this powerful agent can bestow in your lovely isle you are ruined ; for, *amigo mio*, in the only district where you can with safety go to, you are subject to drought too, and you have no railway to it, to save you from the other silent partners of Drought, Messieurs Dear Rice and Starve."

With such ideas, which, of course, are very crude, as they could only be, originating with a man who travels in a drought and whose name is Crudelis,—(put that down to the drought and I will say you are not so dusty)—I arrived at the station and I saw already two slaves with horses, which, a Portuguese nobleman with whom I travelled, and his two very pretty daughters (who neither of them were so dusty, I can tell you, my young swells of Dimbula Crambimbula), rightly guessed, were for me : not the daughters, but the horses you know. The steed destined for me was of the class wiry, of the order weedy, and of the breed rummy, to look at. Full stop. The moment I was on his back he was off and I was off. In fact, we were both off, and I never saw him again, and I hope I never may see him again. I then mounted the other steed, and on him I was permitted to reach the Fazenda Sant' Anna in safety, preceded by a guide, also a slave on a mule, and we made the dust fly. The Fazenda, *i. e.*, the building you call in Ceylon bungalow, has the appearance of a Moorish castle with a mighty big port, at the entrance of which I was received by a herald who accosted me in pure French, rather a rarity in these dusty times I should say. He told me he was Corse, but I found him politeness personified. He introduced me to three or four other gentlemen, all of them employees on the fazenda, who all spoke French. This big bungalow—(I will stick, to this denomination of the house, the castle, the tower

monastery, to all of which it resembles)—describes a large square, one side whereof is the bungalow proper, where the administrator and his adjuncts live, and where the proprietor resides; another side of this square is devoted to the female slaves, and the opposite side to the male ones; the front side is a large barbacue, and at the furthest end there is a chapel on the one side and a pleasure house commanding a fine view over the Parahyba and the opposite hills, on the other, where we went to enjoy the cool of the evening after dinner. Yes, four hundred slaves live there: they sleep there; for they do all the cooking and feeding in the field, where sheltered places are provided all over the fazenda for that purpose. They turn out at 4 a. m. and come home at 8 p. m., hours 8 to 10 are allowed to them to be gay and lively. At 10 p. m. the women are locked in, and the men are locked up. No locking in each other's arms and swearing of eternal love and friendship as our Ceylon coolies do after 10 p. m. Between 8 and 10 as much as they like, and two hours of it a day; a wise and kind master thinks this quite enough for skylarking. Each slave has on his trousers the number and the name Sant' Anna, on his shirt the same and on his jacket the same. Each woman is decorated in a similar manner. I wonder if slave, number 55, say, makes love to miss 55 or whether he loves, as we do, sweet 17, or divine 18, better? At the back of the bungalow there is a large flower garden with fountains, and a vegetable garden. Of the coffee you see nothing.

Of course we dined, and after dinner we smoked and chatted and then went to sleep. I might spin a long yarn on this subject, but if I say that not many months ago the Emperor of Brazil dined, smoked, chatted, and then went to sleep in the very identical chamber where I slept, it will suffice. I might have left the Emperor out, but when he can save me the bother of describing a dining room, a sleeping apartment, the furniture, the pictures on the wall, I don't see why he should not serve me a good turn. Nay, more than that, I will cite the Prince and Princess of Eu, since they also once upon a time or twice upon a time used the same room; as I was incidentally told, and then I was forcibly reminded by the euphonic name of the Prince of Eu of the IOU I used to have to sign to keep me going. The bedstead shuddered at the noise I must have made when thinking of it and congratulating myself to be temporarily out of the tight little island and its useful customs. Oh, how jolly it was after that dusty ride on the iron horse and on that iron gray to recline on the bed on which Emperors used to, were wont to, close their eyes and

open their imperial mouths and snore. At daylight I awoke, and my Corse friend was at the door saying the horses were ready. A slave brought a cup of coffee whilst I was dressing, and the big clock of the bungalow struck half-past five a. m. when I joined Mr. Philippe and away we rode preceded by a slave mounted on a splendid mule. We passed the store, and when I say that in Brazil the planter is also his "curer" and "preparer," you may imagine that the store, as I will call all the buildings belonging to it or barbacues, occupies a large space, which crossed, we suddenly entered the coffee plantations, and we rode for three hours through nothing but coffee, and as far as the eye could reach there was to be seen nothing but coffee, with here and there a patch of forest, or a field of Indian corn, or a valley planted with rice or yams, excepted. During this morning's and the following day's ride through another portion of the estate, I did not see a single stone. The soil seemed to possess any amount of depth all of the same kind. In Uva, in Ceylon, you have the same soil, not everywhere, but in Spring Valley, Nayabedde, Leangahawelle, Idulgashena, Kotegodde, Oodewerre, on Stewart's estates in the bamboo district of Coorg, and in the Preanger in Java, I have seen it. Yet leaf-disease has paid it a visit and is there now on attendance with Colonel Drought and Major Famine. The heat was something terrible when and wherever we lost the shade. The coffee is planted eight by twelve, eight by eleven, eight by ten, nine by nine, and eight by eight, but it nowhere covers the ground, except on exceptionally fine bottoms. Vacancies on this fazenda I saw none, on others I saw many, as you do in Ceylon. The coffee did not seem to me to have suffered so much, for I have seen coffee in a drought in Uva in a much worse plight, and I do not give much for the lamentations of planters who begin to howl at the least apparition of a drought, or a deluge of rain. But, if it continues much longer, this drought, which the administrator of the fazenda told me he had never seen anything like during his thirty years' term of office, it will, of course, greatly diminish the crop, no doubt a fuss will be made out of it, and perhaps it will, momentarily, send up prices. What is really of more importance is, the destruction of the Indian corn crops; and no wonder the slaves come up in a body every night and pray to God to prevent a famine. The papers discuss this matter from all possible sides, and no doubt Government is on the *qui vive*. My Corse companion, however, moaned over the loss of coffee, his master, the Baron, had already sustained, and said that it would get only all that

had tumbled off the trees he would retire to his beautiful Corsica and live *à la Napoleon*. Be this as it may, there was still a mighty crop on most of the trees; certainly on a good many there was nothing. In spite of drought and leaf disease, at various places we found parties of slaves hoeing down the weeds. I asked Mr. Philippe how many trees a slave would do. He said he did not know. "Now, he ought to," I said to myself. I asked him if he thought they would do a hundred trees. He replied: "Oh, a great deal more." I was certain they would not do more than one half, so large was the quantity of weeds. I was told the plantation was weeded twice a year. On some fazendas I passed through afterwards, I am told they only weed once a year, and on some certainly not more than once in every two years. "You must lose a great deal of crop, dropping on the ground," I said. "But," was the rejoinder, "we don't lose that. Do you see any young plants in the ground, under the coffee?" "No." "Well, all that is dropped, and I admit it is a great deal, we pick up. I will shew you afterwards when we come to the store, how we treat this coffee." I thought again of bygone days, and inwardly wished I had all the coffee my coolies, or the cruel, cruel rain, when the coolies would not turn out, caused to drop, converted into rupees. How good and kind I would be.

Coffee thus grown in the native fashion, as we say in Ceylon, takes a longer time to come to maturity and it does not give a big crop before the fifth year. Three year old coffee was pointed out to me with very little crop on. If you will take into consideration that coffee thus allowed to grow sends up half-a-dozen stems which have all the tendency to develop themselves and do so in time, you cannot expect them to bear as artificially cultivated trees do, which are topped and handled, and which, we know, in the third year will give a fine crop. The only estate in Ceylon like a Brazil coffee plantation is or was Gallemudena. I wonder if it be still in existence? In appearance the coffee tree in Brazil shews no difference in its leaves and fruit, and both would seem to have come from the same nursery, "Araby." The flowering season is in the month of September-October, and the crop season begins in April, and is carried through May, June and July. So that the crop on the trees I have seen growing is of the season 1876-1877. In some provinces, Campinas, among others, which I have not as yet seen, the flowering season is now, and the crop in October, November and December. Spouting might be introduced with immense advantage, but when I mentioned this labour-saving auxiliary to my companion he did not

seem to see it in that light at all. He told me the coffee picked in distant fields is carted to the stores and since there were the cattle and the mules on the fazenda for no other purpose than bringing in the crop, they had to be used or to be sold, and, before adopting another system of harvesting the coffee, the administrator had to be consulted, and last though not least the proprietor, who would never alter the present system. I must admit that the innovation would involve such a revolution in the store arrangements, that I can easily fancy the reluctance on the part of this Brazil planter to favor its introduction. This was still more palpable to me when I saw the store itself, an immense heap of all sorts of building with various machineries in it.

"O, sancta simplicitas!" Whosoever saw the original Dambettenne pulping-house in which large crops were taken in may say with truth that that noble building was the simplest of all pulping-houses. Then there was the old Kelburne store and pulping-house combined, a model of simplicity and economy. On the pulping platform were no less than seven or eight different pulpers, of which one only was of course used according to the views of the reigning superintendent. Every planter had his choice of pulpers then, and whilst one machine was at work the others added their not unimportant weight to the platform, till one fine Sunday, when there was ever so much *palam* coming in, the whole pulping-house came down smash, and nearly carried the store along with it. The original Haldemulle pulping-house was not bad to take a large crop in with, and what is more did it and the coffee always topped the market, which it never did since W—— built that splendid store and pulping-house which really is something to look at. Then I come to the Rothschild store, which is a thing of beauty. It is in size (only) not unlike the store on Sant'Anna. The latter resembles some of the Java stores, where coffee is cured and prepared in a similar manner, although they have better machinery for husking the dried coffee in Brazil than I saw in Java. But in both colonies it must necessarily take much longer time than it does in Ceylon to prepare the coffee for shipment. I will only mention that I saw a large portion of last year's crop '75-'76 still undergoing the process of being stamped, hulled, sorted and packed. One machine only I observed as something worthy of notice. It is a machine which takes off the silver skin which in the ordinary way won't come off, and, not only that, gives a colour and brilliancy to the most "dirty" bean. Of course, it can't impart a colour where the bean has faded very consi-

derably. The inventor of the machine has a patent for it, and hopes to make a good thing of it. It is of recent date, this invention. It does little work at a time; but it does it effectually, there is no mistake about it. The price is £90 on the spot, which is rather dear. It is of the size of a large rattle-trap pulper with a wooden frame. There is an opening at the top, something like a hopper, by which the coffee drops into a cylinder which rubs the coffee, and therein lies the whole secret. It rubs it so much that it comes out quite hot! I have samples of coffee with me, shewing the coffee as it went into the machine and as it came out of it, and I shall submit the advisability of transporting it to Ceylon, to such of my friends as may feel interested in taking the matter up. I do not mention the name of the inventor, nor where it may be obtained, lest it might be inferred that by so doing I had become a partner in the business and was touting for purchasers. No, on second thoughts none of my Ceylon friends will judge of me thus, but I really am no genius for machinery, and I dare say I attach more weight to the invention than it deserves, and that, if such a machine be desired, our Ceylon engineers can easily construct one that will do. The thermometer on our return to the bungalow pointed, ninety-eight in the shade. There was no water for a bath, and I could only get a little in my rooms to sponge myself with, in lieu of a bath; the slaves even had to fetch water from a long distance the supply which ordinarily brings them water to within easy reach having failed on account of the drought. It was Sunday, but the slaves worked all day. The reason is this. The proprietor does not approve of all his slaves on his three fazendas having their Sunday all on the same day. So one fazenda has Sunday, and the other Tuesday. Oh, you have no idea, my friends, what well-behaved creatures the slaves are. When they pass you, they take off their hats, and say "Abessa," or "Abeça." I think the latter is the correct spelling of the word which means, "I ask your benediction." In the evening they enlarge upon this and say, "Sia lavodado o nosso Senhor Jesus Christo." The women with children bring them to you to pat them on the head. They are employed in the store, picking the black beans out and doing the same kind of work the Colombo coffee women do; but what a difference. If we go into any store at Colombo and listen to the chatter and noise of the Sinhalese and Malabar women, and then witness the deadly silence in this Brazil store, a shudder involuntarily comes over one. The women do sing in Brazil in the evening, and very prettily too, but they are all religious songs, and they made me quite melancholy.

On Tuesday, the 11th, I left Sant' Anna for Juiz da Fora, and said good-bye to the kind people whose society and hospitality I had enjoyed for the last few days. Mr Phillippe accompanied me to the station, and it is now only necessary to say before having done with Sant' Anna that the administrator of this large fazenda, although I was introduced to him and conversed with him, never shewed himself. He never came to breakfast, nor dinner, and where he slept and where he took his meals I could never find out. Mr. Phillippe told me he preferred being independent, that they had constantly visitors, and he preferred being quiet and left alone, so he and the gentleman who did all the accounts and the writing had to do the honours of the bungalow. The train which took me to Juiz da Fora runs along the river Parahyba, through coffee, Indian corn, fields of abandoned coffee, and forest and chena, till it reaches Entre Rios, which translated means between rivers. From Entre Rios, the line ascends all the way to Juiz da Fora at an elevation of two thousand and seventy feet above the level of the sea. The line forms a continuation of curves, and crosses two splendid viaducts, built of masonry with iron girders, and so on, besides many bridges of small and considerable dimensions. Juiz da Fora is a central place for despatching coffee, like Badulla or Haldummulla or Lemastota. But there is a hotel at Juiz da Fora that can vie with any hotel on the Rhine or in Switzerland, perhaps not so large, but it is built for a hotel by a company which also despatches coffee and fetches the coffee from the fazendas with the company's carts. It is the best hotels in Brazil, I was told, for even the Rio ones are makeshift houses of entertainment for man and best, where mosquitoes and flies are the only attractions. But this hotel is quite a bijou of a hotel, with its lovely garden and playing fountains. From Juiz da Fora where I spent two days very comfortably, I went to Petropolis, where I am now—13th January. Part of the way you come by rail, and part by coach, again through or along coffee fazendas. The driver of the coach was a German from Mayence, a very intelligent fellow who had been over twenty years in Brazil. I asked him if he would not like going back to Germany. "Very much," he said, "but I have no money." When half way we came to a place where dinner was prepared. It belonged to a German, and he himself waited at table. I asked the coachman and the conductor to be my guests, and "stood" a bottle of port wine which the two discussed *con amore*. I asked mine host if he did not wish to revisit the old country. "Yes,"

he said, "but the money is wanting." So after all these poor Germans, who came here thinking to make their fortunes have not done so. Petropolis is a regular German colony. It is like a German watering-place to be sure, like Wiesbaden. The Emperor lives here, all the ambassadors and consuls, and all the swells from Rio. It has a climate like Pussellawa, and is about that elevation above the sea. The mail leaves to-night, so I will close for the present.

—

Petropolis, 14th January.

P. S.—The rain came down last night, and it rains to-day as heavily as it ever did in Ceylon. I fancy they will have it all over the country I recently passed through; the drought will therefore be over. I am told it lasted six weeks, i. e., six weeks without any rain at all. Its effects are the total destruction of the corn crops, beans and rice, and considerable quantities will have to be imported from the United States. The destruction of the coffee crop,—the topmost branches or exposed branches—is no inconsiderable amount; so that the crop may be considered a small one. That is crop '76-'77. '75-'76 was small, and '74-'75 only large, of which a balance of one million bags was shipped '75-'76. So that on the whole Brazil will not likely swamp the markets during coming year.

—

THE EXCEEDING COURTESY OF BRITISH ATTACHES IN RIO—
A COFFEE LEAF BOUQUET FOR THE OPERA, WITH "HEMILEIA VASTATRIX" TO GIVE IT VALUE—AN AGRICULTURAL SHOW AT PETROPOLIS—THE EMPEROR OF BRAZIL "UNCOMMONLY LIKE" "G. A. C."—THE IMPERIAL FAMILY AT A DISCOUNT—REPUBLICANISM IN THE ASCENDANT—SAN PAULO THE "UVA" OF BRAZIL.

Rio de Janeiro, 22nd January, 1876.

I start on the 25th for Santos and San Paulo, there I hope to see Mr. Blacklaw. I have received the greatest kindness, and have met with more than ordinary courtesy at the hands of Mr. Victor Drummond, British Chargé d'Affaires, in Brazil. He lives at Petropolis, where at present the Court is, and all the Ministers of Foreign Powers. He was informed beforehand of my errand to Brazil by one of the attachés whom I saw in Rio when I called at the legation, the hon'ble W. Gough, a grandson of the great warrior of that name. This young gentleman forwarded my letter from the Foreign Office to Mr. Drummond, and gave me a special note to Mr. Austin, Acting Consul at Rio de Janeiro, who, when calling at the Consulate, shewed and gave me drafts of letters he wrote to the Foreign Office on the subject of

leaf-disease. He told me that leaf disease was still in the country, and said he would bring me some leaves in a day or two to shew me. I did not see anything more of Mr. Austin for some time, when one evening, alighting from the tramway car, bent on going with a friend to the opera, a gentleman accosted me, and, whilst I tried to recollect who it would be, said, "Don't you know me? Austin is my name. I came to call on you to redeem my promise and bring you proofs of the Brazilian leaf-disease; and there you are," thrusting a parcel of coffee leaves into my hands. Rather an extraordinary "bouquet" to take to the opera, but never was nosegay more welcome than this mass of diseased coffee leaves, and ever and anon I assured myself by a glance towards my "bouquet" that the leaves were still there. Now I will resume the thread of my narrative, hoping you received all the previously forwarded bits.

The Agricultural Show at Petropolis on 21st of January, 1876, revealed the Emperor, the Princess and Prince d'Eu and the "crème de la crème" of Brazilian society, military, diplomatic, agricultural and commercial, all kinds of beasts and birds, butterflies, young and matronly ladies in the pink of fashion, beetles, caterpillars, vegetables, citizens of Petropolis, their wives and daughters in their Sunday best, flowers of rare and unrare beauty, produce of the province of Rio de Janeiro, samples of wood and precious and unprecious stones, corn, beans, cassava, fruit of all descriptions, aquatic and other fowl, and two brass bands, one worse than the other. If I were a regular newspaper correspondent instead of only a very irregular one, a kind of Bashi Bazook of the press, I would say that the spot was "umbrageous with foliage, diaphanous with sunshine, and exquisitely illusory in its aerial perspective." It was all that, particularly illusory with regard to the animals that were part and parcel of the show. There were half-a-dozen very common nags, tats you would call them, but they called them horses, two horned beasts called bullocks, and one Alderney cow that did not give milk. Flowers there were, but they were not shown to advantage. They wanted a C. P. L. and a Thw. In other respects the arrangements were perfect. The chief point of attraction was a large kind of hall, beautifully decorated with flags, palms, and shrubs. In it were two basins surrounded by rock and banks "on which the wild thyme grew." Swans, noble geese and ducks disported themselves in the water, and, outside, the handsome Brazilian ladies, one lovely American girl, and several not uncomely English "misses," exchanged words and glances sly and demure

with the swells who thronged round them. And what does the Emperor look like, you will perhaps ask. Well he looks uncommonly like G. A. C. This must be "so", for I was assured thereof oftener than once.

The Emperor, you know, is a great scholar. He is learning Arabic now. He may learn something that he did not bargain for, if he does not look out. A lady staying at the same hotel where I did, and whose husband was at Rio, kindly consented to be escorted by me to the show, and, from having been a long time in the country, she could point out to me all the people worth knowing, and not only that, but she seemed to be equally well at home with politics of the Empire. According to her, there is a strong Republican party in Brazil, waiting only for an opportunity to "set the thing going," and that the Emperor and the whole Imperial family were not at all popular. I can only state what I saw, that, when the Emperor appeared at the show, no one seemed to take the slightest notice of him. He came to the gardens a full hour after the inauguration of the show had been gone through. If it had not been for my lady companion saying, "There is the Emperor," pointing at him, I would not have known that the quiet inoffensive looking elderly gentleman was the Emperor of Brazil. No "God save the Queen" was played; no "God Preserve Our Good Emperor Joseph"; no Russian hymn nor wild "Yankee Doodle" was indulged in by the bands, nor by the people, of whom there must have been several thousands on foot on that occasion. "It is on the cards," a gentleman who ought to know told me in the evening, when we were discussing this subject.

I must now close this letter, as the mail leaves to day, and I have several appointments in the city concerning my trip to San Paulo. I will only add that the return journey from Petropolis to Rio is replete with grand mountainous scenery, rugged like any you once so graphically described of Lemastota on the way to Pitte Ratmalie, behind the rhododendrons. I hope, if all goes well, to be behind the rhododendrons once more, in the latter end of April or beginning of May. Barring the descent from the heights of Petropolis to the foot of the hills accomplished in two hours by diligence, which is fine in the extreme, as our friend John Capper would say: in the extreme, there is nothing else in the extreme except the heat, the dust, the want of villages, smiling corn-fields, smiling villagers, not a bullock bandy, not a bullock capering across the road till you arrive at Rio, which reminds you that you are not in Ceylon, nor India, nor Java even; not a pariah dog barking at you even. I think I told you in my last how I came from Juiz de Fora to Entre

Rice by rail, thence by coach, all through coffee nearly the whole way to Petropolis. As yet I have nothing to alter in the views of matters agricultural, commercial, and political, I expressed before. It remains to be seen how San Paulo will appear to me. I know it is the big gun of the future of Brazil. Every sentence of a Brazilian when talking of coffee concludes: "Ah, you must go to San Paulo!" So to San Paulo I go.

G. A. C.

The following communication, though said by the writer to be a mere recapitulation of the letter sent through Messrs A. G. Milne & Co., and already published by us, contains much new information, besides putting facts and inferences already stated in a new light, and will well repay perusal:—

Rio, 4th February, 1876.

DEAR SIR,—I wrote you through my agents, the firm in London, but in case you should not get the letter I recapitulate its contents.

When in Bahia I called on the English Consul, and I asked him several questions with regard to labour, crops, leaf disease. With regard to the first he told me that from Bahia alone 2,000 slaves had been shipped to Rio to be employed in the coffee districts, that the value of a slave had increased one hundred per cent. so that an able-bodied slave was worth from £200 to £260, that the value of an estate was entirely dependent on the number of slaves attached to it; and a property without slaves was worth *nil*. A proof of this consisted in the fact that sugar and cotton planters in Bahia hired or sold their slaves to the coffee planters, the cultivation of these two articles being unremunerative at present in Brazil, inasmuch as, if sugar and cotton cultivation should become once more profitable, the owners of slaves on sugar and cotton plantations, now hired or sold to the coffee planters, would resume their operations on the same land, although it might have reverted in the mean while to jungle. With regard to the second question, viz. crops, the Consul gave me 150,000 cwts. as the annual shipment from Bahia, but could not give me any data as to the crops from all Brazil ports. Then, concerning leaf disease, he shewed me a despatch to Lord Derby, in which it was stated that leaf disease had shewn itself and committed great havoc on the plantations since 1862, that it had greatly diminished but that it was said to be still hovering about. This despatch was in answer to one from

Lord Derby on behalf of the Ceylon Government, and I doubt not that the public of Ceylon has been favoured with a copy of this despatch, and not only of that one but of all those addressed to the Foreign Office from the other Consuls.

Since my arrival in Rio I had a communication with the British Consul here, who shewed me copy of a despatch similar to the one previously alluded to, also on the same subject of leaf disease, which the planters think identical with *Hemileia vastatrix*, although in reality it is the *Cemiosoma* which can be seen in the Kew Museum side by side with *Hemileia vastatrix*, and they both look so alike, and their destructiveness is so similar, that you may compare it to the effects of arsenic and strychnine. The Consul sent two letters written by him on the subject to Lord Derby, who, no doubt, forwarded them to Ceylon, and what I write now may be all stale news to you. It was gratifying, me in one respect, viz., that what I wrote on the subject nearly ten years ago, translated from the German, and published in the *Observer* in due time, then not much valued, was the plain truth, for, whenever leaf disease in Ceylon was brought on the "tapis," it was said that the pest only existed in Ceylon and that Java and Brazil were free from it, and although I lost no opportunity in saying that it did exist in Brazil, no one seemed to notice it, and when Mr. Blacklaw's communication on the subject appeared in the *Observer*, the editor forgot what Cruwell had said on the subject; for Blacklaw must be right, and so it gives me satisfaction to state that I have found all I wrote on the subject corroborated by the British Consul in Brazil, and by two of the principal merchants. I refer you to the Foreign Office, if the Colonial Secretary's Office in Colombo should not have received a copy of the despatches addressed to Lord Derby on the subject, containing two different (in language only) answers to questions sent out by the Governor of Ceylon, Sir W. H. Gregory, put by Dr. Thwaites of Peradeniya. "*Cemiosoma*" is the South American and West Indian form of leaf disease, and, perhaps, it may be that form in Liberia, for I am convinced now that they have either *Hemileia vastatrix* or *Cemiosoma* in Java! The Consul promised me some leaves infected with the disease to-morrow. But I have no doubt I shall see it during my travels in the interior. I am going up-country in a few days. I don't know yet how long my stay in Brazil may be prolonged. I think I shall remain till I can ascertain what the crop 1876-77 may be. The crop just in, I hear from a good authority, a gentleman long resident in Brazil

as a merchant, is small, but, owing to the large balance unshipped, viz. 1,000,000 cwts. of the previous crop, prices have gone down. But that will rectify itself, and if the coming crop should be small too, a contingency thereof existing in the shape of an unusual drought prevailing, prices of course must have an upward tendency again.

You will receive this by sailing vessel direct. The captain of her is staying at this hotel, and I shall ask him to give the letter to Mr. Blyth of Galle, who will forward it to you. You ought to get this as soon as my other letter through the hands of my agents in London. Everything is dry here, there having been no rain for some time. I long to be in the hills. It is strange I enjoyed myself better in San Vincent than in Rio. I believe Mr. Blacklaw's place Angelica (I think that is the name of it) is not belonging to a company now, but is in the hands of the London and Brazil Bank. I hear that the company did not thrive. I shall see him, of course, if he is to be found in this country. You will get a few stray leaves from me like this, but a more spun-out yarn you will only get after my arrival in Ceylon.

G. A. C.

RAILWAYS: SOMETHING LIKE AN INCLINE, A SERIES OF RIDGES; A DESCENDING TRAIN PULLING UP AN ASCENDING ONE—PLANTERS TAKING CONTRACTS FOR RAILWAY CONSTRUCTION IN THE SAME WAY THAT CEYLON PLANTERS ARE READY TO DO—LEAF DISEASE VERY BAD IN BRAZIL, AND LABOUR VERY DEAR—AGERATUM IN PLENTY, BUT GRASS THE GREATEST WEED-TORMENT TO BRAZILIAN PLANTERS.

Angelica, February, 1876.

I wrote to you a few days ago, and this epistle is only a recapitulation of the letter I sent you from here*; but it is necessary that I should do so from out-of-the-way places like this, and, since Mr. Blacklaw and I contemplate a trip into Minas, which may occupy three weeks, I had better do so now at once before we start.

I left Rio for Santos by steamer on 25th ultimo, arrived there on the 26th early, left at 3 p.m. for the San Paulo Railway climbs 2,600 feet. Scully says, in his book on Brazil:—

“Starting from Santos the railroad runs to the Cubatas river over a swampy country, unpopulated,

* The letter referred has since been received by us: see further on.—ED. C. O.

and without any present apparent powers of production. Here you have the mountain gorge before you whose ascent of 2,600 feet of perpendicular height gives the San Paulo railway so emphatic a character. Passing over the Nugy river you arrive quickly at the foot of the gorge formed by the two out-jutting spurs of the buttress-like mountain, and the black defiant ravine is suggestive of anything but a railway course. Here the line climbs boldly up the side of Nugy spur, at a usual ascent of one in ten, crossing mountain torrents, until it obtains a resting-place upon the table land, 2,600 feet above the level of the sea. The entire and almost straight ascent of upwards of five miles is divided into four lifts of about a mile and a quarter each, having a level platform of some 400 feet in length between them. On these lifts, as in general on all the line, the track is single, except at the upper half, where it is doubled to admit of the ascending and descending trains passing each other. At the upper end of each platform is placed a powerful stationary engine of 200 horse-power whose two cylinders are 26 inches in diameter and 5-feet stroke, calculated to haul up 50 tons at the rate of ten miles an hour, which are supplied by five Cornish boilers, three of which suffice for the duty. A steel wire rope, tested to a strength far exceeding the requirements which will ever be made upon it, passes over a friction wheel on each side of a fly-wheel drum, upon which it is wrapped round, and, one end being attached to an ascending and the other to a descending train, it is intended to make the lift partially self-acting, as it now wholly is at one of the inclines, which is not supplied with its stationary engine, the weight of the descending train drawing up the ascending one. Powerful breaks that will stop a train instantly are supplied to guard against a breaking-down of any part of the machinery, or a rupture of the rope. On the third lift occurs a ravine still more gloomy than the rest, which is called the Bocca do Inferno, that, having a width of 900 feet, is crossed by an iron viaduct which lies on rows of iron columns resting on stone piers 200 feet below in the centre of the line."

The Brazilian Imperial Government has published in French a book on this Railway and on all the San Paulo railways. I will bring it with me to Ceylon: it gives the most minute information on everything connected with this railway and the other lines in this province, which has now nearly 400 English miles in working operation. It says at the conclusion of its notice of this line (an English Company—broad gauge):—"Il n'y a, ni au Brésil ni à l'étranger, aucun autre chemin de fer présentant un résultat aussi avantageux."

En sorte que, grâce à la condition toute spéciale du tracé qui relie, on peut le dire, l'unique port de la province à l'intérieur de Minas de Goyaz et de Matto Grosso; grâce à la remarquable convergence de cinq voies ferrées, sources inépuisables de revenu et de prospérité; grâce, enfin, au développement progressif de l'agriculture, le chemin de fer de St. Paulo est destiné, pour tous ces motifs, à occuper le premier rang parmi tous ses compétiteurs du Brésil." Total mileage to S. Paulo 78 kilometres, 50 from San Paulo to Rio Claro: a distance of about 120 kilometres. Another company, styling itself C. Paulista, has extended this line to Rio Claro, whence it is to be further extended. From Campinas three branch lines, on the narrow gauge, diverge in right and left directions. Two of these were initiated in 1872, and in October, 1875, opened for traffic. The whole of the Paulista extensions have been paid or subscribed by the coffee planters of the district, who have sent their slaves to work and to accelerate the completion of the work, all of them taking contracts, thus, attracting labour from distant districts.

It was life and death to these planters to get this railway, and in no other manner would they have succeeded. Great praise is due to the energy of the San Paulo planters.

The Colonist system of working coffee plantations is a great failure. Leaf disease is very bad on all the estates I have seen, and on none more so than on Angelica. I never saw it worse in Ceylon. Mr. Blacklaw knows it now. The principal planter of the district, of his own accord, when riding over his plantation, pointed it out to me, and asked if it existed in Ceylon, concluding his remark by saying, "And the worst of it is, it won't go away." The crops are small, and my estimate of this year's crop, now growing, holds good. I have seen pruning done in Brazil. By pruning knives you will ask? No, with axes! Fancy! The last drought destroyed the young coffee. Mr. Blacklaw is now planting over again what he planted in October and November. I notice nearly all the plants being put in have leaf disease. The cost of the narrow gauge lines is about £8,000 a mile.

Labour is VERY DEAR chiefly European. Masons from ten to twelve shillings a day, miners from six to eight, laborers from four to five shillings a day. But in spite of this drawback, with the exception of one narrow gauge line which was opened chiefly to develop cotton and cotton, being now *de trop* does not pay, the railways pay splendidly. I had interviews with the resident engineer at San Paulo, and ditto at Campinas, and both assure me of the brilliant state of affairs. The railway pamphlet published by Government says

on this subject:—"Les quatres derniers dividendes distribués par la Compagnie Pauliste correspondent à 5\$600, 7\$700, 7\$060, et 8\$980, par action (share), ce qui donne au dernier une valeur de 11 %" (eleven per cent clear profit). "Nous avons déjà en l'occasion de dire, que c'est à une augmentation considerable dans l'exportation qu'il faut attribuer le splendide résultat obtenu par le chemin de fer de Saint Paul, ainsi que par le prolongement de cette grande artère."

Lots of ageratum, but grass is the worst weed, which the San Paulo planters plough up about three times a year. It saves manual labour. The easy lay of the coffee fields permits this, as well as the far apart planting, 12 by 12, which latter circumstance permits also of picking up all berries fallen off the trees, and conduces to the picking being more simple and economical than in Ceylon.

Neither horses nor cattle eat coffee leaves as they do in Ceylon.

HEAVY HOTEL CHARGES—RAILWAYS—TUNING THE PIPES—THE "STRENGTH OF WILL, ENERGY, AND DETERMINATION" OF BRAZILIAN PLANTERS—A BRAZILIAN TOWN—LEAF DISEASE—BRAZILIAN DISLIKE OF FOREIGN PLANTERS—FAILURE OF COLONIST SYSTEM OF LABOUR—ATTACKED BY WASPS—"G. A. C." IN FULL FLIGHT.

Angelica, San Paulo, 6th February, 1876.

"Shall I include carriage hire in your bill, Mr C.?" asked Mr. Carson, the proprietor of the hotel in the Rua do Cattete, *voi che sapete*, before leaving Rio for Santos on the 25th of last month. "Yes, please," I said, and paid the bill without submitting it to that scrutiny I generally devote to the study of hotel science and hotel literature, my chief study at present, because I consider myself a regular graduate of the hotel Carson, as well as of several other hotel universities, but I was not prepared, when I glanced over the little bill, after being seated in the hotel carriage, to be charged six milreis, i. e. fifteen shillings and sixpence, for the luxury of driving to the wharf in a carriage and a pair of mules when I might have gone for sixpence in the *bonds* (tram: fancy their calling tramways bonds!), but then, I would have had to send my luggage in a cart, and that would have cost something. The luggage might have gone to the wrong steamer and been taken on to Montevideo, or Bahia, or to America, who knows? So, looking upon it in that light, my wrath dispelled itself like a cloud, intent on mischief and thunder, dissolves itself into thin vapour. I arrived at the *praha*, the landing jetty, got into a boat, traps and all, and went on board

the Santos steamer, a very nice, roomy, comfortable steamer, built on the American river steamer model. The sea was as calm as a pond, but the motion of the vessel through the water always produces a breeze, which was so delightful after leaving the hot terra firma of Rio. Gliding along the coast, where the mountains start sometimes out of the very sea, and passing in the evening between the coast and the island of San Sebastian through a very narrow channel, I fell asleep and slept till we arrived at Santos, which lies up a river, in a sort of creek. But we arrived so early that we had to wait fully two hours till the authorities arrived, to permit our going on shore. I forgot to mention that I had the companionship of two Germans whose acquaintance I had made in Rio, who were quite at home at Santos. One of them accompanied me the greater part of the way to his fazenda, and he would have come here with me had it not been for a meeting of railway shareholders of the line to Saracaba which he had to attend.

I managed my business at Santos in a few hours, and at three p. m. on the 26th of January we started for San Paulo; we had permission to get into the break-van at the foot of the incline. [Here follow some details given in a letter already published.—Ed. C. O.]

The dark viaduct is the great beauty of this line, which we had an opportunity in the break van of realizing to the full extent. A French engineer has written a pamphlet on the San Paulo Railways, called:—

CHEMINS DE FER DE LA PROVINCE SAINT PAUL.

Données Techniques et Statistiques.

Per l'Ingénieur

* I. LA BANK DA CAMARA.

Publié par ordre du Gouvernement.

1875.

a pamphlet, from which I shall take the liberty to quote hereafter. He writes on the subject of this viaduct:—

“Après avoir gravi les trois premiers plans inclinés jusqu’à une élévation de 560 mètres au dessus du niveau de la mer, le voyageur, surpris par la spectacle grandiose des vallées qui l’entourent, franchit tout émerveillé le grand viaduc qui a immortalisé au Brésil le nom de l’Ingénieur Brunlees, et constitue le chef d’œuvre du chemin de fer de Saint Paul.”

This railway has been constructed by an English company with a guarantee of seven per cent. from the Government. The distance to San Paulo is 78 kilometres 50 metres. I have not been able to glean from any of these books what cost of this railway has been

per mile, but I have the promise from Mr. Fox, the Resident Chief Engineer at San Paulo, to whom I brought letters of introduction, to be furnished with all those statistics on my return to San Paulo.

This is a copy from this author's table of traffic till 31st December, 1874 :—

Passengers.

	1st Class.	2nd.	3rd.	Total.	Baggage.
1867 ...	4,618	6,652	42,198	53,468	11,572
1868 ...	10,113	9,974	31,182	51,269	15,049
1869 ...	15,467	11,064	42,655	69,186	15,446
1870 ...	16,141	10,081	49,177	75,399	15,416
1871 ...	18,397	10,034	45,812	74,243	17,252
1872 ...	18,143	12,625	45,644	76,412	20,484
1873 ...	17,731	12,768	43,237	73,736	Tons 194
1874 ...	25,021	66,023	abolished	91,044	252

Goods.

	Coffee.	Cotton.	Salt.	Sugar.	Miscl.	Carriages	Beasts.
	Tons.	Tons.	Tons.	Tons.	Tons.		Dozens.
1867	18,327	4,224	6,881	1,353	1,192	52	1578
1868	29,504	7,282	9,086	1,400	12,047	186	400
1869	41,535	7,787	11,203	1,372	16,273	345	125
1870	29,720	6,361	11,201	2,229	18,043	316	187
1871	41,107	7,794	13,686	7,102	23,085	652	124
1872	24,871	8,497	14,110	6,421	21,512	733	97
1873	40,221	9,157	12,062	4,278	27,654	1	90
1874	45,368	8,552	13,203	3,344	43,932	2,438	180

But this is only the tuning of the pipes, as my friend Mr. Alister McL—— once told me when complimenting him on what I considered a most beautiful phantasia on the bagpipes. "Man," he said, "this is only the tuning of 'em." The real playing began afterwards; and so with the San Paulo railway. The real railways of the province begin from this point. First, there is an extension of the trunk line to Rio Claro. It is finished nearly, and will be within ten miles of this fazenda, although it is only opened as far as Santa Barbara, but Mr. Blacklaw says it will be opened to Rio Claro by October next, a statement which the Resident Engineer at Campinas, Mr. Hammond, also made to me.

This extension line, also on the broad gauge, like the one from Santos, I was told by Mr. Hammond gave twelve per cent. clear profit, after satisfying all other claims, such as working expenses, interest, and sinking fund. From Campinas, which is a central station, several branch lines go off in various directions, on the narrow gauge. So that this province has already a net of railways in working order of four hundred

English miles, and these lines of railway are being nearly all of them extended. What is remarkable is that the money for these extension lines from San Paulo has been all subscribed in the province by the coffee planters. Otherwise they would have never got a line of railway, and several lines have been made by the planters, on contract, with their own labourers. The line from Campinas to Mogy Mirins was begun in 1873, and since last autumn 75 kilometres 820 have been in operation; besides another line, also narrow gauge, to Ampar of 64 kilometres 920, which is also open traffic. Both are being extended. If that is not taking the bull by the horns I don't know what is.

The planters in this province are the most independent set of men I ever come across: they are full of life and energy. But it was their only chance. It was a case of *la bourse ou la vie*. The San Paulo Companies' railway was initiated in 1869, and in 1872 it was opened to the public. I have often heard the Brazilians accused of apathy and indolence and carelessness, but one has only to refer to the conduct of these men with regard to their railway system to get a correct estimate of their strength of will, energy, determination. As to their character, that is another thing, which at present I will ask you to let me be silent upon.

To return to San Paulo. Arrived at the station, which is as large and elegant a structure as any ordinary English or French or German one, we get into a carriage, two mules again, but this time we bargained with the driver, and for three milreis my friend and I were safely conducted to our hotel kept by a German. Next morning we drove through the town, which counts some 25,000 inhabitants. San Paulo is one of the oldest towns in the Empire, with a jesuit college, cathedral, bishop and monasteries and nunneries, hospitals, schools, theatre, municipality house, president's (of the province) house, and so on. The town reminded me a little of Norwich.

At 11 A. M. my German friend and I left for Campinas, a city of similar dimensions and approximate population as San Paulo. In the neighbourhood of this city were situated several plantations I had to visit, among which that one belonging to Senhor José Bonifacio Amaral, called Setteguedas, distinguishes itself as one of the finest in the province. It is situated about six English miles from Campinas, and we drove there in about an hour. We met with the greatest civility and kindness at the hands of the proprietor, who seems to be a true gentleman in every sense of the word. He invited us, after breakfast, to inspect his plantation, and he

was the first Brazilian planter who of his own accord pointed out the leaf disease to me. I abstained from passing remarks upon it, since I had become aware that it was a painful subject to the planters, but, when this planter commenced talking about it, we had a long conversation concerning this pest. "The worst of it is," he said, "it won't go away, although it is not so bad as it has been." I have seen it since on every other plantation far more destructive than on plantations in the Rio de Janeiro province. Whether from this cause or the drought, the crop is decidedly looking small on the trees, so that my estimate for this year's crop holds good.

Here I have come to where the labour difficulties begin to show themselves markedly, and I shall have more to say on this subject in my next. On one estate, they were pruning: with pruning knives? No, with axes. It is worthy of notice that neither horses nor cattle eat coffee leaves. You may take it for granted I met with a hearty welcome here, and I have seen all the *Observers* I had not seen since I left England. Mr. Blacklaw did not know of leaf disease on his own estate, till I pointed it out to him, but I think he has twigged it now. This is one of the finest climates in the world, and, were it not for the want of labour, the spot would be an elysium. But the colonist system is a failure, and slaves may not be employed on this property for certain reasons. Mr. Blacklaw has had to fight with great difficulties, and it is a wonder he kept things going so long. The Brazilian planters are inimical to foreign planters; they like foreign immigrants well enough.

I must break off, as the messenger will leave immediately. Mr. Blacklaw looks exceedingly well, and so does his family, which speaks volumes for the climate. We talk of making a trip together to Minas, via Campinas and Mogy Mirins. On riding through this plantation the other day we got attacked by a swarm of wasps. I was riding a mule, and there was no coming to terms with the beast for letting me withdraw quietly, so I had to submit to be thrown and made to bite the dust. Fortunately I was not hurt, neither in the fall nor by the wasps, who chiefly settled on Mr. Blacklaw, who had managed to come down from his horse in a more dignified manner. We both ran as if we were practising for the Kandy A. B. C. races. I was told by one of the assistants on the place that last year a horse was killed by the wasps between this and Rio Claro and the rider nearly so. It is quite wonderful how Mr. Blacklaw has picked up German and Portuguese, but I should not be surprised to see him back again in Ceylon.

G. A. C.

HEAVY TAXATION IN BRAZIL: THE COUNTRY FENCED WITH PROTECTIVE DUTIES—THE ENORMOUS DIFFICULTIES IN THE WAY OF CONTINUED CULTURE—THE GERMAN COLONIST—CRIMPING IN BRAZIL—AN UNMANNERLY COLONIST—THE CONTRACT SYSTEM—THE CAMERADO—CEYLON, IN THE OPINION OF BRAZILIANS, ON THE DECLINE—THE CAMPO.

Angelica, 11th February, 1876.

If the export duties from Brazil are heavy, the import duties are still more so. On wine the duty is 50 % on the declared value, on other articles of commerce thirty per cent. ad-valorem, and a war tax on the amount of the collected tax of 40 %. The transport expenses of goods from Rio are enormous. All these drawbacks tell strongly on the planter, chiefly on the European planter. The Brazilian planter drinks the distilled spirit made on the estate, a kind of abominable rum, which costs him nothing; the European planter, engineer, or traveller, will have his Bass's or Allsopp's beer, which costs him two shillings and two and sixpence the bottle. They brew a kind of beer in almost every town in this province which is not bad, but it lacks the strength that distinguishes English beer. A wine is even made in the neighbourhood of Petropolis which is said to be "not so bad"; grapes grow very well almost everywhere, and among the Portuguese and Germans in Brazil there are those who understand the culture and manufacture of the vine and the grape. Thus it reads as if the Brazilian Government wished to protect its industry and commerce to such an extent so as to be independent of other countries. The late drought has taught the Brazilian Government, that such legislation as that which makes the importation of articles of food an impossibility is fraught with danger, and that this duty is a knife with two edges. Besides that, the Brazilians will have to import largely of breadstuffs for the poorer classes, most of the corn crops having failed. They have been told by President Grant of the expediency of re-introducing the duty on coffee, and the Brazilian Government will have to submit to a further hardship on the coffee planter, who, what with slavery becoming every year more precarious and other labour being found unsuitable, hardly knows where to turn his head, except in trying to make hay whilst the sun shines, to let the day be sufficient for the evil thereof, and to make as much out of his enormous fazenda as he possibly can. Down with the forest; in with the firestick; in with the coffee plants, *now most of them all leaf diseased*; in with the Indian corn; when that is cropped, in with beans, or rice, or sugar, or cotton, if that should pay again, so that all these minor cultivations pay for the upkeep of

the coffee, and, when the coffee comes into bearing, all that is so much money clear gain. Twenty-five years of this sort of husbandry, the coffee crops begin to get small, and the proprietor knocks down another five hundred acres or so, and repeats this *modus operandi* till the land is all used up. Then he directs his steps to pastures new where he finds the railway to help him, but another enemy awaits him, frost ; and it is only by very careful selection of his coffee fields, which must have an eastern aspect and not be in valleys where frost delights to linger, that he is able to establish a new mine of wealth. To this region of frost he has come, to the end of slavery he is approaching, and to the conviction he has arrived that Europeans are totally unfit to work hand in hand with slaves, that the one element of labour is corrupting the other, and that new legislation must step in and protect the labourer as well as the employer of labour. Now there is one law for the European colonist, another for the free Brazilian, and no law at all for the slave who has made Brazil what it is.

I will now say a word on the German colonist, of whom there are many thousands in this province employed on coffee plantations, side by side with slaves, who are carefully treated, who are not allowed to do heavy work because their lives are valuable, and for whom the Colonist often is called upon to work, building his houses, felling, turning timber, making bricks and doing blacksmith work. This German colonist is procured and collected by agents in Hamburg, who again employ sub-agents in the provinces, who all receive a given amount of head money for each emigrant picked up among the pauper class of the population. These emigrants receive advances, passage money paid for them, new advances when they arrive in Brazil, clothes, provisions, a neatly furnished house, for which they pay no rent, a cow, and many other little comforts to start with ; a library and a reading-room with the best German newspapers was made available to them, but they elected clandestinely to appropriate books, papers, and not only that but to annex the furniture of the room as well.

Just as there are in Ceylon planters who do not disdain to inveigle coolies that you have been at some expense to get, to come to them, and then add to their meanness the expediency of slander, such as giving you a bad name for coolies, and that you are cruel to them and unjust, and so on, so there are planters in Brazil who hesitate not to employ every possible means to arrive at the object they have set their minds upon, viz., robbing you of your labour. To facilitate this amiable job, there are men about the towns in San Paulo, other Germans, such as deserters

from the army and navy and from the country house, with or without plunder, with or without leave, who delight in playing the rôle of crimps. These men, of whom I had an opportunity of seeing several specimens, tell the colonist that he is ill-used, that if he likes he can better his position, and that his contract with his employer is not worth a cent. Thus the colonist oftener spends his time in the drinking shops in the towns listening to the sweet voice of the tempter than at his work on the coffee estate, till at last he can never overcome the advances, and he must, by some subterfuge or other, cut the knot that binds him to his employer. Now there is a law which compels the employer of colonist labour to tell the colonist, at any time the latter chooses to ask for it, how his account stands. A case in point occurred on this estate the other day. When we were seated at the breakfast table, a German colonist, a most repulsive-looking individual, boldly stepped into the dining-room and demanded in a most provoking sort of manner an immediate explanation of his account. He was quietly told that after breakfast the wished for communication should be made to him. This statement, however, did not satisfy the ruffian, who, in still more emphatic language than before, demanded his account there and then. As I saw Mr. Blacklaw was very much annoyed on account of the ladies who were present, and seemed at a loss to find words in the German language to check the insolence of the intruder, I took it upon myself to address the man in unmistakable German, and suggested his leaving the room immediately. Whether it was the unexpected sound of the language of Fatherland, or whether he thought better of it, suffice it to say he allowed himself to be persuaded to leave the room; but I heard in the evening that he had left the estate, telling his countrymen that his contract had been violated by Mr. Blacklaw, who had refused to explain his account to him, and that he was off. What does the law do to protect the employer of labour? It requires that you should catch this man, bring him before the magistrate, who would only recommend to the colonist to return to the estate, where of course the runaway never shows himself. After having succeeded in catching him, a second time, if such a contingency is possible, the magistrate would condemn him to a small term of imprisonment. But if the law fails to give the employer justice when dealing with the runaway colonist, it is very favourable to you in protecting your interest with the man who crimps the colonist from you; and on one occasion Mr. Blacklaw succeeded in making the crimp, although he was a Brazilian and adjudged by a Brazilian court of

justice, pay over to him a sum of money amounting to nearly one thousand pounds sterling. At the end of the colonist's contract after four years, it will then be seen whether the employer of colonist labour is able to recover the balance of advance due, or to let the colonist go, and try to get it from him in a civil action, which of course would result in nothing but bother and disappointment; at any rate Mr. Blacklaw thinks that then the colonist will be at liberty to go to another estate, where he probably will resume the same mode of life. Mr. Blacklaw, having defeated over and over again the crimp as well as the dishonest colonist and his friend the amateur lawyer who lives on the colonist and the crimp and generally finishes off with a nice little coffee estate opened by the colonists as reward for the advice given to them, consequently Mr. Blacklaw is in the proud position of being the terror of the province, and there is nothing too black in the world that is not found in our Ceylon friend, in the eyes of the Brazilians and the Germans, and that the *Inglesa* and the word Ceylon do not sound as breathed in the words "I am an Englishman."

Another class of labour is that of the Brazilian labourer, commonly called a *camerado*, who, like the Sinhalese in Ceylon, come to work when it pleases them and go away when to them it seemeth advisable to do so. They hate the colonists and the slaves, and are very independent, proud, and vindictive. A young Scotchman on this fazenda happened to entangle himself in an argument with a *camerado*. They came to words, and the Scotchman struck the first blow, whereupon the *camerado* drew his knife and killed his antagonist. It was a week before the police would take steps to arrest the murderer, who made his escape, and will probably never be heard of. The *camerado*, as a class, nevertheless, are very useful, chiefly in the management of cattle, horses and mules, as cart drivers, and so on. Then there comes the American, an individual who owns ten or a dozen slaves, some mules, and some ploughs, with which he obtains contract work, such as ploughing. The ploughing in this part of Brazil is not only intended to fertilize the land, but for purposes of weeding. But he also hires his slaves, and if that be preferred at a daily rate of pay. With this sort of labour the European planter who does not wish to employ slaves, or who is prevented employing them, such as the Englishman, without losing his nationality, must work, and, in most cases that have come under my notice, such enterprises have ended, and most likely will end, in failure. In the meantime the owner of slaves has all the advantage, and is accumulating wealth, the colonists set-

tle down in the towns as tradespeople, and as small farmers. The European planter anxious to get on with colonists only is driven out of the field. I heard the proprietor of "Settequedos," the gentleman whose estate is situated near Campinas, whom I alluded to in one of my former letters, say that he preferred colonists to slaves. It is true his colonists seemed to belong to a better class of colonists than the ordinary description, but he seemed to be unable to dispense with slaves, of whom he had a large force on his estate, so that the colonists were more used in the agriculture, for Indian corn, beans, rice and for heavy work which Europeans are eminently fit for, and as long as he should deem slaves indispensable on his estate, I would not give much for his opinion as to the superiority of colonist labour over slave labour. There is only one kind of labour that will perhaps successfully compete with slave labour, and that is cooly labour. If Ceylon is on the decline, as all the estate proprietors here think she is, men who read the statistics of coffee as well as we do in Ceylon, and does not want so much cooly labour as she would were she to push on energetically her railroad system as has been done in Brazil, this cooly labour element will no doubt be made available for their country. It is not for want of money that such an undertaking would fail, and the Brazilians would even endeavour to secure the services of experienced Ceylon planters to work these coolies if this were found to be available, but at present they have their slaves and their railways at their door, and they think they are all right. The climate certainly is a very fine one, half-tropical, half-European.

The Campo is a peculiar feature in Brazil, and chiefly so in this province of San Paulo. It is a vast mountain plateau varying in elevation from two to three thousand feet above the level of the sea. Not unlike Uva, but not so hilly, and seemingly endless in extent; it is to Brazil what the patana is to Ceylon. On it large herds of cattle roam, troops of horses caper about, and here and there a fine belt of forest arrests the view of the traveller. Some of the lower parts of the campo are swampy, they abound with snipe and water-fowl, and in little lagoons you come upon, now and again, alligators are disporting themselves. On the dry portions of the campo partridges are pretty numerous, higher up ostriches occur, and, last though not least, the rattlesnake; there are deer also in the forest. We hunted the other day with a neighbouring fazendeiro who has some dogs. He brought only three peculiar-looking hounds, something like the kangaroo hound. They found immediately after hav-

ing been put in by their owner, and they hunted the deer splendidly, giving tongue lustily all the time, for two hours in the forest, when the deer broke cover and came into the campo among the cattle, the mules, and horses, and there they lost it. But what fine sport might be had here, for you can ride here after the hounds, with a pack of ordinary Ceylon hounds. The Brazilian prefers the inside of his house to the hunting field, or the field for that matter, with few exceptions. Coffee takes care of itself in this country, the fields are ploughed so many times a year, and, as a rule, there is no pruning, no handling. If coffee berries drop in crop time, it does not matter, they are all picked up in the end. When the coffee crop comes on, the fine weather comes on too. The planter here, as a rule, does not pulp his coffee; the so-called wasted coffee, i.e., pulped coffee, is cut or injured 16 per cent; the coffee, therefore, generally is dried in the husk, and hulled afterwards, and prepared, ready for shipment.

HUNTING IN SAN PAULO—AN EXPEDITION INTO THE COUNTRY DISTRICTS—STAMPEDING MULES—DOING THE HONOURS AT A "VENDA" (ARRACK-SHOP)—THE STORY OF THE "BENGAL TIGER"—A GIGANTIC BOTANICAL GARDEN—SALUBRITY OF THE CAMPOS—THE LIMIT OF COFFEE CULTIVATION—SPORT ON THE CAMPOS—TOUJOURS PERDRIX THREE KINDS OF DEER—THE TAPIR (HALF ELEPHANT HALF PIG)—TRAVELLING AND SHOOTING IN THE FOREST.

Angelica, 12th March, 1876.

Just a year ago I was witnessing, together with some hundreds of thousands of spectators, including two Ceylon companions, the university boat-race on the banks of the Thames, near Putney. About the same period of the present year I find myself on another river, on the Nojee, in the province of San Paulo, of Brazil, hunting. You find me seated in a tiny canoe, listening to the hounds coming nearer and nearer, just as I was listening a year ago to the cheers greeting the victors of the boat-race on the Thames. The hounds approach the river where I am, and there, there, "*Senhor, viada, viada,*" the deer, the deer, the deer came right towards me. He sees me, and turns upstream; and as lustily and bravely as any 'varsity oar my canoe-man pulls, as if it were for life and death. We gain on the buck. "*Tiras Senhor,*" my canoe-man cries. I fire and the buck is scored.

This came about in this way: B———, having

a month to spare to enlarge his knowledge of the country and its inhabitants, and availing himself of my presence, and I being willing, like any given number of Barkisses, we arranged a regular trip into the almost unknown regions of the province of Sao Paulo. We did the thing as we did these things in Ceylon. We depended entirely on ourselves and our own supplies. A cart with twelve bullocks carrying the heavy goods, and five mules carrying the light articles, two spare mules, two cart driver and two muleteers looking after the mules and two *camerados* acting as servants, such formed the party that we had with us. There was nothing wanting. nails, ropes, hammers, screw drivers, tin-openers, axes, cattles, pots and pans, tent, bedding, mediners, books, needles and thread and provisions to last us for a month; besides letters of introduction to the chief hunters and nobles of the country to which we were bent on travelling. We were advised by well meeting people not to go, that this was the the unhealthy season, that we would all get fever, and all that as generally said when you are being dissuaded for any such enterprise. I will state at once that we found all these reports incorrect, that never enjoyed better health all the time we were away althrough often encamping in the open air in our tent, near a stream; and altogether we had no reason to regret having made the trip. We travelled about three hundred and forty-six miles on mule back.

We left Angelica on the morning of the 15th February at 4 a. m., traversed the Campo in a direction due west, now and again coming to a cornfield and meeting a few pigs denoting the vicinity of some fazends, now crossing a half rotten bridge over which mules are the only creatures that succeed in doing so without putting their foot into it, till, emerging at broad daylight on the top of the serra, on the high road from Rio Claro to San Carlos, a very fine view is obtained of the country around and some fine looking coffee fields scattered here and there in the neighbourhood. After crossing this serra, (ridge of mountain) the country gets sandy and our mules jogtrot du to their hocks in sand. At about 11 a.m. the heat becomes intense, and we encamp at a venda a venda is what we would call in Ceylon, an arrack shop, were you can get coffee and eggs and rice and such accommodation as suits the highest and the lowast. We enjoyed our sandwiches, and washed them down with a little brandy and water. Saddled up at 2 p.m.; we passed our cart drivers cooking for themselves. The spare mules were driven before us, they went from a trot into a canter and from a canter into a

gallop, when they ran against a small tree and got entangled into the branches; to save time the muleteer unsheathed his knife and cut the little tree to the ground, thinking to get the two mules adrift again with greater ease. Not so, our two spare mules, as soon as they found themselves loose once more and the tree striking between them with the branches over their heads, they set off at a furious rate down the hill. They looked uncommonly ridiculous: something what the stag must have looked like that had cherry-tree growing out of his head, the stag you know that Münchhausen had fired at the previous season with cherry-stones in lieu of buckshot; we laughed ready to split our sides, riding as furiously after them, a regular stampede—down dale, up hill, forty miles an hour, till we came to the next station six miles off, another venda. Here the mules stopped and we stopped; this venda was kept by a man whom both B—— and I, simultaneously, christened “the Bengal Tiger.” Know the Bengal Tiger? The following descriptions of him I have from a friend now in Ceylon, and as it is too rich I will give it again as well as I can remember it.

The way that I first became aware of the existence of the Bengal Tiger was so: I happened once to come into Kandy in the good old times when Mr. H—— kept the hotel near Dr. E——’s place. I was shewn into a room, and began making my toilet to appear on the bund “in gorgeous array,” the band was to play, when a most unearthly noise in the next apartment attracted my attention. It was like some wild beast growling, with occasional sneezes, that were no relief to the sneezer, but, on the contrary only seemed to put more force into the growls; what could it be? Till at last I couldn’t resist the curiosity that came over me, and I summoned the chief waiter, poor dear old Francis, you knew old Francis, of course you did. “What is the matter in the next room?” I said to Francis; “something wrong there.” “No sar, said Francis” “please, sar” grinning in his most amiable manner, “nothing the matter, sar, please sar, he, he, he, he” rushing to the room whence the peculiar grunts were being eliminated—adding in almost a whisper, “the Bengal Tiger, sar, please, sar, he, he, he, he, he,” disappearing immediately afterwards and leaving me no wiser than I was before. It was not till I had taken two or three turns on the bund, and meeting a friend who knew everybody in and out of Kandy, I said “Tell me L——, who is the Bengal Tiger?” Then I heard who the B. T. was, and I knew and I had subsequently the honour of becoming acquainted with him. I have a vague recollection of meeting him once at a mutual

friend's, where we discussed the various nationalities then represented in the bungalow, some from Scotland some from Ireland, England, Germany ; and asking the Bengal Tiger where he came from, I recollect his growling out that he was born at sea ; when some unlucky wight would continue the questioning "And whereabouts was that, sir ?" his laconic answer was, "Don't know." The Bengal Tiger generally was liked and he was not half a bad fellow, very hospitable and very good-natured if you knew how to humour him. But he could cut up uncommonly rusty : this peculiarity of the B. T. most planters put up with. Not so the men, whom he offended once in a similar way. On a masonic sign of their own being passed among them, they seized the poor Bengal Tiger, and throwing him into the big washing cistern of the pulping, house whither they had carried him *nolens volens*, left him there. Next time I saw him, he was in London, and he appeared to me as having become a man-eater.

A heavy shower of rain set in, and we determined to stay at the B. T.'s, whose real name was Pedro, for the night which we did accordingly, and we were made very comfortable. It was very cold during the night, and the thermometer pointed to 58 in the morning. After tea we continued our journey to San Carlos, taking Senhor Tessoine the hunter whom we had a letter of introduction to, on our way. Our route lay through the Sundy Campo, which on both sides of the road presented a most lovely appearance. It was like a gigantic botanical garden, such beautiful flowers and shrubs ; foremost the white rhododendron, indicating by its presence the altitude from the level of the sea we were at. Captain Burton does not notice this rhododendron, although he does name the majority of other shrubs, such as *Baudichea major*, *Acacia astringens*, *Aurocaria imbricata*, etc., etc. I must not forget a kind of quinine tree which was afterwards pointed out to me in the campo near Arraraquaria, nor the wild ipecacuanha. I quite agree with Captain Burton, when he says, in his work on "The Brazils," page 78:—"I need hardly say that nothing can be purer than the perfumed air of these Campos ; its exhilaration combats even the monotony of a mule journey, and the European traveller in the tropics recovers in it all his energies, mental and physical ; the mornings and evenings are the perfection of climate ; the nights are cool, clear and serene, as in the Arabian desert, *without its sand*." The italics are mine. I don't know if Captain Burton travelled as far in the Province of San Paulo as to the sandy region in which we were now riding, but it may as well be stated here that this sandiness of the soil, not only of the Campo but of the forest, extended the whole way to

where we were going, and does extend thus, I was told to the Rio Grande. On the right, a chain of low hills gave evidence of a little coffee cultivation; but we were now evidently on the confines of the climate fit for coffee, and whatever little show of coffee there is in this neighbourhood it is liable to be snuffed out by frost in any cold season: thus far shalt thou come and no further. I was hitherto under the delusion that there was no limit to coffee cultivation in this vast empire, but that notion like so many others was simply a delusion, and you can readily measure the still available land for coffee cultivation in this province. In the province of Rio de Janeiro it is the same, for at Juiz de Fora commences the frosty climate, and coffee ceases to be cultivated profitably beyond that station. Captain Burton says the campo is "inhabited principally by armadillos and termites." He forgot to mention the deer, of which there are three kinds: one, a large beast like the elk of Ceylon, another as large as the spotted deer; and a smaller one still, like our red deer. He forgot the emeu, several of which we saw crossing the road like spectres; and last though not least the partridge, which is very numerous in all the campos of San Paulo. B—— certainly brought them to view with his two pointer dogs, Niagara and Saxon, whom it was a pleasure to see working. At 9 a. m. we reached the fazenda of the old sportsman, Senhor Tessoine, with whom we breakfasted and arranged to meet him at his hunting lodge in the wild of the forest a fortnight thence. Continued our ride to San Carlos a town something like Badulla. Next day we rode on to Arraraquaria, a sister town of San Carlos, where we had several people to be introduced to. We stopped at the Hotel Bismarck, kept by Senhor João de Deos Paz, a German of the original name of Johann Gottfried, turned into Portuguese. He is quite an original this individual, but he made us very comfortable. Here the country assumes quite a wild aspect: you ride for twenty miles without meeting a house, or any human being, and what human beings you do meet show the Indian strongly in their countenance. Cattle farms and stock breeding form the chief employment of the settlers in these parts of the province, with a little sugar cultivation perhaps or Indian corn, etc., etc. We were now fairly in the country of the tapir, that curious animal, half elephant, half pig. I heard a great deal of tapir hunting, and it was my great desire to see some tapir hunting, which they do in this part of the country with a pack of hounds, and we set accordingly about trying to find a hunter with whom we could pass the time till our chief hunter Senhor Tessoine could put in an appearance. We were accord-

ingly introduced to a sportsman living on a cattle-farm about four miles from Arraraquaria a Senhor Francisco Correa, who agreed to come with us on the following day on a short trip to the Noogy which we accordingly did; and where I killed the deer. I must mention now that the deer was lost in the river after being shot, it having sunk; and, the current being so great, I had no idea it could by any possibility escape in this, else I would have jumped into the water and dived for it. I am sure I would have got it; for, it had only to be done to get it. My canoe-man said it would rise in an hour, but we never saw it again. B—— was not so fortunate as to get a shot at a deer, but he distinguished himself greatly in the partridge-shooting line, and our table was made an illustration of the French proverb, *toujours perdrix*. Besides losing the deer we lost a fine fat sheep we brought with us. What became of it, I don't know. B—— seemed to hold the cartman blameless. However, we had plenty to eat and did not want much beyond what we brought with us, except fowls and eggs, which we also secured.

We found the tapir had left the Moogy river, and that this was not the season to find them there, so we said good-bye to Senhor Francisco Correa and his companion Senhor Lopez, and started for Tebeticabal, another little outstation, without a hotel however, but we had a letter of introduction to the principal inhabitant who is invariably a shopkeeper. This individual gave us a most kind reception, and I never met a more polite gentleman in all my life than this Portuguese shopkeeper. In the evening we had quite a levee: all the chief inhabitants came to call upon us, and, when they had all left pretty late in the evening, we were treated to a serenade in the street, which sent me to sleep, and I dreamt of Indians, the age of wood, the stone age, and the bronze age, and I awoke with rather confused ideas of my own age which seemed to me becoming gradually anthropological, but verdant withal. The traveller however never gets old; at least as long as I can travel forty miles a day on mule-back in a tropical country I shall not complain. We had now a pretty stiff journey before us, but ultimately we reached the *Sítio*, the property of Senhor Tessoine, and the next day the old man appeared himself with his dogs, and two other sportsmen with more dogs the latter looking more like big parayas than hounds, such as we are accustomed to hunt with in Ceylon. For the last three days we had travelled in the forest, which extends right to the Rio Grande and into Paraguay. We were on the banks of the Rio das Porcas, a little river about thirty yards broad, deep here and there and a bounding in fish. We caught a

great number, and they proved a great addition to our *menu*. This place looked and proved to be a very gamy spot: tapir any amount of, deer the same, and so our prospects, in spite of the unfavourable prognostications given us, brightened up. But, as bad luck would have it, the first two days we hunted, although we found each day, we had no kill; we determined to try once more and then give it up if again unsuccessful. I had seen enough of the country now and knew that it was all alike, and a country fit only for cattle breeding and hunting, provided you had good dogs, which certainly those in our pack were not: they were musical enough, but they lacked perseverance and what is more important a keen scent. However, there were two good leaders of the pack, of the six or seven couples of dogs with us: Akaka and Tormenta, who stuck longer than any of the others to their game. On the third day we were so fortunate as to kill a tapir and a deer, and both again fell to my gun. Poor B—— saw nothing of the sport, but he is to join Senhor Tessoine in August in a hunting expedition on the Rio Grande, and he will have ample opportunity of enjoying this kind of hunting which is every bit as good as elk hunting and, if anything, more exciting.

TAPIR HUNTING—A SHOT AT A DEER—THE “ANTA” AT LAST, —SALTED TAPIR-FLESH—EXCELLENT COFFEE, BUT NO TEA TO BE HAD IN BRAZIL—THE MINEIRO—A PAULISTA COUNTRY SQUIRE—AN ESTATE OF 25,000 ACRES—FINE PASTURE BUT POOR HORSES—FECUNDITY OF THE EMPIRE —POPULATION OF BRAZIL—DIFFERENCE BETWEEN THE CEYLON COFFEE-PLANTER AND THE BRAZILIAN FAZENDEIRO—SCARCITY OF LABOUR AND ITS RESULTS—THE CAMPO—THE SLAVE QUESTION—LEAF DISEASE—RAILWAYS AND THEIR COST—THE LADIES—DISPARITY OF MARRIAGES—WANT OF ENERGY IN THE HYBRID POPULATION—MURDERS OF FAZENDEIROS BY SLAVES—THE RIO CROP.

On the day of my successful hunt, we mounted our mules early, and being asked by the huntsman what place I liked to occupy, either going with him to the jungle, or take a station on the river, in the canoe, I elected the latter. B—— preferred accompanying the old hunter. I had not long to wait on the river before I heard the dogs giving tongue. They were all at it full cry, not divided as on the previous days after three or four animals; they were after one—I hoped an anta, so the Brazilians call the tapir. I now took a seat in the canoe, and paddled a little up stream to be in the line of where I heard the hounds giving tongue; their voices subsided, and perfect stillness reigned on the river. Looking about me,

I saw a deer hiding under the bank of the river, frightened most probably by the dogs. I shot it before it could gain *terra firma*. I garolluched it all myself with great glee, after securing it from being lost in the river. Then I heard the dogs giving tongue once more. They came nearer and nearer, they have crossed the river with whatever they had got hold of. I fear this is the deer they are after. No, a bay, close by; we paddle up to where this occurs, and, lo and behold, the tapir, the queerest animal I ever saw, comes splash into the river, and the whole pack at his heels, a fine big anta. Down river he comes snorting, holding up his little trunk. Two shots from my No. 12 finish him. There was great rejoicing that day, principally among our people. Next day another anta was found, fired at by one of the Brazilians stationed in the river, but only wounded: at any rate we did not get him. To have shot an anta in this part of the country is what having shot an elephant is in Ceylon, and a great deal more. Besides, I had killed the deer, and thus my status as a sportsman was considerably elevated amongst our party, and, wherever we went, I heard myself pointed at as the man who shot the anta. The flesh of the animal is much appreciated and the hide highly esteemed by the Brazilians. I would like to hunt the animal with a pack of good Ceylon elk hounds, including a couple of good seizers, and then go at the anta with a knife, which I believe could be done. However, the Brazilians say that he will drown any number of dogs with his feet if coming within reach, and eventually charge or upset the canoe and do for the hunter if not quick enough with his gun. We brought two mule loads of anta flesh salted home with us, and B—— promised to get me a bridle made out of the hide as a souvenir, as soon as the hide had been sufficiently cured.

We killed two little rattlesnakes which escaped from a heap of bean-straw in the hut we occupied; flies were only annoying in the middle of the day, if we happened to be in, which, however, was seldom. The nights were deliciously cool, and we had to wrap ourselves up in blankets. You have no idea what a refreshing effect a cup of coffee has, strong to an extent that would shake the nerves of a whole House of Lords, and hot, which is handed to you by a servant on your awaking. Not only early in the morning, but on your arriving anywhere at any house, this refreshment is given you immediately, let the people be ever so humble and poor. This excellent cup of coffee you get in all Brazil, travel where you may. I found it a great difficulty

to get tea made, and at last I gave it up in despair. This sounds rather strange, but if you come to consider that all space over the fire is occupied by what the cook considers to be wanted, the hot-water boiling allotment over the fire is exclusively left for the coffee; so that, if you want tea, you must either spoil the other people's fare, generally beans boiled in pork fat, or you must wait till they have consumed their meal. The horses and mules are turned adrift into the nearest pasture, and occasionally you give them a feed of corn. Besides our six yokes of oxen, there were about a dozen horses and a couple of dozen mules feeding at night all round us. Captain Burton says, page 394, vol. 1, when speaking of the mineiro, not very different in this respect, I believe, from the fazendeiro:—"He is an ardent sportsman, and the country squire delights in hunting parties, which extend from a week to two months." Senhor Tessoine is a fine sample of the Paulista country squire. He is about seventy years of age, but hale and hearty, and a very enthusiastic sportsman. Two of his sons were also of our party, besides the Brazilian who missed killing the anta, and several followers. He (Senhor Tessoine) owns about twenty-five thousand acres of land in this neighbourhood. It will grow mate, the Paraguayan tea, and cinchona, cotton, sugar, and Indian corn, and forms excellent pasture. The horses are a very inferior breed, just strong enough to carry a Brazilian; the cattle, *i.e.* the oxen, look big and fat, but I have never tasted a piece of beef equal to what I have tasted in Ceylon; the milk of the cows is converted into cheese, and very miserable stuff it is. Fresh butter is unknown. It is my duty, though, to state that there is one exception. Mrs. Blacklaw on Angelica makes the finest butter I ever tasted anywhere, and plenty of it. Altogether my stay with these kind Ceylon friends was a great treat. It was like being in Ceylon to me, and that is saying a great deal, for Ceylon is my home.

Captain Burton says, page 396, vol. 1:—

"Fecundity in this Empire is the normal rule of animal as of vegetable nature. Were not colonization a present necessity, the human race would soon populate, with a comparatively homogeneous people, the vast regions that await inhabitants. The province of San Paulo is supposed to double her numbers in thirty years, without the assistance of immigrants. Senhor Candido Mendez de Almeida gives the total population in the Brazils for 1868 as 11,030,000 souls. The Senador Pompeo, upon this subject the highest authority

in Brazil, gives the following estimate of her population in 1866 :—

	Free.	Slaves.	Savages.
The Court Municipality	320,000	100,000	
Amazonas	69,000	1,000	140,000
Para	290,000	30,000	
Maranhão	320,000	65,000	5,000
Piantry	210,000	22,000	
Ceara	525,000	25,000	
Rio Grande do Norte...	210,000	20,000	
Parahyba	250,000	30,000	
Pernambucco	1,000,000	250,000	
Alagoas	250,000	50,000	
Sergipe	220,000	55,000	8,000
Bahia	1,000,000	300,000	
Spirito Santo	50,000	15,000	8,000
Rio de Janeiro	750,000	300,000	
São Paulo	750,000	85,000	8,000
Paraná	80,000	10,000	
Santa Catharina	125,000	15,000	
S. Pedro	340,000	80,000	
Minas	1,050,000	300,000	
Goyaz	135,000	15,000	15,000
Mato Grosso	40,000	6,000	24,000
<hr/>			
Total...	8,134,000	1,784,000	200,000
<hr/>			
Grand total...10,118,000"			

In this frame, this picture frame, appears to me Brazil, so far as a three months' gazing and studying of other writers has enabled me to see it. I will not take credit to myself for having done so much travelling in so short a time, and what I have seen through the help and assistance of our mutual friend, Mr. Blacklaw, who undertook the long journey to Tebet-capel and back, chiefly to further my views and for the sake of dear Ceylon; for there is, in my opinion, not a man who has been any length of time in the little island but cherishes a warm and affectionate recollection of it. I regret that the great traveller, Captain Burton, did not fulfil his promise of giving the reading public another volume on the province of São Paulo, and that he devotes most of his attention in his book on Brazil to Minas and to mining matters. You will take note of the circumstance that the coffee fazendeiro, the proprietor of the soil, remains with his family on his estate for good, and after him his son. In Ceylon he leaves for Europe as soon as he has made enough money to enable him to do so, and spends all his money in Europe, his children seldom returning. What every new-comer in Brazil immediately grasps is the fact of the great scarcity of labour. The coffee estates are in a neglected

state, the houses in a tumble-down condition, the streets in the country towns unplastered—as they call it in Germany—unpaved, unmacadamized; the rooms in the houses of rich and respectable people never cleaned, never swept; not a single flower garden or ornamental plot of ground near the bungalows, as you see in Ceylon. All because there is no labour to spare to do these things. The next object in the picture is the campo. The campo is like some huge wave, and on the crest of the wave is a belt of forest, which has been utilized for cultivation of coffee, &c. This belt of forest is occupying about one-hundredth part of the area of ground. The total denudation of the country of timber in time will also act, if it has not already done so, prejudicially to the country; but the fazendeiro will not hesitate to fell his last alqueiro (six acres) when the time comes, as come it must, so greedy is he for gain, immediate gain. The background is marked by a distinct line of forest, beyond which he dare not go with coffee. The dark object in the picture is the slave question, the labour question. The colonist system, you see, is a failure. Europeans are unable to perform the work needed on coffee estates. They have tried, but they cannot do it: climatic influences prevent them. Again, you see in this picture the leaf-disease every bit as bad as we have it in Ceylon, and certainly chiefly on old coffee. I saw in this province a field of 40 years' old coffee cut down and allowed to come up again, which it did, quite young again and beautiful for ever, as the owner thought, but, after it had borne one crop, it got such a dose of leaf-disease as to make me doubtful whether it will recover from it. You see the ageratum in all its glory in the coffee, the nilu and the mausa in the forest, the lantana in the chena. About the people, I will not insist upon what I have been saying being quite correct, as it is impossible in so short a time to form a sound judgment. I must, therefore, be permitted to refer you to Captain Burton's book and other writers, although now written ten years ago, and ten years in the history of a colony like Brazil is like 100 years in Europe. The last noteworthy object in every picture is the railway extension system in all directions.

It is true, that the railway from Santos to Jundiahay, built by an English company, has cost £30,000 a mile, but I was told *on very good authority*, which I will reveal to you when I return to Ceylon, but which it would be unfair of me to do now, that one-half of this sum was wasted, a word I will also qualify to you hereafter. The continuation of this line to Rio Claro has cost £12,000 a mile, and the narrow gauge lines of which I wrote previously only £5,000

a mile, I have the Government report on all these lines, with their cost, traffic, and so on, with me, which I will give you to study and to print if you think it expedient to do so. All these lines of railway have been built with European labour, chiefly Portuguese, which the railway engineers assured me is the best labour, even surpassing English navvies in this country; at a rate about treble of what it has been and would be in Ceylon. The figures I have quoted may be at variance with those given in my previous letter when discussing this important subject, for, if I am not mistaken, I said that these narrow gauge lines had cost much more than what I was assured by the director of the lines, whose acquaintance I made on my way down to Santos, when staying as guest of the director of the Paulista Company, at Campinas, they actually had cost. But, be that as it may, the Government report which I have with me will settle the matter, as it is pronounced to be correct. I mention this merely to say that a broad line from Nawalapitiya to Haputale should not cost more than £15,000 a mile, and a narrow gauge one not more than £10,000 a mile.

As regards the Brazilian ladies, you seldom see them. The only two really pretty Brazilian ladies I saw during my three months' stay in the country were two young girls travelling with their father, a gentleman on the Pedro Segundo railway. The others whom I have met, by chance, at fazendeiro tables, were plain in feature and in dress and silent in speech. Captain John Codman has written an amusing little book, called "Ten Months in Brazil." He says (page 175):—"The Brazilian women are almost universally regarded as playthings, and as the means of general enjoyment; they advance the fortunes of their parents by being sold in the matrimonial market when they should be at school. Differences of forty or fifty years between husbands and wives are not uncommon. Fidelity at the altar is promised as a matter of form, but its observance is scarcely expected; the husband is allowed *carte blanche*, or, better to express it in an allowable pun, *carte noire*, in these matters. At the same time he is very jealous of his wife, and he richly deserves to have reason to be. I once incurred the violent anger of an old army officer, by enquiring after the health of his wife. At another time, we left Santos with a large number of passengers on board. Among them was a gentleman of sixty years of age, accompanied by two little girls, one of them thirteen, the other two years younger; when the sea became somewhat rough, the gentleman retired to his cabin, leaving the children on deck. Devoting

myself to their amusement, I took them upon my knees and told them stories, as I played with their silken tresses and enjoyed their pretty smiles. In the midst of this pleasant occupation, the gentleman came upon deck and enquired in a singularly harsh voice, 'Captain, are you married?' 'Yes, indeed, senhor,' I replied, 'and have a daughter two or three years older than your eldest little girl here. She reminds me of her very much,' I added, as I patted the lovely child upon the cheek. 'That girl, sir,' exclaimed my indignant fellow-passenger, 'that little girl is my wife.'" This is what the Captain says of the men:—"In Brazil, as has elsewhere been remarked, the hybrids chiefly composing the population are an unnatural, effete people, who cannot long maintain their ground before advancing civilization, and in the Southern Republics, lately and almost always engaged in revolutions and war, the descendants of the Spaniards, although immeasurably superior to the descendants of the Portuguese, are entirely dependent upon Englishmen and Americans for all that adds refinement to their lives, and for all that gives the semblance of progress to their nationalities. There is progress amongst them, but it is for the ultimate benefit of their successors. We have paved and lighted the streets, supplied them with tramways, covered their rivers with steamers, and opened up their country with railways. All this the great Anglo-Saxon race is doing, not for the benefit of South America, but for the occupancy of their own children, who, when all these Canaanites shall have disappeared, will enter in and possess the land."

To illustrate this sentiment, I will state now that lately, in the Province of San Paulo, seven murders of fazendeiros by slaves have occurred, the last being that a planter who assaulted a woman slave, a girl of eighteen, and she struck him with the hoe, and the other slaves coming to her assistance finished him. On my way from Santos to Rio I had for fellow-passenger the correspondent of the *New York Herald*, Mr. O'Kelly, who, with his amiable wife, had also made a tour in the province of San Paulo. He told me he had interviewed this slave girl, whom he described as very good-looking and intelligent, and that she told him about it, and gave him all the particulars; We discussed this slave question, and he said that the slaves were very severely treated in Brazil, more so than in Cuba; that in Brazil he never heard the slaves sing, whereas in Cuba they were constantly singing and dancing, as it is the custom of negroes when in good humour to do,

Rio de Janeiro, 10th March, 1876.

After a very pleasant passage from Santos, I am once more in the capital of the Empire of Brazil. There is a great deal of yellow fever in the city, and I am anxious now to be off, but I shall not be able to accomplish this so soon as I might wish; the overland journey to Lima is out of the question. I must, therefore, go either by one of the Pacific line steamers to Valparaiso and on to San Francisco thus; or by an American steamer to San Thomas, thence to Panama, and so on. But the Pacific steamer left the harbour as I was coming from Santos, so that I will have to wait a fortnight for another opportunity if I avail myself of this route. The next American steamer leaves here on the 26th of this month, and all the berths are engaged. I have offered to sleep on deck and get a chance of being taken off in this way; but the agents say they can't tell me till the ship arrives, and that they won't pledge themselves to booking me now in any case. It is hard lines, being willing to pay first class, and take third class fare. However I will try my utmost to get away by her.

The opinion in the Rio market is now that the growing crop will be 3,000,000 bags of 120 lb. each; but that the quality will be very light and inferior, owing to the drought. The last crop is now fast being delivered and shipped; what comes down to Rio is already very inferior stuff, shewing that the end is near. The deliveries and shipments in the coming months will be small therefore; most of the last three months' shipments having been for Europe. America will want her supplies again, and this is looked upon as a good thing for prices to keep up, and for stocks in Europe to go down.

THE BORE OF TRAVELLING IN THE SAME STEAMER WITH AN EMPEROR AND EMPRESS—A WEEK IN RIO, WITH LEISURE TO REVOLVE IMPRESSIONS AND TO COME TO DEFINITE CONCLUSIONS—CERTAIN DECLINE OF SLAVE LABOUR: EFFECT ON COFFEE PRODUCTION—CRUEL TREATMENT OF SLAVES—THE CAMPO OF BRAZIL—PRINCIPAL PALMS AND OTHER PLANTS—CHIEF PECULIARITIES OF RIO AS A CITY—THE GERMAN CLUB—THE USAGES IN REGARD TO THE SALE OF COFFEE IN RIO AND IN SANTOS.

Rio de Janeiro, March 21st, 1876.

I wrote you a few days ago on my return from the Province of San Paulo, giving you an account of an expedition with Mr. Blacklaw towards the Rio Grande; and I now advise my making arrangements to leave Brazil for New York, by the steamer of the 26th, in which the Emperor and the Empress and their suite are to go. Unfortunately this new line of steamers

does not touch at any of the West India stations, so my desire of visiting the coffee islands of that archipelago cannot be fulfilled; the season for crossing the Andes has passed, and the route by the Straits of Magellan would be too long a voyage; so I must strike out from New York across the American Continent to San Francisco and find my way to Ceylon via Japan and China, thus. My going in the same steamer with the Emperor of Brazil is purely accidental, and I consider it rather a bore having such a distinguished fellow-passenger, who is likely to encroach upon one's comforts in a thousand and one ways; but I may really consider myself lucky that I got accommodation on board of this steamer, else there would be nothing left for me but to return to England and come back to Ceylon via Suez. It is not yet even quite settled whether the agents of the steamer can take me, but I was told yesterday that they would do their utmost to further my views and get me cabin accommodation, which statement was looked upon by others as favourable and final; for the same agents had previously refused, because all the cabins in the steamers had been engaged. It was only when pressure was brought to bear on them that the answer was they must wait till the ship arrived, and now, the answer given being that they would "do their utmost, and we must leave it to them," the conclusion has been arrived at that I am to go in her D. V., and see the United States from New York to San Francisco.

I have now nearly a week before me to see around and learn as much in Rio as I can; for I do not feel up to any more visits into the interior. The only district I might visit is the Cantogallo district, of which Novo Friburgo is the capital. It is only a day's journey from Rio, but, from all I have heard about it, it is not worth my while. It is part of Rio de Janeiro province, and it shares all the advantages and disadvantages of that portion of the province which I described in my first letter, commencing with the drought. This drought has left its mark upon the crop of coffee now growing, although it is to be an average crop of three million bags; a good deal being light and inferior, it is thought. There is no shutting our eyes to the fact of Brazil crops for the next ten years being more or less large; for coffee is the only article now they can bring their slave labour to bear upon. Even in Pernambuco they begin to grow coffee. On the other hand, if we examine this slave labour question, we are justified in assuming a great change to take place. Tschudi, when writing of the number of slaves in

Brazil in 1858, gave their number as two millions and a half; ten years later when Burton wrote his book on Brazil, the number had decreased to one million five hundred. At the present moment, perhaps, there are not more than one million. From all sources I have had access to, the most unmistakable opinion is expressed that in ten years slave labour will have ceased to exist. The slaves will have died out, and an era of free labour will commence, which dooms coffee cultivation to collapse in Brazil. What bearing such a *status quo* will have upon Ceylon, I need not take any trouble in telling you. The slaves will have been simply worked out. Mr O'Kelly told me he never had seen a Brazilian slave who had not had the marks of the whip, of severe castigation on his back or on his legs; nor had he seen a slave churchyard. Neither have I seen such a purlieu on any fazenda I visited. It is not difficult to arrive at the only conclusion one can come to as to what they do with them ultimately.

In Ceylon there are no churchyards for the coolies; for, the coolies themselves would deprecate such an idea owing to the prevalence of caste. Besides, the relatives of the deceased coolies prefer giving them their own burial with all their interesting little ceremonies! Nor have I ever seen a Brazilian slave laugh or sing. And yet there are lots of people who contend that, in order to keep up discipline among the slaves, a certain severity with them and a "little" castigation now and again are necessary. The treatment dealt out to their mules and to their slaves does not in the least differ. It is worth while perusing a book on Brazil by Mr. Christie, who was Minister Resident in Brazil 15 years ago, when a good deal of acerbity passed between Brazil and Great Britain, in which Lord Palmerston, Mr. Cobden, Lord John Russell, and other eminent statesmen said some very severe things about Brazil. Mr. Christie makes the following quotation:—"I find the following remarkable statement in a pamphlet, published in 1850 by Sir W. Gore Ouseley, who had been for some years *chargé d'affaires* at Rio. In Brazil where the laws have, as in all civilized states, abolished torture in judicial proceedings, the practice is exceptionally continued as regards slaves. Thumbscrews or *anginhos* are often applied to slaves, &c." This practice, which is more than evil and partakes of the diabolical, is still, if not openly, secretly employed.

The Germans have a very nice club here to which I have been introduced. Attached to the reading-room, where they keep all the best English, French, Danish and German papers and periodicals, there is an excellent library. There I spend a good deal of

my time during the day. I find that Burmester, a traveller who visited Brazil twenty-five years ago, confirms my opinion expressed on the campo of Brazil. Burton, to a great extent, does the same, especially where he travelled, but not so particularly. He says:—

“Terra dos Campos is called by the Brazilians the extensive stretches of forest, bare, covered only with sparse vegetation of highland plateaus. Situated high and dry, the campos do not offer any chance for cultivation, and even as pasture for cattle they lose their value in the months of June, July, and August, the dry season withering the grass, the Illuck (*Imperati Coninghi*) and the shrubs growing on them. That is the distinguishing peculiarity of Brazil, of the great interior in Brazil; by no means endowed with that luxurious vegetation that is supposed by many to ensure to that empire a brilliant future. It stretches over the greatest part of Minas Geraes (continuation of Canto-gallo, Goyaz, Mato Grosso and in a southerly direction towards the Rio Paraná, and in a northern, towards where these high lands change their soil, of a more or less firm, red clay or sand, into chalk. The forest formation is of a minor description, assuming a very subordinate rank, and only near rivers or water gulleys does forest shew itself.”

I forgot in my description to mention that the carpet of the campo is the illuk, chiefly. Near the plantations grows a very good grass, which cattle and horses chiefly subsist upon: *Panicum spectabile*. Mr. Blacklaw promised to give me some of the seed of all the useful grasses, and I hope he will send me some when he sends me that tapir-hide bridle I told you of. The chief palms are the *Casuarina equisetifolia* which grows to an immense height and size, and in the forest the *Aerocoma sclerocarpa*. Of the former there is a beautiful *allée* in the Botanical Garden, which, for its grandeur, challenges everything in the shape of palms I ever saw.

I have refrained from saying anything about Rio, since, on a former occasion, when giving you translations from Tschudi's book, your readers gained all the information about this fine city that could be desired.

It is more like a European city, like Havre, or Marseilles, for instance, than a city of the tropics. It was frightfully hot when I arrived. Now, the temperature in the morning and in the evening is delicious. I believe it gets still cooler and colder towards May and June. The commerce of Rio is very considerable. The merchants visit the Exchange constantly; it is situated in the part “where merchants most delight to congregate.” A new Exchange is being erected, and when it will be finished, it will, no doubt, be a great im-

provement upon the present building. Coffee is the chief topic on 'change. To-day there has been some excitement, and nearly all the stocks of coffee in Rio have been bought up. There is absolutely nothing more, and now it will be interesting to see what America, which has not drawn any supplies lately, will do. The result of the Dutch Sales will be known to-day, 23rd March, and a great many bets have been made as to the result, whether over or under value. At the German club, where there is a table d'hôte dinner which I frequent often, nothing is talked of but coffee. There are all the agents of all the great coffee firms in London, Hamburg, New York, Bremen, and so on, comparing notes and discussing the future. The majority of them think that prices will keep up, and that the great catastrophe which is to overtake Brazil in her labour difficulty is not so far removed as many think. It was from one of these gentlemen that I obtained the following description of the usages with regard to the sales of coffee in Rio:—"The planter sends his coffee for sale to the commissario in Rio, who sells it on behalf of the planter to the ensaccadero, almost always a Portuguese, with capital, who, after putting the coffee in new bags, for which he gets 500 reis per bag, or about one shilling, sells the coffee, biding his time, to the export merchant (the agent of the great American, London, or German houses), through the means of a broker. The ensaccadero is the only speculator in the transaction; strange to say he holds, if the prices have a tendency to rise. The commissario, to whom the planter sends his coffee, charges three per cent commission, and the ensaccadero only one shilling per bag, which the planter has to pay. The export merchant pays the export duty, 13 per cent. The broker gets paid both by the export merchant and the ensaccadero. In Santos the same usages exist, with the exception of the broker, whose services seem to be dispensed with in that port."

Rio, 23rd March.

I must now say good bye for a long while. My passage per *Hevelius* to New York has been secured. We leave on Sunday, 26th instant. I have obtained cabin accommodation forward, and been allowed £10 off the passage money, which I am not too proud to be glad of, as I was prepared to pay £10 over and above the first class fare, which is forty pounds. Whether I may see the Exhibition at Philadelphia remains to be seen, when I examine the state of my exchequer at New York.

Wishing you all good things, and good crop, etc., I bid you all be of good cheer. There must come a brilliant future to Ceylon, far more so than the most

sanguine of you can imagine. That is my humble opinion.

G. A. C.

EMBARKATION OF AN EMPEROR AND EMPRESS—BUNGLING OFFICERS IN THE BRAZILIAN, AS IN THE ENGLISH, NAVY : NARROW ESCAPE OF REPETITION OF THE "VANGUARD" DISASTER—A BRAVE GIRL—AN IRATE EMPEROR—LUNCHEON ON BOARD—AN INTRODUCTION TO THE EMPEROR—HIS MAJESTY'S INTEREST IN CEYLON, AND REGRET THAT HE CANNOT VISIT THE ISLAND—PALI AMONG THE ROYAL DAILY STUDIES—MUSIC—SLAVERY IN BRAZIL ACCORDING TO A GOVERNMENT PUBLICATION—EDUCATION.

Steam-ship *Hevelius*, 30th March, 1876.

My departure from Rio was no ordinary event. I told you that the Emperor and Empress of Brazil were among my fellow-passengers, so there was a great "tumasha" on the occasion, firing of guns from the forts in the harbour, populace cheering, military bands on pier, cavalry escort, infantry guards of honour, the whole port in bunting. The steamer had been brought up from her anchorage in "the finest harbour in the world" to the arsenal, to enable the Emperor and the Empress to step on board. On the 25th, at 9 a. m. precisely, their majesties came and took leave of the Prince and Princess d'Eu, and the *Hevelius* moved towards the inner harbour. To accomplish this manœuvre, she had to steer round the little island Enchades," and thus gain entrance into the magnificent bay. Two steamers were crowded with people, and each with a band playing the Brazilian hymn, not in unison, but with an energy which was intended to show that such a loyalty could also be expressed in music as well as in other ways. Two war steamers were appointed to accompany us, and, suddenly approaching the little island above-mentioned, one of these war steamers lay right across the passage which was our route into the bay. The thing was so sudden that our captain, I suppose, had no time to back the steamer; and in order to avoid running ashore on the rock of the island, which would have sunk us, he ran into the war steamer. A panic was the immediate consequence. I was on the upper deck, talking to some ladies, who, when the collision took place, and the masts of the other vessel made a sign as if they would come down and smash us, screamed and fled down the ladders leading to the lower deck. I was undecided what to do, when I saw a young lady calmly looking on, either not understanding the danger, or disregarding it. This decided me to remain where I was, and I now saw that the only damage

we had done to the war steamer was to the bow, which we had smashed. Our steamer was now backed out of her perilous position, which gave us an opportunity to judge of the utter uselessness of such a navy, if all the Brazilian war steamers and ironclads are manned and commanded like this one, and to see the placid Emperor pitching into the officer of this precious craft in language which the most ignorant of the non-speaking-Portuguese-language foreigners could not fail to understand. His Majesty reminded me very forcibly of a parrot in an access of rage. His voice is somewhat like that of the well-known bird. A French naval officer in such a position as the Brazilian commander was placed in would have blown his brains out immediately, if not sooner. This reprimand I was the only person to enjoy, besides the brave young lady who stood near me and witnessed the imperial outpouring of wrath. With a good deal of trouble, labour, and shouting, we got the Brazilian war steamer out of her position by cutting the hawser that held her to a buoy, a proceeding which any little cabin boy might have accomplished. At last we cast her adrift with a curse and went on our course. But this little episode put an end to all further festivities, and with serious thoughts and silently we left "the finest harbour in the world," and proceeded on our journey. Who the young lady is who behaved so pluckily, I have not been able to ascertain. All I have learned is that she goes all alone to San Francisco. Her English is very pretty, and I hear that she speaks German like a German; I fancy she is a governess. I had this little bit of information from the wife of the Minister of Agriculture of the Argentine Republic, who goes to Philadelphia, a German to whom I took a great dislike at first. It happened in this wise. As soon as the luncheon bell was rung, I was requested by the steward to sit down next to an individual whom I heard converse in German with his wife. He was evidently in a great way about his children not being allowed to sit at table with him. The steward regretted not to have it in his power to comply with his request, and said that his orders were to provide separately for all the children on board. But this man's offspring were evidently of a superior order, and he said in a loud tone of voice, which attracted everybody's attention, including that of the Emperor and Empress, that "he would not be humbugged in that way." The steward of course took no notice of this, and went about his business, when the Minister said quite a loud, "I will shoot this fellow like a dog." I could not stand that, and I got up and left the luncheon table. I arranged for another seat at the other end of the saloon, near the O'Kellys. (He is the correspondent of the *New York Herald*, you know.)

Strange to say, the individual, whose presence I shunned and who behaved in so unmannerly a way, and I have since become quite friendly. He has been very polite to me, and his wife being very musical we have met at the piano, which has thus proved an infallible restorer of harmony, and every morning we ask after each other's health, and he turns out to be the Minister of Agriculture of the Argentine Republic. He has promised and offered me his influence at the Philadelphia Exhibition. *Nous verrons !*

On Monday afternoon I was asked by Mr. O'Kelly to be introduced to the Emperor, who wanted to hear of Ceylon. The Empress, a fat little woman with a masculine expression of face, smiled very graciously on me, as much as to say, "We are glad to meet you," and then the Emperor shook hands with me. "Now tell me, Mr. C.," he said in French, "I want to know all about Ceylon. Tell me at once," and I told him all I knew. "Ha," he said, "that is good ! Now tell me, do you understand Sanskrit and Pali ? No ! I am reading these languages every day for a few hours. I regret you do not understand these languages." Then he asked about Adam's Peak, Pollonnaruwa, the ancient tanks, &c. He took great interest in Ceylon, he said, and would like to go there very much ; but it was too far. He was now going on an eighteen months' tour through America, England, Sweden, Russia, Turkey, the Holy Land, Greece, and Italy. His Majesty has not, by any means, an agreeable voice. The formation of his mouth and the position of the tongue therein are peculiar. But he is very intelligent and amiable. He is fond of music, and there being a very fine player on board, a young Brazilian, we had a concert in the evening. Next morning, after breakfast, His Majesty asked me to bring all the music I had with me. I had all Schubert's and Schumann's songs. He selected several for me to sing, and the Empress came and smiled once more very good-naturedly, and thanked me for the singing. The wife of the Minister of Agriculture sang, and sang very well. The young Brazilian accompanied us beautifully on one of Broadwood's pianos. The steamer has been fitted up very nicely: in fact, it is a floating palace. The cuisine is very good, also the wines, etc., and we have ice in blocks and in abundance. Yesterday morning at 5½ a. m. we arrived at Bahia, and were welcomed in the bay by two steamers ; the forts roared and the shipping was all in hunting, and boats with bands of military music came out to welcome us. We were in quarantine, and we could not land, owing to the yellow fever in Rio. More steamers came with loyal Brazilians, and more bands. It was like a great fair, like nothing I ever saw before ; and, therefore, I was exceedingly pleased. At 5 p. m. we

left the bay accompanied by half-a-dozen steamers, the cannon at the fort belching forth their salutes or farewells, the people on the steamers shouting and the bands playing. We expect now soon to be in Pernambuco, where the same spectacle will be probably in store for us, and where I shall leave this letter to be posted. The Emperor gave Mr. O'Kelly a book written by the Brazilian Government on the present state of the trade, agriculture, finances, and railways of Brazil. It is the latest book on this big country. Mr. O'Kelly kindly gave me the perusal of the book, which contains nothing on agriculture, except what might be considered of interest to colonists, who are suggestingly invited to come. What it says on slavery is this :—

“The General Board of Statistics have not yet concluded the Census of the Empire ; the number given of 10,700,187 souls is, therefore, a mere estimate.

“It is generally believed, with very good reason, that the final results of the census will give Brazil more than 12,000,000 inhabitants, and that will include 2,000 wild Mothangs, and 1,476,576 slaves.

“Slaves are humanely treated as a rule ; they are well-fed, and live in good cabins on most estates ; they have plots of ground which they cultivate, and they sell the produce ; they now work moderately, and, usually, only during the day, resting at night, when they receive religious instruction or amuse themselves. They are allowed to keep their savings and apply them to the purchase of their freedom.

“Slavery, imported into Brazil, by force of circumstances, since the first colonial establishment, will disappear in few years more.

“By virtue of the law of 1871, no more slaves are born in Brazil.

“When the law passed, freedom was granted to the slaves of the nation, who were employed either in the public service, or in the Imperial household.”

What it says on education is as follows :—

“The following table shews, by provinces, the number of schools and classes of primary and secondary education, that of the pupils who attend them, the provincial revenue, and the amount expended by the provinces in education :—

			Expendi- ture on	
	Schools.	Pupils.	Revenue.	Schools.
Altas Amazonas ...	59	1679	575433	66660
Para ...	259	11021	1533670	346350
Maranhão ...	163	6443	831290	125102
Piantry ...	73	2026	346526	40456
Ceara ...	254	10861	811929	183046
Rio Grande do Norte	152	6611	318682	96350
Parahyba ...	150	3906	777232	164303
Pernambuco ...	502	9917	2512449	478904
Alagoas ...	230	7015	713056	137300
Sergipe ...	175	5651	697735	119000
Bahia ...	425	17362	2172433	363500
Espirito Santo ...	136	2209	300000	82000
Rio de Janeiro ...	674	18894	4221505	874862
Municipo da Corte	211	17279	—	658641
S. Paulo ...	624	16466	2539626	397979
Paraná ...	130	3172	727985	64720
Sta. Catharina ...	137	3714	311492	76720
S. Pedro do Rio Grande do Sul ..	492	14551	1702100	275260
Minas Geraes ...	892	25104	1651640	601600
Goyaz ...	95	2666	147787	51550
Mato Grosso ...	57	1361	167000	48110
Total ...	5890	187915	23119576	5252814 "
			Milreis	Milreis
			£2,400,000	£580,000

DOM PEDRO'S NOT LANDING AT PERNAMBUCO A BLUNDER—SHEARING AN EMPEROR OF HIS HONOURS AND CALLING HIM "PETER"—DEFECTS ON THE SURFACE: PETER'S TONGUE TOO LARGE FOR HIS MOUTH, WHILE HIS NAILS WANT CLEANING—THE MEMBERS OF THE IMPERIAL SUITE, FROM THE "HIGH-CASTE TOAD" TO THE "LADIES OF HORROR"—MR. O'KELLY—TROPICAL CULTIVATIONS SNUFFED OUT—SLAVERY IN CUBA—THE EFFECTS OF WAR ON THE PLANTATIONS OF CUBA.

Off Bermudas, 12th April, 1875.

I posted my letter at Pernambuco, where we arrived on the morning of the 31st March, the fort saluting, the ships in the harbour all in their holiday attire. Several steamers with military bands came to welcome the Emperor and Empress and to invite them to come on shore. The Emperor had, however, already made up his mind not to disembark, and so the good Pernambucans were disappointed. The correspondent of the *New York Herald*, Mr. O'Kelly, who had gone to telegraph to his paper the latest news of our proceedings on board the good ship *Hevelius*, told

me on his return that he thought the Emperor had made a great mistake not to have gone on shore, as the people had made arrangements to receive the imperial couple in state, and that it would have been politic on his (the Emperor's) part to have sympathized with the merchants and planters, whose trade was paralyzed, and by doing so prevented the spread of republicanism, which has taken already firm root in the province, where the Rio de Janeiro Government was so very unpopular. "And very deservedly so," said my informant, "the grass is actually growing in the streets!" *Caveat Consules!* I thought of Sierra Leone and Monrovia.

I have had the honour of several interviews with His Imperial Majesty of Brazil, whom, for the sake of brevity and expedience, we will call Peter. "What's in a name? The rose by any other name would smell as sweet." Peter is a man six feet in height, stout, heavy in build, with an intellectual head. Every house has its skeleton, and everybody has his or her weak point. Sometimes these shortcomings lie on the surface. We can see them, hear them, feel them; but woe is me when they are hidden. Peter has a most disagreeable voice. His tongue seems to be too big and inclined to obstruct the free utterance of his thoughts. It is difficult to understand him, and only after you have become accustomed to his tongue; till then you must guess what he is going to say. Hence he often screams and yells in a kind of soprano key, which in other men would sound ridiculous, but which, in him, at first strikes one as painful, and afterwards, in consideration of his good qualities and amiability, you quite forget it. Peter rises early and is always dressed in gentlemanly attire. His nails would be a deal better for a good cleaning and paring, and he does the knife and mouth trick like any vulgar Brazilian. He is a hearty eater, but a moderate wine-drinker. The Empress is stout little lady, with a limp in her gait; but is also very gracious and nice. Peter speaks English pretty well, but his wife does not.

Of his suite, there is first the Visconde do Bom Retiro (the viscount of the good retreat). Whether this title came to this nobleman from his ancestors, who might have distinguished themselves in war as good retreators, or whether he received the title in consideration of his services as a Minister, and, when leaving office, made good his retreat by happy speculations, as all South American Ministers are said to do, I cannot say. Peter is about fifty-five years of age, Bom Retiro the same, although he dyes his hair, which Peter doesn't. Bom Retiro only speaks French,

besides his own language. He is fearfully courteous, constantly shaking, or going to shake, hands with you. He is middle-sized, fat, and, with his magnificently oiled side curls adorning each of his ears, he gives one the impression of a high-caste toad. Then comes the Baron of the Seas (del Maro), the Admiral, a tall, quiet, unobtrusive elderly gentleman. He is what I would call an honest sailor, although I am not so sure that the adjective "honest," when applied to a sailor is, or would be, considered a compliment; but, be this as it may, in this instance, when the sailor is associated with the notion of buying old frigates and small cast-off ironclads, which this admiral has, not only on this occasion, but on previous occasions, been commissioned to go in for, the qualification of "honest" sailor may be hoisted with propriety. Then comes Senhor Mercedo, who is the Treasurer of the Imperial Household. He is a little younger than the previously alluded to high personages, small of stature, with what you call a cracked voice, whatever that may mean, except that to me it reveals all sorts of things detrimental to the possessor thereof. Men who have loved and lived hard have a cracked voice; men who have suddenly heard some dire news speak in a cracked voice; but the man whose mind is enslaved and has been so for years will have his voice cracked and talk like a raven. Senhor M. is called a Doctor, but, as they call Mr. Blacklaw a Doctor, that does not count for much. This Doctor is half Brazilian, half Irish by birth, talks English fluently, and is not half a bad fellow. But on board ship, everybody, especially with such exalted passengers around, does his best to please. When we separate in New York, we shall not know one another. The Doctor has the face of a good-natured jackal. There are two more Doctors in the Imperial suite. The one is a real medico, with a magnificent beard, dark complexion, and an everlasting *penchant* for going to sleep. The other is a German professor, who teaches Peter Sanskrit for two hours daily.

I will now briefly introduce the ladies of honour, the chief of whom is, at a rough estimate, about seventy years of age, while the others taper down to fifty. If you can fancy such a thing as the witches from Macbeth having, by a violent and supernatural effort of Neptune, found their way on board the *Hevelius*, you see the ladies of honour, I ought to say, horror, of Her Imperial Majesty of Brazil in all their glory. What the kind lady, the Empress, does with such creatures on such a voyage, is a mystery to me.

Mr. O'Kelly, the correspondent of the *New York Herald*, has distinguished himself by a book

called "The Mambi Land, or Adventures in Cuba," dealing chiefly with the insurrection now some eight years running its interminable course. At first sight you would not think that this narrative on "Cosas d'España" could have interest to you in Ceylon; but, if you dip deeper into it, you will find much matter bearing on [tropical agriculture or rather extinction of tropical agriculture; and in this respect it has the merit of painting with unbiassed colours the gradual disappearance of vast colonies from the theatre of cultivation, beginning with San Domingo, followed by Jamaica, although this island is now recovering itself, and brought up by Puerto Rico and Cuba. Mr. O'Kelly very graphically describes slavery in Cuba, which in its treatment somewhat resembles that of the slaves in Brazil. He then comments on the employment and introduction of Chinese coolies, which, according to his statement, is infinitely worse than slavery in its most hideous form. I will take the liberty of quoting a few passages from his book on this subject. This is what Mr. O'Kelly says:—"Since the stoppage of the free importation of slaves from Africa, the difficulty in supplying the places of those who have died has been constantly felt on the estates, nor has the experiment of Chinese labour been altogether successful. Its effect on the immigrants has been disastrous. About seventy-five per cent of the coolies die during the eight years they are forced to labour by their contract. In cases where they have succeeded in overcoming all obstacles, they are exposed to the extortions of the police, who can ruin them at any moment. * * * * *

Such is the demand for labour that the planters willingly give five hundred dollars for the use of an able-bodied Chinaman during eight years. The abolition of slavery in Puerto Rico caused the greatest consternation among the slavemasters. The slaveocracy in Cuba look on America as the chief cause of all their misfortunes. They pretend to be willing to abolish slavery at some future day, if they are only allowed time. Some think that they would be ready in ten years, others claim that twenty years should be allowed to pass for the gradual extinction of slavery. The granting of immediate liberty would, according to the slavemasters, result in anarchy; but it is not certain that ten years hence the slaves will be any better fitted for liberty than they are now. If there were any honesty in the pretended desire to abolish slavery, steps would have been taken already towards gradual emancipation. But the fact is the pretence of the slave-holders in favour of gradual abolition is simply a skilful move to postpone indefinitely the settlement of the question."

This last paragraph is eminently applicable to Brazil, and although the Brazilian Government says, "Slavery is at an end, or will be at an end shortly," it is only what Mr. O'Kelly would designate a "skilful move" to throw sand into the world's eyes. Slavery will continue in all its horrors in Brazil till the slaveholders have ground or squeezed the last life blood out of the slave; till they, the slaves, have all been extinguished. It will take from five to ten years to accomplish this. In the meantime, fathers of families are torn from their families in the Provinces of Bahia and Pernambuco and sold to slave owners in the Province of San Paulo. Whole cargoes go down the coast to be employed on the coffee estates.

On continuing to read Mr. O'Kelly's book on Cuba you learn of whole districts being destroyed by fire, now by the Spaniards, now by the Cuban patriots. What retribution of Providence could be more scourging than the sight of ever so many flourishing sugar and coffee estates which cost millions to the slave owners, and all the crops which the poor slaves and the wretched Chinamen were employed in producing, reduced to ashes, and the armies of the contending parties living in the bungalows of the planter or devouring his live stock, if there be any left, with not a blade of grass or corn remaining? Your readers will be surprised to hear that Mr. O'Kelly computes the number of men of both armies killed, since the beginning of this insurrection, at about three hundred thousand. Mr. O'Kelly himself was once made prisoner, as I told you in one of my letters, and narrowly escaped being shot. He was sent to Madrid, and there we will leave him *pro tem.*, although he sits at this moment at the next table in the saloon, writing.

GOING UP THE AMAZON—VISIT TO PARA—A DIRTY HOTEL,
BUT A FINE VIEW—THE "COLOURY" POPULATION OF
PARA—A RAILWAY ENGINEER'S MISTAKE.

Off New York, 14th April, 1875.

We left Pernambuco on the evening of the 31st. It took us four days to get to Para, eighty miles up the Amazon, and we had to anchor during the night near the mouth of the river for want of a pilot. Peter was very angry, and this fact will benefit the inhabitants of Para and the various mariners resorting to this place. Like most regions of the Equator, showery weather was the order of the day, and the result was a delightfully cool atmosphere. But the rains, which in the evenings had converted the whole coast into a kind of waterspout, ceased towards morning, and the sun broke through the clouds like a hunter who

has been struggling to get out of a dense millu jungle, the accompanying wind chasing the clouds like a pack of hounds after an elk on Bopat. When standing on the top of Wilmana, you see sometimes the valley towards Adam's Peak so filled with vapour that you might be excused if you took it for a gigantic river, the Diyatenna range on the one side and Pidurutalagala on the other, forming the banks. So appeared to me the view I had of the Amazon, with its innumerable islands making the river much smaller than in reality it is. It is a glorious river. We go up without a pilot; but there is a steamer before us. We overtake her. The captains have a duet on the bridge. Signals are exchanged. Another steamer comes down stream. We stop; a boat is lowered, and it rows to the steamer coming down the river. A pilot is brought by our boat. He ascends that peculiar ladder by which pilots generally make their *entrée*, all the company of passengers, stewards, and crew, looking on as if he were a god. With nimble steps he ascends the ladder leading up to the bridge, the captain and he shake hands, the engine moves, the screw is once more in motion, and we continue our voyage up the river. Every now and then light fragile skiffs, handled by Indians, appear in sight. Islands of enchanting beauty are passed, now on the right, now on the left. But it takes us the whole day to get within five miles of Para, where we anchor again for the night.

We sit down to dinner, and, whilst enjoying the good cheer of the amply provided table, patriotic bands of music approach our vessel, strange faces peer through the saloon windows—(there is a passage all round the saloon with windows opening out thereon, so that people can at any time look into the saloon from outside),—the entrance to the saloon suddenly becomes filled with uniforms, epaulettes, swells in white chokers and black clothes, who cannot restrain their loyalty, but give Peter a hearty cheer. We take it all in with the dinner, as if it were in the bill of fare. It is rather pleasant with *vol au vent* and *clicquot*; when the sweet notes of "The Blue Danube" strike our ears, and fragrant zephyrs of Havannas reach our nostrils. Now the Empress rises and everybody follows her example, and a tremendous *viva* is heard outside amid the crash of the band. We make room for the invaders, we light our pipes, ascend the poop, and behold Para in illumination; the band plays operatic airs by Verdi, rockets fly in all directions, steam launches of all possible sizes puff, puff all round us, and away from us; and the mighty river flows on, as if nothing had happened. This great

Amazon is really not so big in appearance as it is in reality. That is owing, as I said before, to the many islands forming banks which the human eye can scan. After a while the Para folks have enough of it, and embark in their steamers and disappear, and by and by the old *Hevelius* is left in its glory, with the stars. We retire to bed early, so as to be up betimes in the morning, for we want to go on shore at Para and see the fun and the people and stretch our legs a little. We are up early next day, dress hastily, and after the Imperial party, including Mr. O'Kelly, has embarked in a little man-of-war, our captain and half a dozen passengers, including several ladies and your humble servant, leave in the ship's steam launch. The Para forts belch forth their salute, the bells of the churches ring, the bands play the Brazilian Hymn, and the thousands of people on the shore roar. We land and just see the Emperor and Empress drive off to the President's house, the Government Agent's residence. We now look about us and stare, as passengers are wont to do when coming to a strange place. There is always something ludicrous about a party of passengers in search of a resting-place. On this occasion, however, we are spared the criticizing glances of the belles and beaux of Para, who have only eyes for their Emperor and Empress. The streets we pass through are almost deserted, the inhabitants have all hurried to the square where the Resident's dwelling-house is. With a great deal of trouble we find our way to the hotel which has been named to us as *the* hotel of Para. On approaching it, we find the said hotel an upstairs arrangement with a *parterre* so uninvitingly dirty that I think involuntarily of "*Lasciate ogni speranza voiegni ch' entrate,*" and determine to hunt up a more eligible house of entertainment.

The view from the dining-room over the Amazon was, however, one of the finest of river-views I had ever enjoyed in my life, rivalling the view you have on the Rhine, from the Belle-vue Hotel, of the river and Cologne. We found our friends in ecstasy anent the river scenery below, and we ordered breakfast. Until such time as it would take to be ready, we took a stroll through the town.

A writer in an *Edinburgh Review* which I had in my hand the other day says:—"The edifices of a country are the positive, visible, and permanent expressions of the civilisation of its inhabitants." Viewed in this light, Para is one of the most uncivilized cities in South America. The whole population is colory, from the President down to the most degraded negro; the only white people are the merchants, the proprie-

tor of the hotel, and the electric wire man. Perhaps there is a railway engineer also. This reminds me of the railway engineer of Pernambuco, who, along with the heads of departments, had come to pay his respects to Peter whilst on board. He came to breakfast in the saloon, and sat next to me, when he let out that, not having seen the Emperor before, and Peter having put some questions to him about the railway, which he answered with the "What's-that-to-you-my-fine-fellow?" sort of way which John Bull has, he was in a great state of funk at having offended Peter, and deplored not having been introduced to the Emperor by the President as agreed upon. I observed the poor gentleman afterwards trying to obtain an introduction, but I am certain that he left the *Hevelius* without having been introduced to Peter. Moral: One cannot be too circumspect, and even railway directors or managers can run off the line and make fools of themselves sometimes. That is about the only thing I gained from having visited Para; for, although the Frenchman's breakfast on our return was very welcome and palatable, we could have got a better one on board the *Hevelius* for nothing. The firing of the guns in the fort was our signal to return to the landing-place, to find the steam launch, and puff back to our ship, which we accomplished under the most noisy demonstrations imaginable on the part of the populace, Peter with his wife and suite leading the way in the man-of-war.

The following is Mr. Cruwell's missing letter from Brazil, referred to in one of the foregoing, and which only came to hand some months after his return to Ceylon:—

"Replies to questions (emanating from Ceylon) submitted to me by the British Consul at Rio de Janeiro, on the coffee leaf disease caused by the *Hemileia vastatrix*.

1.—"The disease treated of attracted serious attention for the first time in the Province of Rio de Janeiro and the neighbouring one of Minas Geraes in 1860, and only developed itself fully in 1861, when it committed unquestionable ravages shortly after. It penetrated to the district south of the Province of San Paulo, thus covering successively, with more or less intensity, the entire coffee-producing regions. The changes effected on the trees were precisely those pointed out in the query, it being worthy of notice, however, that the leaves or branches nearest the ground where the larva made its nest were passed from the very fact that they served as shelter to the future propagation.

2.—“The dust of pale orange colour referred to in the query was not noticed during the force of the disease which visited our coffee plantations, nor was such a cause wanting to explain the distinctive effect, seeing that it was occasioned by an insect analogous to that described by G. Mennewille in the Antilles by the name of *E. coffeina*. The insect, from its diminutiveness, escaped at first the less accurate observation of our planters and men of science.

3.—“During three or four years the disease assumed such a magnified form that the plantations, in unfavourable circumstances as regarded soil, age, or less perfect cultivation, were absolutely annihilated, and a large proportion of the trees under these conditions perished entirely (this happened on my property). In as much as related to plantations in favourable circumstances as to culture, age, soil, etc., although they were not spared, still at the proper period they recovered more or less and became covered with fine leaves. But the blossoming and fructification suffered notwithstanding, and the crops during three successive years diminished in the ratio of three to one in the most affected districts. In 1865 and later on, although the disease continued on a smaller scale, and still continues in exceptional years, yet it is not of a kind to effect absolute denudation and even is confined to special localities, so much so that we have small and large crops alternately; the average crops being thus maintained for some years past.

4.—“The disease was first noticed in serious form in 1860,* the earliest symptoms being discovered in districts furthest north. The central plantations were visited principally in 1861, and the province of San Paulo, situate more to the south, was the last, and the most slightly affected. The whole coffee producing belt was affected, and no portion left entirely exempt, at least, no portion of considerable extent.

5.—“Judging from what happened in my country, the hottest climate, or rather the hottest and dampest exhausted or dry soil, those unduly exposed, those sandy, and, as I before said, the old plantations, were first visited, and the sad pestilence in the districts affected generally the argillaceous lands, sheltered by mountains and neighbouring woods; those exposed to the South East and shady vales were the least affected.

6.—“In the district where I am located, and for the space of at least four years, the crops diminished seriously for the planters generally, and regular crops constituted, as it were, an exception; the quality of the

* Exactly ten years antecedent to the appearance of leaf disease in Ceylon.—Ed. C. O.

fruit however did not suffer, but on the contrary, being less abundant, the grain in general was more fully developed than in years of over abundance of fruit.

7.—“The disease which affected us, and vestiges or symptoms of which, from time to time, still reappear, was then investigated, and they resulted in the recognition of a crepuscular insect which had been already discovered by G. de Manneville and the identity of which was proved.

8.—“The disease is evidently and exclusively proper to the coffee tree, &c. &c.

9.—“No special treatment was adopted. The most provident planters limited themselves to certain hygienic measures, such as good treatment, or rather more accurate cultivation of the plant. In the course of time these measures proved sufficient, and the cultivation to-day is, so to say, normal.

“Such are the replies I have to make to the queries submitted, which seem to me satisfactory as far as they go, unless the Government of H. Majesty refers to any other disease different to what we participated in 1860, and which still manifests itself periodically.

“(Signed) VISCONDE DE PRADO.”

Another Brazil planter submits the following answers to H. M. Consul:—

1.—“The coffee trees of the Province of Rio de Janeiro have, from the year 1861 up to the present time, been affected by the coffee disease exhibiting all the characteristics described in this query, which leads me to believe that the *Hemileia vastatrix* is nothing more or less than our coffee disease.

2.—“Yes, the marks or blotches on the underside of the affected leaves are covered in the first instance with a dust of pale orange colour which is easily rubbed off.”

3 and 4 and 5 in tenor like the first author's answers.

6.—“Unfortunately the diminution in our crops is notorious, in spite of our extensive plantations having at least quadrupled.

“Prior to the terrible prevalence of the disease, the planter who had 200,000 coffee trees, eight to ten years old, could count upon a good yearly crop of from 12,000 to 15,000 arrobas or 4,300 cwts in the Provinces of Minas and Rio de Janeiro, but since the appearance of the disease he cannot reckon on more than 8,000 acres or 2,300 cwts. In the first three years of attack the fruit of the coffee trees gathered on the sunny sides of high lands was all of inferior quality and in many cases was here classified as ‘refuse,’ for the single

reason that it could not arrive at the stage of maturity for want of the necessary shelter by leaves from the heat of the sun, which fortunately did not appear to that of more shady sides, &c., &c.

"I should observe that in the years which have succeeded 1864, up to date, the disease has not affected the coffee trees of these two provinces to the extent of stripping the trees and spoiling the crops as in the first three years referred to ; it exists nevertheless and still exercises its obnoxious influence, reducing considerably our crops, which ought to be much larger in proportion to the amount actually under cultivation.

"In these years of probation the despondency of our planters reached its climax, and one of their greatest trials was seeing all their new plantations destroyed. The full grown trees resisted the repeated falling away of leaves, and, I believe, not a single tree died from this cause, but the one year old coffee plant, violently attacked by the disease, did not survive two strippings in succession and for the most part perished, rendering completely stationary the development of our plantations, which was otherwise progressively and manifestly increasing."

7, 8, 9.—Manuring recommended as a remedy.

Signed) F. W. LEMT RêBO GRIN.

These are the answers which H. M. Consul obtained from Brazilian planters of great weight and standing to the queries sent by Lord Derby on behalf of the Ceylon Government in April, 1875, which, no doubt, reached their destination in time and most likely have since appeared in the local papers. Should that not be so, I beg to refer you for the correctness of these copies (except where I found the different authors both agree and I thought its recapitulation only useless) to H. M. Foreign Office.

These were given me by the Consul yesterday, and I hasten to copy them for transmission by this mail of the 8th instant.

Their importance is such that they reveal almost to conviction the whole state of the coffee culture in Brazil. In consideration of this and the difficulties existing with regard to labour, it remains to be seen now whether the extensions of coffee cultivation in Brazil equal or exceed the outgoing of old plantations, or do not equal them, *i. e.* do not counterbalance the dying out of old coffee, which, according to the custom of the country, takes place after 20 years of cropping, there being no manuring generally.

The leaf disease in Brazil is not in its kind the same as that prevalent in Ceylon, where it is a *fungus*, whereas in Brazil and in the other South American coffee-producing countries and in the West Indies it

is an insect; but, in the intensity of damage; the latter probably excels the *Hemileia vastatrix* of Ceylon. We can compare the *C. minstoma* of South America to arsenic and the *H. vastatrix* to strychnine, both different in kind, but similar in antagonism to coffee.

The *Cemiosstoma* is to be seen side by side with the *H. vastatrix* in the Museum at Kew Gardens.

G. A. CRUWELL.

Rio de Janeiro, 5th Jan., 1876.

The crop of 1874/75 was a large one. 4,000,000 sacks, of which 1,000,000 was not shipped till 1875, and that of '75/76 being acknowledged now to be a small one, @ 2,000,000 to which is to be added the unshipped..... 1,000,000

3,000,000

It remains to be seen what that of 1876-77 is likely to be.

The above figures are taken from the *Jornal do Commercio* in an article of this day: -

The crops of ten years were as follows, from Rio:—

1873-74...	...	...	2,067,493
—72-73...	...	...	3,040,062
—71-72...	...	...	3,112,113
—70-71...	...	...	2,237,935
—69-70...	...	...	3,190,243
—68-69...	...	...	1,940,334
—67-68...	...	...	2,849,798
—66-67...	...	...	2,584,978
—65-66...	...	..	1,983,360
—64-65...	...	...	2,209,620

Total... 26,215,936

Average cwts or sacks 2,621,594

From Santos for the last four years:—

San Paulo Province.

Cwts.

50,518

45,544

36,193

20,557

} average Cwts. 38,000

152,762

760,000

From Bahia, etc.

..

..

150,000

From Brazil total cwts. or sacks

3,531,594

CHAPTER VI.

POSTAL IRREGULARITIES IN BRAZIL—THE DECREASE OF OLD CEYLON MEN; SIR RICHARD MORGAN AND DR. SORTAIN—FIRE AMONG BRAZIL ESTATES—THE “LEAF DISEASE” OF BRAZIL—“G. A. C.” IN RIO DE JANEIRO—EXPERIENCE OF BRAZILIAN RAILWAYS.

Angelica, 31st July, 1876.

You must excuse the obscurity of the writing in the accompanying papers.* I think all will be readable with the aid of a magnifying glass. I sent the originals, along with some twenty-four pages of notes, to a London house, to be posted, but all got lost on the road between the estate and the town, and, although I have advertised and sent and hunted the country about, I cannot find them. I positively have no time to write them over again. I thought myself lucky in having had them press copied. Your paper of May 13th came last night. Very early, is it not? But oh! the irregularities sometimes! Here are the dates of a large parcel I received all in one about a month ago, which will show “G. A. C.” the reason why we could get no news of the Prince’s visit before the former left us:—*Observers* of December 9th, December 14th, December 29th, June 26th, September 4th, July 6th, December 23rd, February 8th, 1876, and February 17, 1875. Where they had been I know not, but they had evidently lain in a smoky house for some time, for the parts that had been exposed were brown and dirty. At another time one came with the “Thirty Years Ago” letter taken out. I was very much annoyed at this, for these letters are very enjoyable, and bring back the old times to us.

Time is making sad havoc among the old men with you. Not long ago Advocate Morgan, and now poor Dr. Sortain. I well remember spending a few pleasant days at Batticaloa, when I and the rest of our party enjoyed his hospitality and were charmed with his kindness and intelligence, and I cannot forget the promptness with which, two days after we had left, he sent at our request medicines and directions

* These will appear in an early issue.—ED. C. O.

for the treatment of one of our horses which had been taken ill and died, soon after our messenger was despatched for Dr. Sortain's advice.

I was sorry to see that fire had been destroying coffee among your finest estates. Brazil, at least this part of it, suffers much from this cause; not a year passes, but damage of this kind is done. We have a rule to clear a piece with catty and mamoty all round our coffee and pastures, of 20 feet, and this track is sometimes even extended to save forest land from fire. This costs something, but on these occasions colonists, camarados, loungers and everybody have to turn out. It often happens that some unfortunate has been too late in making his *serras*, as they are called, and, as in the case of a neighbour of ours last year, coffee trees in the field, coffee beans in store, store, and dwelling-house, all went. The poor fellow now lives by hiring a trolly. Your planters near patanas should see to make their *serras* in January as we have to do in May. It is a good thing to burn the *débris* which has been swept to the edges of this *serra*, for this leaves a clean space at each side over which the fire will not run for months.

By your paper received yesterday I am sorry to see that "G. A. C." left Rio unenlightened about the "leaf disease." There may be a resemblance to the Ceylon fungus; if so, the descriptions of the latter in your Directory do not agree with the appearance of coffee afflicted by the "leaf insect." I have not as yet seen the fly or butterfly which deposits the larva, but one has not far to go in the coffee or out of it before he can pick a dozen leaves, and by holding them up to the sun see the worm inside. They do not stay long inside, for very few of the dark blisters they leave are larger than half-an-inch, while a great many are mere specks. Nobody whom I have met seems to attach much importance to it, and I have not seen it do any damage to speak of here. It is thick all over the leaves in the forest, and I fancy must come from there. I have, since writing on the 16th, learnt that Mr. Pickman Mann, mentioned on p. 397 of your Directory for 1873, was sent out by Professor Agassiz to investigate the matter, at the time the planters in the Province of Rio de Janeiro got so frightened at it. The subject must have soon been forgotten again, for, although all know of the *schinno*, few seem to have heard of or read the pamphlet on it by the same naturalist. I will, however, do my best to get a copy.

I shall be glad to hear that our worthy friend "G. A. C." has safely completed his circuit round the

world. My last from him was from Rio on the eve of his departure. I should not object to more of our Ceylon friends dropping in upon us to remind us of something more than "Coffee and Colonists."

Your people still continue to cry out about gauges, curves and gradients, and do nothing in Railway Extension, while Santiago and Appuhami Punchirala are filling their pockets with your rupees. Your Government object to your having a railway that will not pay at fourpence a ton per mile for goods, while we pay the modest sum of ninepence per ton per mile. From Campinas to Santos I paid 44s. a kilo. for 120 miles, from La Barbara to Santos 51s per kilo. for 144 miles, but from Rio Claro I have not yet sent coffee. Why do we pay so high? The first railway was made on the same principle of company guaranteed and stationary engines at tops of inclines as was at first to be done with your Kandy railway, so 88 miles cost over £2,000,000, and the company had to charge high. Extensions have been made at £8,000 to £10,000 a mile by local companies, and they charge the same milage. With expensive administration and each having its own workshops, they still pay twelve per cent per annum.

As regards gauges, none will have the narrow now after the experiences of those already open. The idea of cheapness has been carried too far, roads having been badly made, rolling stock inferior, and each being compelled to do its own repairs, however short the line, has disgusted everybody. What an annoyance too is the changing of goods from one to the other. The five feet three inches gauge is now all the rage. Engineers exploring have instructions to make minimum radius of curves 180 metres (9 chains) and three per cent the maximum gradient (1 in 33). The young Brazilian engineers, nearly all of whom have been trained in the United States, go at their work with a heartiness unknown to the fazendeiro. I often have visits from them on Sunday; they come here to air their English. We hear of no difficulties, and very few alterations have to be made in the first work. I must, however, except the bridge over the only large river on our railway, which was not completed for a year after all the line was ready. The first engineer died, the second made a mistake in his measurements, so on goes the task, but few seem to know the truth. We have now got it as well as others in prospect and making near us, and are contented. But I must off to work.

A. SCOTT BLACKLAW.

Rainfall at Angelica.		Fall in	No. of	Date of
		inches.	days.	greatest fall
1875.	January	13.00	15	1st 3.10
	February	19.90	16	27th 12.50
	March	7.50	14	7th 3.50
	April	3.70	4	14th 2.30
	May	2.55	3	3rd 2.30
	June	1.70	3	3rd 0.75
	July	0.00	0	
	August	0.15	1	29th 0.15
	September.....	1.05	5	16th 0.25
	October	14.00	11	14th 0.90
	November.....	2.10	7	14th 0.65
	December.....	23.30	15	9th 6.65
		88.95	149	12.50 inches
	A rise of rivers on Feb 27.			

1876.	January	14.19	8	5th 4.65
	February	12.55	13	3rd & 21st 2.10
	March	10.25	13	21st 1.70
	April	8.30	6	15th 2.60
	May	4.35	6	27th 1.75
	June	0.05	1	18th 0.05
	July	0.00		0 0.00

LEAF DISEASE IN BRAZIL.

(*Ceylon Observer*, October 5, 1876.)

Fazenda Angelica, 16th July, 1876.

I have read with interest and some amusement the different letters and remarks in your valuable paper on the subject of "Leaf Disease" in Brazil, and although I cannot at present find time to give you more than a few lines I do this merely to set the question at rest.

When my excellent friend and fellow traveller, Mr. "G. A. C.," rode over this fazenda with me, and pointed out some leaves with yellow spots on them, telling me at the same time that this was the veritable "leaf disease" of Ceylon. I was very much astonished, and could with difficulty believe that this was identical with the pest in Ceylon. However, my friend acknowledged that it did not do any harm here.

It was only lately, and since I noticed that the subject had created some controversy among the readers of your paper owing to my account of it, "G. A. C.'s" being entirely different, that I was at particular pains to examine into the subject. Accordingly, I plucked a large number of leaves from the trees which Mr. "G. A. C." pointed out, as well as from many others in different parts of this fazenda.

The appearance was of small dark spots, as if acid had been dropped on the leaves, very few having

more than one spot, and not in such a large proportion of the leaves and the tree as to attract one's attention if it were not pointed out to him.

On close examination I found this spot was a sort of blister, and on the leaves that seemed newly affected a small maggot was feeding inside this blister. These larvæ were $\frac{1}{8}$ th to $\frac{3}{16}$ of an inch long, and about the thickness of a pin, and of a white colour. On holding the leaves up to the light one could, with a magnifying glass, see the insect moving and eating his way inside the leaf; but no hole could be seen where it had entered. The centre of the spot seemed darker, showing where it must have commenced operations. It apparently does not stay long in the leaf, for very few of the spots are more than half an inch in diameter. Some are in the middle of the leaf and some at the side; after the worm has left, the skin at the dark part breaks off on the slightest touch.

I next noticed that it was worst on the finest coffee trees, and it was more or less on all, even on the very young coffee plants. The part on which our mutual friend pointed out the "leaf disease" to me is the finest on the estate, at the highest part of our land and on trees thirty years old which have never given less than 10 cwts an acre since I knew them. The soil is deep *terra rossa*, and the trees at the time were hanging down with the weight of green coffee berries, thus completely covering the ground; manure has never been applied to this part. It is really a difficult matter to say if it was the effect of the ravages of the insect or the extra stress thrown on the trees in the ripening of such a large crop that made some of the trees look yellowish. I am inclined to think the latter, for now that the crop is off, the trees are again fresh and green, although the worm is still there and the wood forming for a splendid blossom which we will have in August or September in full blow. In the trees that have the most of these spots I do not see that the vital energy is in the least impaired. On the contrary, I have come to the conclusion that if I had my choice I would rather have the fine coffee with the worm than have the quality of coffee trees that it does not seem to attack and be without. The facts arrived at are these:—

- 1.—It is an insect apparently deposited by some fly or moth.
- 2.—That it does not confine itself to coffee, but is found thick on a great many other trees, particularly in dense underwood.
- 3.—That it is worst on the finest coffee grown on a fat soil where the trees entirely cover the ground.

4.—That it will be quite as difficult to eradicate it from Brazil, as it will to exterminate the land leech in Ceylon; the dense forest or chena and moist soil seem to foster the evil in both countries.

Since I first noticed the insect I have met several people of experience, and find the discovery is not new, but was known here, I may say, since coffee began to be cultivated. It was from a very intelligent traveller, a fazendeiro from the province of Rio de Janeiro, and who has grown coffee all his life, and his father before him, and who came with a letter of introduction from a friend to see the working of our "free-labour" establishment, that I learnt that in the years 1858, 1859, and 1860, the insect was very bad in the province of Rio de Janeiro, but not so bad in other provinces. He knew it since the time he can remember anything, and that might be forty years at least. He says the reasons of its being worse in the years above alluded to was owing to the extra rainfall, and it increases or diminishes as the season is a wet or a dry one. He does not believe it will ever leave Brazil, but he is not afraid of it damaging the coffee enterprise to any appreciable extent. From the clipping enclosed, you will see the above three years do not show well.

The planters in Rio who dread it believe in wide planting as a remedy, thus corroborating what I had previously noticed, that it is worst in the finest coffee which covers the ground thoroughly. This gentleman tells me that many are planting at 20 palmos distance (14½ feet). I myself had adopted 18 palmos here (13 feet), the usual distance being 16 palmos, but my reason for so doing was to give more light to the trees.

What I wrote you about Christmas, 1874, was written in good faith. I could get no information about „leaf disease,” and only the other day, when talking to one of whom I had asked over and over again about „leaf-disease,” and telling him of the fix I had got into with your readers, he coolly said, “Oh, it is the small worm you mean; that is not a leaf disease.” He used the word *bichinho* for worm; the word *bicho* is equivalent to your native word *pûchchi*.

In looking over your valuable Directories, for I look upon them in my small library as coming next in importance to Robbie Burns, I came, at page 397 of the one for 1873, on a paragraph referring to what I believe to be the same thing we are discussing. A Brazilian coffee merchant from Rio who called the other day tells me that Mr. Pickman Mann's paper was translated into Portuguese; he is to try to procure a copy for me, and if he

does I shall give you translations of the principal and most interesting parts of it.

I could send you specimens of the leaves with the insect in them, but after the hint given in the same paragraph I am afraid.

I do hope that my friend "G. A. C." with whom I spent so many happy days and jolly evenings (even supposing there were a few mosquitoes under the "broad canopy") will not be offended at what I have written. It will, from what I have written above, appear that we were both a little mistaken. I hope it will be believed that I did not make a rash assertion, although I must say that what I wrote about leaf disease in Brazil did appear too sweeping. I am anxious to clear myself in the matter, and to show to your readers, that we have not the leaf fungus, as it is described in your Directories and in the reports of Mr. Thwaites, of the Peradeniya Gardens.

Our railway will be opened in ten days more; cuttings and embankments were all ready a year ago. But you know our company believe only in Brazilian engineering, and there was some hitch about the bridging of a river; hence the delay.

Yours very truly,

A. SCOTT BLACKLAW.

(*Jornal do Commercio* of 6th July, 1876.)

"Calculating by the daily entries, the crop of 1875-1876 is 2,700,000. In our *Annual Retrospect* we said, on data furnished to us by trustworthy persons, that of the enormous crop of 1874-1875, about 1,000,000 sacks were remaining in the interior.

"If then we deduct this quantity from the total arrivals, the crop will be 1,700,000; counting however the small balance in the interior, the crops may be said to reach 2,000,000 sacks. which we beforehand estimated.

"The movement of coffee the market for the last six months presents the following results:—

Stock on 1st January. 1876....	255,000	sacks.
Arrivals up to 30th June ...	1,003,790	„

	1,258,790	„
Sold... ..	1,222,790	„

Remaining in stock 30th June. .	36,000	sacks."
---------------------------------	--------	---------

The above refers to Rio de Janeiro alone; each sack has 60 kilos. The crop, according to the above, is about 2,362,000 cwts, or about 7,000,000 cwts below the average of the last ten years.

I have not seen the estimate of the crop we are now picking, but it will not be a large one. The stocks are low in Santos as well, so there is every likelihood that prices will keep up for the next nine months at least.

A. S. B.

Since writing the above, I notice that the Rio crop [1876-77] is estimated in the *Anglo-Brazilian Times* at 3,500,000 sacks of 60 kilos. From all I have heard from various people who have been in the districts that supply Rio with shipments this is too high, and I think 3,000,000 or say 3,540,000 cwts near the mark.—The notice of the death of the editor of the above-mentioned paper was a mistake. William Scully was alive and well last week.

The sack of 60 kilos used in the coffee calculations contains 132½ lb. avoirdupois, not 120 lb. as I have seen stated in error.—A. S. B.

(From the *New Year's Supplement to the Ceylon Observer*, Decr. 30, 1876.)

Fazenda Angelica, Prov. São Paulo,
15th October, 1876.

DEAR MR. EDITOR,—In my last letter to you, written in July last, I promised to try to get you returns of the shipments of coffee from Santos, so as to get to an approximation of the quantity of coffee grown (more or less) in this Province for the past few years.

I now send you translation of a table which I have received from my Santos correspondent. I mentioned to you before the difficulty in getting reliable statistics in Brazil indeed it is quite an impossibility to get information from any two sources to agree. I was so disappointed by the table received from Santos that I tried what I could to get other information, and I found a table given in a series of articles by an anonymous writer in the *Jornal do Commercio*, and this I have got copied, and now enclose also. The difference between the two is very great. The only way I can suppose the two to agree is that the table furnished by my agents includes only coffee sent out of the Empire and on which duty would be chargeable, while that sent to Rio de Janeiro and other ports in the Empire would not be included (this table smelled of the custom house and had a lot of mistakes in the addition)—while the other was showing the quantity grown in the Province. The writer of these articles on political economy, after “cracking up” the Province of São Paulo as being in the vanguard of all industrial movements, gives the table to show how the production of coffee and cotton has increased during the ten years for which

he had statistics. :—He says “In 1861 São Paulo did not export a single arroba of cotton; in 1867-68 the exportation reached the maximum of 611,971 arrobas. In the same year it made the maximum of 10,000 arrobas of tobacco. We exported 2,837,511 arrobas of coffee, 100,000 arrobas more than in 1861-62, when there was not a single arroba of cotton exported. A deficit took place, notably in sugar, and this fact goes to prove one of the arguments I have taken up in the writing of these articles, viz:—*The possibility as well as advantage of agriculture conforming itself to the demands of the markets of the world, and industrial progress always preferring the culture of products most lucrative.*” The part in italics (the writer’s own) is so difficult to translate, that I will give it in the original. “*A possibilidade e a vantagem d’ acompanhar a agricultura o movimento e as necessidades do mercado universal, os progressos da industria e de preferis sempre a cultura dos genros mais lucrativos.*”

I have read most of his articles and found him pretty sound in the teaching, and his statistics given not only on coffee but on many other things have not been disputed. He wrote not only on São Paulo but on the whole empire, and the figures he gave seem to be reliable. So on the whole we may take his table as being the correct one for São Paulo, while the difference between the two tables would represent the quantity of São Paulo coffee sold in Rio de Janeiro. A great deal of the São Paulo coffee is sold in Rio, having been sold or advanced on previously. The steamers and coasting vessels convey the most of it, while to the north of the Province some goes by land. What is mentioned as having been sent by coasters would include Buenos Ayres, Monte Video, and other ports in South America. Supposing this view to be correct this does not take anything from the value of the Santos table in helping us to arrive at the quantity of coffee exported from the Empire of Brazil, for, if you add the quantities mentioned in it to those in one of the tables I sent you formerly, showing the coffee exported from Rio, you come pretty near the amount of coffee grown in the three Provinces—Minas Geraes, Rio de Janeiro, and São Paulo, taken all in one—for the last ten years. If, however, I can fall in with any more information on the subject, I will send it to you.

SANITARY MEASURES.—In one of your papers lately received, I notice you mention the *Eucalyptus globulus* as a valuable tree to be planted in Ceylon. It occurred to me that I had a newspaper clipping on the subject of sanitary measures. A lady friend of yours

has looked it up and will have a translation of the part referring to this valuable tree, ready to enclose in this.

There is a great demand at present for these trees here, and they are very difficult to get. Our friend G. A. C., who I am glad to see has returned hale and hearty amongst you again, forgot to mention the veneration in which the tree—"Clypto" as they call it—is held in the regions bordering on the *Terra desconhecida*, and, now that I mention it, he will no doubt remember the daring huntsman who bore the same name as the gallant Dictator of Paraguay, and who, afraid of the fever-stricken bed of the muggy river, carried a bouquet of the leaves under his clothing.

The trees are of very rapid growth. Lieut. Col. Francisco Corra, a fellow sportsman in the same region referred to, showed one in his garden about 10 feet high and only six months planted (he got it as a plant). There was one planted in the municipal square at Rio Claro a year ago, and it is already 12 feet in height. I saw one at the house of a friend in the same town: it was only three years planted, was 20 to 25 feet in height, and three feet from the ground was about six inches in diameter. The tree seems to grow in all situations, is quite regardless of soil or climate; this one was planted in a dry hot compound behind my friend's house. This gentleman also informed me that since he got the tree there had been no mosquitoes about his house, and the shade it affords does not attract flies as other trees do.

What an admirable tree for planting in front of coolies' lines? The tendency of the roots to dry up the ground would do no harm in such situations, and on the coffee estates bordering the Suduganga, as well as in Dumbara near the river Mahaweli, by having a few trees planted in low situations the life of many a poor cooly could be saved. The lake region between Dambulla and Batticaloa could be again turned into flourishing rice-fields, and the large sums of money spent in the low-country by ancient kings and modern governors yet prove to be "re-productive expenditure." But why do I dilate on such a subject, when you have so many Australian veterans amongst you who can tell you all about the blue gum-tree, about the nice timber which it yields independent of its miasma-killing qualities? Amongst those who can give you all the information necessary about it, I may mention J. W. J.W. of Matale, whose description of it many years ago I cannot forget.

LEAF INSECT.—My friend from Rio de Janeiro had not as yet sent me the pamphlet by Mr. Pickmann

Mann on the leaf insect. I will send him a reminder. We have little to complain of as regards its ravages at present. It does not go away from the coffee, and is as busy in the forest as ever. I told you before that it does not like bad coffee, and also that I would rather have it with the coffee it seems to have an affection for, than be without it and have the average or inferior coffee. I do not recollect if I mentioned to you before, that on the forest trees which are indicators of good coffee soil this insect seems to take a particular hold, and notably the three trees that are in the mouths of all Brazilian coffee planters—the Padalia, the Jangado bravo and the Figueira verde, all unknown to me while in Ceylon. These trees are only to be found on rich fatty soil, and this confirms what I have already noticed that on the thick bushy coffee in small hollows and by the sides of ravines the insect seems to be thickest. I do not believe this country can ever get rid of it. It has always been in existence, if one can believe the old planters here. I am told it has always been worse in the Province of Rio de Janeiro, and that, in years denominated “wet years,” crops are said to have been smaller owing to it. But every coffee planter knows that such years are always years of small crops even without a leaf insect or leaf disease.

It is true, as our observing friend noticed, that it is to be found also on youngest plants. I have found this only on good soil however: indeed very little coffee in Rio de Janeiro or S. Paulo is planted on any other.

It is very likely however, that you have heard all about this *Cemistoma coffellum* from the Foreign Office. I have no doubt Her Majesty's representatives have displayed their usual energy and got quite as correct information as most of the consuls' reports show they are in the habit of acquiring with regard to things occurring in the interior of this country.

RAILWAY GUARANTEE.—Railway news—why this is quite stale. We have had the railway for two months now, so are satisfied. I am not so, however, with the prospect of yours to Haputale. I am sorry to see that there are a few unwilling to go in for the guarantee. There seems no doubt that with the guarantee the railway will be got. I am glad to see there is so little bantering over the engineer's estimates. You may depend on it contractors will take their own ideas of the value of the work to be done as their guide, rather than the estimates of the engineers. There are railway contractors scattered all over the world now in numbers enough to offer a fair competition for the making of the lines at a

fair cost. There is no doubt railways will pay to Uva, Matale, and other places. Fourpence a ton per mile!! Brazilian coffee has to pay ninepence!! Brazilian coffee has to pay export duty of 13 %, and some of you object to pay 1 %. Ceylon coffee is now amongst the three figures, while some of us remember that the one shilling tax was proposed by planters themselves while coffee was amongst the sixties.

Uva ungrudgingly paid her shilling a cwt. for the many years that tax was imposed without prospect of deriving any benefit. It certainly would not be fair, if such a tax were required again in order to give her a railway, that the Kandyan districts should be backward in helping her.

I have a lively recollection some years ago of a particular road being proposed to be brought into the centre of a then very important producing district; on condition the road was to end at a certain point named, all paid up their quota as the work progressed. But, shall I say it? No sooner was it finished up to a point which suited the first group of estates on the line of road, than the proprietors of these latter all withdrew. The whole thing was broken up, leaving three miles of the most difficult portion of the road to be made. The terminus is, I believe, still where it was then left. The case of Uva differs a little from that, as some of the disappointed ones are benefited a little in having a road nearer than they had before. Uva was in no way benefited by paying the shilling a cwt. tax during the agitation preparatory to the making and continuing of the Kandyan lines.

The shilling tax should not have been taken off until all railway requirements were satisfied, even for those of the Liberian coffee plantations to be in the low-country.

If it be true that the *Eucalyptus globulus* has the antimiasmatic effects ascribed to it it is no idle dream to look forward to the veteran planter and sportsman, having got tired of English society, returning to his old hunting-ground in the "Park" to spend the last years of his life, the groves of *blue gums* scattered over the estate keeping himself and coolies in perfect health.

GRASS SEED.—I have not forgotten the seeds I promised to send to G. A. C. I may at the same time mention that some may prove rather annoying weeds if let into coffee fields.

COFFEE CROPS.—No fazendeiro of my acquaintance has got nearly what he expected of crop for this year, and is also disappointed in the "measure" of cherry which turns out badly to the "weight" after being peeled. Sample is good, bean small.

RAINFALL IN THE FIJI ISLANDS.—As the Fiji islands will also soon be a coffee-producing country, anything relating to its climate is worth noticing. A gentleman who was there for three years before the British Government occupation, is now resident in the Province, and from his notes I copied the enclosed table of rainfall, &c. You will notice that there is little difference, between the rainfall there and that given in your Directory for Lindula and other coffee districts, both as regards quantity and number of days. But you will notice that it resembles the province of São Paulo in having little rain during the months of June-July, and August-September. My friend left a piece of coffee growing but not in bearing, but he believed the picking season and the wet season would be the same too. We all know that, were it not for the picking season and the wet season coming together in Ceylon, but half the number of coolies would be required to work the estates.

SPECIMEN OF LEAVES.—My wife was determined to send you a "bouquet" of leaves showing effects of leaf insect, so she has at the last moment brought some from the garden. The coffee leaves are from some stumps I had put in a trench last planting season but they were under the orange trees. The jungle leaves are from a creeper, others are orange, citrons, limes and quince. I am only afraid that they will all be to pieces before they reach you. We have been careful not to enclose any that had the insect on them then.

The promised paper on coffee I really do not know when I shall have time to write.

Best wishes to all old friends.

Yours very truly,

A. SCOTT BLACKLAW.

(Extract, translated from the *Diario de Santos* of 20th December 1873.)

"The Academy of Science at Paris has received a very important communication from M. Gambert, who has for a long time devoted himself to the collecting of correct information about the *Eucalyptus globulus* of Australia, the growth of which is remarkable for its rapidity and the size it attains.

"It seems that the tree possesses the extraordinary property of destroying the miasmatic influence of lands subject to fevers. It has the singular property of absorbing from the soil ten times its weight of water and of emitting antiseptic vapour. When planted in marshy places it dries the ground in a very short time.

"The English were the first to make the experiment at the Cape of Good Hope, and in two or three years after planting trees of the *Eucalyptus globulus*

the condition of unhealthy lands became quite changed. Some years afterwards the planting of it on a large scale was effected in different parts of Algeria.

"In Pandouk about 30 kilometres from the city of Argel there was a fazenda situated on the margin of the river Hamgre, and noted for its pestilence. In the spring of 1867 nearly 3000 Eucalyptus trees were planted on it, and in July of the same year, the time when fever used to appear, not a single case of this disease occurred even though the trees were not three inches in height, and since that time there has not been a single case of fever.

"In the neighbourhood of Constantina a fazenda called Ben Macyair was of equally bad reputation, having on it a great deal of marshy ground, which continued unhealthy both in summer and winter. In the course of five years the whole of this estate was dried by planting 14,000 Eucalyptus trees—and now, the inhabitants both old and young enjoy excellent health.

Fever has entirely disappeared from the district of Gue Constantina, and three or four hectares [from 8 to 10 acres] of marshy ground transformed into a magnificent park, by planting these trees on it.

"In the Island of Cuba fever and all malarial diseases are rapidly disappearing from all neighbourhood of these trees.

"In France, in the Department of the Van, the atmosphere at the railway station placed at one of the extreme ends of a viaduct was so pestiferous that the employés could never live there longer than a year. Forty Eucalyptus trees were planted near the station, and now it is as healthy as any other on the same line."

COFFEE LEAF DISEASE IN BRAZIL.

(*Ceylon Observer*, Oct. 24, 1876.)

It seems we did injustice to Mr. Crüwell in concluding that he had pronounced the leaf disease prevalent in the Brazil coffee districts to be indetical with *Hemileia vastatrix*. Here is his account of a pest which he still considers quite as great an evil as that which troubles us in Ceylon. Mr. Crüwell writes :—

"You were rather austere to me when embracing Mr. Blacklaw's creed about leaf disease. In the first place, I never said that the leaf disease of Brazil or South America was the *Hemileia vastatrix*. On the contrary, I called the attention of your readers to another disease which is so well-known to exist in those hemispheres that Dr. Hooker has put the leaves of the coffee tree from Ceylon suffering from

Hemileia vastatrix side by side with those from Brazil or South Central America suffering from *Cemiosoma* in the Museum at Kew. That this latter disease has been terrible in Brazil, you will see when you get the Report of the British Consul, accompanied, as it will be, by descriptions of the disease, its nature, its havoc, from the pen of two of the most influential and quite independent fazendeiros in Brazil. Further, Why is it that the estate does not give one-half of what it gave formerly in crops, in spite of new clearings? Why are estates for sale? Because they are in the greatest state of neglect coffee properties can well be in from want of labour! I said that I should not wonder if the *Hemileia vastatrix* were to be met with in Brazil also, and I think it is there—but to enlighten me on the *Cemiosoma*, after hearing Dr. Hooker describe it to me and explain and shew it to me, is rather rich."

COFFEE CULTIVATION IN BRAZIL, &c.
(*Ceylon Observer*, Decr. 22, 1876.)

We shall publish in a day or two an interesting letter from Mr. Blacklaw, reserving the tables of figures until we can use them in comparison with others which ought to be reliable, as they were prepared with reference to the appearance of Brazil at the great Philadelphia exhibition. Some leaves of coffee and other plants sent by Mr. Blacklaw were all pierced by insects, and only one small coffee leaf shewed anything like the fructification of our dread pest *Hemileia vastatrix*. This fungus is confined to the coffee tree, while the leaf insect of Brazil is found on jungle trees its existence indicating the best lands for coffee cultivation. The insect evidently does not do a tithe of the damage resulting from our fungus, which really seems to be unknown in Brazil. We submitted the leaves to the Director of the Peradeniya Botanical Gardens who, reports as follows on them:—

"I have examined Mr. Blacklaw's specimens of coffee and other leaves, but can detect nothing of any interest about them. I notice fungus filaments and spores, but they are nothing like those of our *Hemileia* nor do they belong to any fungus likely to do mischief to living tissue, but only to draw their nourishment from what is dead.

"The only way to send useful specimens of infected leaves is to select the leaves on which there is an active growth of the fungus taken place, gather these leaves, and let them lie on the table quite loose until they are nearly dry—not pressing them at all—and then pack them quite loosely in a common match-box or any light box and send by sample post.

"In this way I have sent coffee leaves with the *Hemileia* upon them to my friend Mr. Abbay in England, and he has succeeded in getting the spores to germinate after they have reached him in this way. It is of no use sending leaves having merely discolored spots upon them."

Our readers will do well to note the information given regarding the transmission of specimens. But, although Mr. Blacklaw does not report leaf disease in Brazil, he confirms previous accounts of short crops and small beans. Hence, no doubt, the continued advance in the value of coffee, which seems likely to go much higher if the arrogance of the Russians and the obstinacy of the Turks do not precipitate war—a war which however localized, cannot but affect Britain and her commerce. Let our planting readers who are inclined to kick against the idea of the reimposition of even part of the shilling export duty on coffee (which we agree with Mr. Blacklaw ought to have been retained and Railway Extension continued), an impost the very object of which is to secure transport cheaper than carts can give, be thankful that they are not called on to pay even one-half the cost of carriages by railway in Brazil which is 9d. per ton per mile, the coffee when it reaches the shipping port being liable to a duty of 13 per cent on value. What the tax is per cwt. at present high values, our readers can calculate for themselves; certainly not less than ten times what has ever been exacted or likely to be exacted in Ceylon. We may not have the rich soil of the South American Empire, but we have compensating advantages, especially in regard to labour. The puzzle is that, with a tax levied on all coffee exported, there should be any difficulty in obtaining reliable statistics. Mr. Blacklaw does not notice what is, however, the fact, that in Brazil there are "Provincial" as well as Imperial taxes, and, if we are not greatly mistaken, coffee pay 2 per cent provincial tax in addition to the imperial tax of 13 per cent.

We need scarcely remind our readers that the sanitary virtues blue gum, though great, as are, in varying degrees, those of other well-cultivated trees, have been rather exaggerated, and that the *Eucalypti* do not succeed on dry hot low hill ranges, or on plains in the tropics.

BRAZIL COFFEE GROWING.

The following table was included in Mr. A. Scott Blacklaw's letter to the *Observer* which we published some time ago: it is of interest as shewing the distribution of coffee growing among the various provinces of Brazil:—

Table comparing the Exportations of Coffee from the different Provinces of the Empire. Taken from the statement of the *Ministerio da Fazenda* (Prime Minister) for the year 1874.

PROVINCES.	FINANCIAL YEAR 1870-1.		FINANCIAL YEAR 1871-2.		FINANCIAL YEAR 1872-3.	
	Weight in Kilos.	Official Value.	Weight in Kilos.	Official Value.	Weight in Kilos.	Official Value.
1 Rio de Janeiro	192,949,565	71,385,685\$000	108,448,403	57,265,435\$000	172,449,797	96,097,494\$000
2 São Paulo	29,134,225	10,082,947\$000	23,105,083	10,741,649\$000	31,761,593	16,692,693\$000
3 Bahia	3,178,018	1,014,192\$000	5,108,270	2,081,930\$000	3,990,448	1,772,820\$000
4 Ceará	560,289	226,761\$000	311,888	132,206\$000	1,562,627	718,244\$000
5 Pernambuco	3,694	1,519\$000	1,726	817\$000	3,131	1,597\$000
6 Santa Catharina	—	—	—	—	2,497	1,276\$000
7 Maranhão	4,819	1,909\$000	460	320\$000	1,826	1,239\$000
8 Rio Grande do Sul	2,490	1,488\$0 0	441	2\$000	734	103\$000
9 Alagoas	1,388	47\$000	—	—	—	—
Total.....	225,834,488	82,715,048\$000	136,976,271	702,224,119\$000	209,772,653	115,285,466\$000

In looking over coffee returns, one finds great difficulty in reconciling accounts received from different quarters. I send you three accounts of the quantity of coffee from Rio de Janeiro. These are all taken from the *Jornal do Commercio* (a newspaper which stands in the same relation to Brazil as the *Times* does to England). One account gives you the coffee calculated to the end of June in each year; the other calculated to the end of December, and on this sheet is the account at the end of the *Government Financial Year*. I am sorry to say these are the only returns I can give you of the other ports. I had a paper showing the quantity shipped in Santos for a number of years, but it has been mislaid or lost. I shall however see if my agents in Santos can supply them. The quantity can be pretty nearly arrived at by calculating Santos $\frac{1}{4}$ that of Rio de Janeiro, and the other $\frac{1}{4}$ that of Santos. The quantity of coffee consumed in Brazil itself is very large, but for it there are no figures.

Total no

Years.....
Total Sacks

Years.....
Total Sacks

Years.....
Total Sacks

Number

Years.....
Europe
Utd. States.

Total

Years.....
Europe
Utd. States.

Total

Years.....
Europe
Utd. States.

Total

BAHIA.

From Report of Consul Morgan on the Trade and Commerce of Bahia for the Year 1876.

AGRICULTURE.

The extinction of the slave trade struck the first blow at the abundant and cheap supply of labour, and now the race of African slaves, generally ill fed and clad, is dying out by degrees. To increasing necessities were added yearly deficits, at first carefully concealed; and of late years the low prices obtained for an inferior quality, coupled with the disease in the cane, gave the credit of planters a shock from which they have not been able to recover, and as a natural consequence the great majority are insolvent.

‘In the nine years, 1853-61, there were despatched from this province, with police passes, 12,370 slaves; in the nine following years, 1862-70, 4,121 slaves; in 1872 453 slaves, in 1873 547 slaves, and during the years 1874-75 4,319 slaves. The conclusion to be drawn from this is that a diminution of sugar mills in working goes on progressively.”

The slaves thus purchased in this and other sugar producing provinces of Brazil are for of the coffee planters of Rio de Janeiro, which impoverishes the north, but adds wealth to the south.

Immigration has been a failure, and I do not see a chance of its resumption.

EXPORTS.—Official Values of Products exported to Foreign Countries in 1875-76.

Destinations.	Coffee.
	Reis.
Great Britain	1,391,186S 523
Germany	648,713 445
France	675,985 045
Portugal	683,290 623
Belgium	61,914 856
Spain	—
Argentine Confederation ...	2,608 200
Uruguay	—
United States	54,751 056
Coast of Africa	—

RIO DE JANEIRO.

From Report by Acting Consul Austin on the Trade and Commerce of Rio de Janeiro for the Year 1876.

The commerce of this province has never recovered the crisis of 1864. The shock to credit, which dated from that period, culminated in the disastrous liquidation of all sorts of enterprizes, which were either started without foundation of success, or ruined

through bad faith or inexperience, and in 1875, by the suspension of various banking establishments. On the other hand there has been much apprehension of late regarding the condition of the public exchequer, in consequence of the decline in agriculture in the northern provinces, and the consequent exhaustion of trade there.

In the first six months of the year, owing to the then pending question of re-imposition in the States of the duty on coffee, the exportation of this article was attended with heavy loss, and, though in the latter part of the year there was a favourable reaction, there could not have been in the majority of cases more profit than sufficient to adjust previous losses.

The fact that Brazilian commerce has come to a stand in 1876 is no longer disputed, and the editor of a leading journal here thus refers to it; speaking of trade generally, he says: "We do not pretend that there was a perfect equilibrium established, but there took place a certain kind of compensation, but commerce does not thrive on compensations, but on profits; to halt, on the road to progress, is to fall back. Now, we must acknowledge that in the year 1876 we came to a halt."

In the absence of official data, and on commercial authority, the articles of importation in 1876 amounted to 9,466,034*l.*, against 9,669,577*l.* in the previous twelve months.

The amount of exports was 9,137,743*l.* and 10,433,935*l.* respectively, for the same periods, thus showing a falling off in the total trade in 1876 of 1,560,147*l.* sterling.

The coffee crop for the period 1875-76, besides being of inferior quality, was, as predicted in the last report a small one. about 2,750,000 bags or 165,000,000 kilos. were shipped during the season, against 3,150 000 bags, or 189,000,000 kilos., for the previous corresponding period.

It is generally admitted that of late there has been a tendency towards improvement in the quality of coffee in Brazil, and exhibitors in Philadelphia of the products of Rio, S. Paulo, and other provinces of the empire obtained prizes.

Cotton and sugar are things of the past. Both these articles had ceased to occupy the attention of planters, who abandoned them for more remunerative ones. In the latter, however, owing to the excessive falling off in the beetroot production a reaction has taken place, and sugar-cane has been planted in the northern provinces, but not on a scale large enough

to take full advantage of the improvement in prices in the European markets.

The low prices for sugar previous to this accident occasioned planters to abandon their estates and sell their slaves, so that they were not in a position to return to this branch of industry when the failure in the French production became known.

The cotton produced in this province, and that produced in and sent to this market from S. Paulo has been almost entirely absorbed by the local factories.

In Pernambuco and the more northern provinces, planters have turned their attention to the cultivation of coffee, as more remunerative than either cotton or sugar.

GENERAL REMARKS.

To account for the decrease in importation various reasons are given, with more or less foundation, namely: the fact that this capital is no longer the centre of supply for São Paulo, Campos, Minas Geraes, and other places, which have either established direct intercourse with the foreign markets or have become more limited consumers through reduced circumstances; the gradual withdrawal or exhaustion of foreign capital introduced for the construction of railways and other large undertakings in the empire; the suspension of various banking establishments, already treated of; the development of native industry, manufactures, &c., such as national beer, lard, candles, hats, paper, and other articles, which are produced at lower prices, though of inferior quality perhaps, and thus are able to compete. But the problem is still unsolved why Brazilian commerce retrogrades.

The labour question, the land tenure system, the currency question, the tariffs on exports and imports, the defective custom-house administration, involving delays and vexations, as well as loss to the merchants, and the want of sanitary precautions, which has led to yellow fever and other infectious and contagious diseases, spreading widely and becoming epidemic in the empire, will, it is believed, afford more correct solutions of the reason why the material and commercial prosperity of the country are at last acknowledged to have come to a stand, while the same causes tend of course to temporarily impoverish and, if not remedied, to ultimately annihilate the revenue.

THE PUBLIC DEBT.

The external debt is stated at 19,093,500*l.* sterling. The internal is composed of the following items, viz:—

	Milreis.
A Polices under law, 1827	266,294,700
Loan of 1868	27,057,500
Loan before 1827	338,173
Paper currency	149,400,000
Various deposits	32,733,000
Treasury bills (as estimated)	30,000,000

Total.....505,823,373

At 2s. exchange, 50,582,337*l*.

and amounting together to 69,675,837*l*. sterling. In the external debt, however, the obligations of the State as regards guaranteed railways are not included.

The rate of 2s. per milreis has been adopted for the conversion of currency in this report, because it is considered a fair one in the present circumstances of the country. Were the exchange left to follow the natural course of commercial operations, and not bolstered up by extraneous and improper, because fictitious, influences, it would not rule much, if at all above this figure. It would then follow the natural laws of supply and demand, and not rise when everything co-operates to cause it to fall, or fall when it ought to rise, in consequence, as universally admitted, of illegitimate means used to bring about such an anomaly.

It is stated that the deposits of money, for which there was no employment, were never so large, in the Bank of Brazil, as during the past year; thus even other banks placed money there. The rate of interest 5 per cent. only, throughout this period, is a further evidence not only of the stagnation in trade generally, but at the same time that it was not for want of idle capital.

At the same time the Treasury bills issued by the Government were eagerly taken up.

Rio de Janeiro, January 8, 1877.

SANTOS.

From a Report by Consul Dundas on the Trade and Commerce of the Province of São Paulo for the year 1876.

The years 1874-75 have been on the whole prosperous ones for the province of São Paulo, notwithstanding that the latter was disturbed by a serious financial crisis. Apart from this, however, and from the diminution which has of late taken place in the cultivation of cotton, a very marked and satisfactory progress can be noted. This province is, without doubt, at the present time one that in all respects recommends itself to observers. It has benefited of late years,

perhaps more than any other in the empire, from private enterprise in everything that relates to agricultural and even to manufacturing industry, to immigration and public education. Railways, factories, colonies, associations for the purposes of instruction, in short, all those substantial results the outcome of private initiative offer a vast field for the application of industry and the researches of science. Extending over an area of 10,120 square leagues, with a population of about 900,000 inhabitants, of which 75,000 are slaves, the climate ranges from tropical to temperate, and cannot be considered to be other than healthy, especially up on the highlands and away from the sea coast. The soil is of extraordinary fertility, particularly adapted for the cultivation of coffee, sugar, flax, tobacco, Indian corn, and other cereals; and there are those who maintain its suitability as a wine-producing land, but of this I think reasonable doubts may be entertained, at least in so far as the production of other than coarse and ordinary wines is concerned. Its forests are thick with beautiful timber, suitable for all building purposes. The prosperity it enjoys may chiefly be attributed to the daily increasing facilities afforded to commercial and agricultural undertakings in the construction of railways and other modes of interchange of communication, thus promoting transactions, and, by bringing together peoples, places, and districts, hitherto remote from each other, also tends to the moral and social advancement of the province—an advancement which is demonstrating itself by the establishment of philanthropical associations—night schools open to those who during the day cannot avail themselves of such means of learning—by flourishing colleges founded and maintained under private auspices—and other institutions for purposes of public benefit, all which is really carried out and earnestly supported, promise to place this province in the vanguard of the moral and material progress of the empire of Brazil.

EXPORTS.

The value of the articles exported during 1873 and 1874, taking the official value as the basis of calculation, prove in a convincing and satisfactory manner that this province is fairly entitled to take a foremost place in the producing scale of the provinces of the Brazilian empire. The statistics given below of the official value of the exports from 1871 to 1874 inclusive, show an increase in the space of three years of more than 57 per cent. Now, if it be borne in mind that

there still exist immense tracts of most fertile country with all its resources intact, awaiting only the progress of enterprise and industry, some idea may be formed of how great wealth remains to be extracted from this portion of the empire, and this will also demonstrate better that the above-mentioned increase is due to no fictitious or extraneous causes, but is the result of a natural and steady growth, which should in due time, under favourable auspices, attain proportions of which the present is perhaps only the beginning.

Year.	Official Value.		
	Currency.	Sterling.	
	Reis.	£	s. d.
1871-72	26,197,977 \$260	2,838,114	4 11
1872-73	31,949,106 476	3,461,153	4 0
1873-74	41,300,614 073	4,474,233	3 10

As was to be expected, the export which has most augmented in value and amount has been coffee, as will be seen by reference to the table given below. It must be added that a fourth part nearly of the produce, chiefly from the north of the province, which is of necessity in consequence of its topographical situation, a tributary to the province of Rio de Janeiro, has been disposed of through that channel, leaving the remainder to find its way out from the port of Santos. The exportation of coffee, especially in 1874, was the largest that has hitherto been reached, amounting to 733,745 sacks, to which may be added some 38,000 more exported coastwise, principally to Rio de Janeiro. The harvest of 1874 was abundant, being generally calculated at from 800,000 to 900,000 sacks but that of 1875 was much smaller. It has been calculated from the stock on hand on the 1st July, 1874, viz., 100,000 bags, and estimating the harvest of that year at 900,000 bags, there would, after deducting 60,000 for exportation coastwise, be left an average monthly shipment of 45,000 bags a month from the 1st January, 1875, to September, 1876, which if the foregoing figures be correct, gives a considerable decrease as compared with the monthly shipments of 1874, which averaged 60,000 sacks a month. A sack of coffee weighs 5 arrobas, or about 160 lbs.

Exports of Coffee from Santos for the last Five Crop Years ending 30th June, 1876 (reduced to Tons of 1,015·94 li'cs.).

Destination.	1872.	1872-73.	1873-74.	1874-75.	1875-76.
United States	5,795	4,649	7,045	4,728	7,272
Channel	7,259	9,214	8,797	15,312	12,304
United Kingdom	517	1,609	1,535	2,606	448
Hamburg	4,463	8,797	11,557	11,930	11,833
Havre	1,612	2,769	3,256	5,747	4,857
Antwerp	569	1,332	1,976	2,352	734
Lisbon	2,930	954	2,392	2,976	4,795
Mediterranean	1,461	1,473	22	1,592	42
Elsewhere	...	400	46	654	85
Rio de Janeiro and coast-wise	4,429	848	2,731	964	2,217
Total	29,035	32,045	39,357	48,763	44,587

RAILWAYS.

THE SANTOS AND JUNDIAHY RAILWAY, the undertaking of a British company, and the most important in the empire next to the Dom Pedro line, is already sufficiently known to need many remarks. Running from the port of the province 100 miles into the interior, it must from its position receive for conveyance thither the greater part of the produce of this rich and vigorous province, as well as transport inland the needful surplus of importation destined for the interior. Having under very able management attained to a high state of prosperity it has, I believe, not only been able to dispense with any calls upon the Imperial Government, from which it has a guarantee of 7 per cent., but even

to contribute to the Imperial Treasury after satisfying its own obligations. The following is a table of the goods carried during the last five years:—

Years.	Coffee.	Cotton.	Salt.	Sugar.	General.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1872-73	33,260	9,349	15,930	7,762	27,779	94,080
1873-74	45,483	9,552	13,020	2,830	33,610	104,495
1874-75	48,439	7,291	14,825	5,368	48,274	124,197
1875-76	42,400	2,572	17,721	11,667	43,920	118,620

COMPANHIA PAULISTA.—The Companhia Paulista railway, which takes up the Santos and Jundahy line from its terminus at the latter place, runs up through Campinas, the coffee capital of the province, to Rio Claro, a distance of about 90 miles, traversing the very centre of the rich coffee producing district. It is in a flourishing condition, and has paid a high dividend from the commencement. This line will aid enormously in opening out the interior of the province, and unfolding new fields of wealth and industry, carrying to fertile neighbourhoods the advantages of steam agency. It is needless to give any details of the traffic which all passes through the hands of the San Paulo Railway Company. It has a branch line from Cordoiro to Mogyguassei of some 26 miles, in course of construction, and another of 13 miles under survey.

SÃO PAULO AND RIO DE JANEIRO RAILWAY.—Commencing at one of the São Paulo Railway Company's stations, about $1\frac{1}{2}$ miles outside the city, is destined by joining the Dom Pedro II. railway at Cachoeiro the termini of that line, to unite the provinces of São Paulo and Rio de Janeiro. It has a length of about 142½ miles. The construction of the works has been rapid and the conclusion is not very far distant. Some 108 miles have already been opened for traffic. Great difference of opinion has existed with regard to the future success of this enterprise, and the influence it may have upon the well-established prosperity of the São Paulo railway. It has been argued that it will not pay as the country it traverses will not contribute sufficient to support it, and that it will diminish the dividends of the São Paulo line. It is perfectly possible that these predictions may, in part, and for a time be verified. But in a country like Brazil with its future before it, there should be quite room enough for both without loss to either. With regard to the first argument it is sufficient

say that it runs through very rich districts. That the profits may not at first be very high would not be surprising nor conclusive of what will be. For it must be remembered that it will be necessary in the natural course of events act as its own feeder in bringing traffic, encouraging the advent of population and promoting the spread of all sources of prosperity, in short, acting as a stimulus to the agricultural, industrial, and social elements of the districts it passes through, besides securing a direct and speedy communication by land with the capital of the empire. That the São Paulo dividends may be lessened, which if it does happen does not mean either ruin or even poverty, is possible, but it simply means having the monopoly it has hitherto enjoyed broken in upon by the competition which will necessarily arise. This is, however, mere matter of conjecture.

OTHER RAILWAYS.--In addition to the above-mentioned there is the Sorocaba, starting also from the city of São Paulo, and, penetrating the country at right angles to the São Paulo railway, runs through the town of Sorocaba, containing some 12,000 inhabitants, to Ipanema, some $78\frac{1}{2}$ miles distant, and the seat of the Government ironworks.

The Ituana, starting from Jundiaby (the terminus of the São Paulo railway) and terminating at the town of Itu, a distance of 21 miles. Connected with this are two branches, one of 56 miles, Itacy to Piracicaba, all working, and another of about 27 miles, under survey.

The Mogyana, which also runs into the interior from Campinas, on the other side of the Rio Claro extension, for a distance of 66 miles, is being further extended. So from Santos itself, the entrance to the province, there is one continuous line, penetrating 170 miles into the interior from the sea direct, with numerous offshoots from this main source, all opening up the most productive parts of the province, and holding out the promise of turning to valuable account at some future day the vast tracts of land and the latent resources yet to yield to the power of civilisation. With the exception of the São Paulo railway all those enumerated have been begun within the last five or six years. Some are entirely completed, some only in part, and others within a very short period of the termination of the works. I believe this province can boast having taken the lead and this respect, possessing some 700 or 800 miles of iron road, either working, in construction, under survey, or in contemplation, and consequently has provided itself with greater facilities for developing

itself. They all seem to be prospering, but what their future career will be, or what burdens the provincial or Imperial Government have taken upon their shoulders, depends upon the future prosperity or adversity of the empire.

COMPANHIA FLUVIAL, PAULISTA.

This is a company formed in virtue of the decree of the 24th May, 1874, for establishing steam navigation on the rivers Tiete and Pericicaba. The statutes of the company having received the approval of the Imperial Government, the managing partner started at once for Europe, in order to examine for himself the navigation of some rivers, and to obtain the necessary material. The work of channeling the rivers and removing obstructions has been laborious and expensive. Very great difficulty was encountered in the conveyance of the material, it being found necessary to demolish four waterfalls. The capital of the company is 150 contos, divided into 75 shares of 200 milreis each, and the service is carried on by two small steamers. By means of this line of communication, several flourishing districts are united with each other, and with the town of Constituição far into the interior.

GENERAL REMARKS.

The cotton prospects of the future, notwithstanding the removal of the Imperial duty of 9 per cent. are not promising for this province, because, even with the alleviation of that burden coffee pays so well that cotton has no chance alongside of the former, and no person who can afford to plant coffee will plant cotton. Formerly, during the American war large sums of money were made by cotton, and there was an enormous and rapid increase in the production and shipment of that article. But since the States have again occupied the market, the cultivation of cotton in the province of São Paulo has retrograded. A poor man with a large family might cultivate it, as he could raise all the food for the support of his family whilst the cotton was growing, and along with it, but he would only make a living and no more out of it. The future of cotton depends more upon the development of native industry and the establishment of cotton factories and their working. With regard to coffee, one may say that at present few really, if any, of the agriculturists of the province are ignorant of the beneficial results to be obtained by the application of modern machinery in preparing this produce for the foreign markets. The prospects for the year 1876-77 are good, and the crop is reported to be up to

up to the average, but it cannot be expected to equal that of 1874-75. Many of the leading planters have imported on to their estates immigrants, chiefly German, with a view, I imagine, of providing against the perplexing question of the future—labour. The arrangement generally is that so many plants are allotted for cultivation to each family, they receiving so much in return. The German is far better suited for this, and succeeds where the Britisher would fail, for the reason that the former is more thrifty, steadier, and more plodding, and content with food that the other would turn up his nose at. A want which has long been felt, and had become a necessity in Santos—an exchange—has been supplied by the co-operation of the native and foreign merchants. The committee is composed chiefly of natives, a number of foreign merchants being elected to represent foreign interests. The channel of the river, which more properly speaking is an arm of the sea, the navigation of which was bazardous from the existence of a sunken rock, has now been cleared from that obstruction, the Imperial Government having during the past year caused it to be removed. Since 1873 the port has enjoyed the advantages of both a gas and water supply, and drainage, but the advantages of this latter so-called improvement are somewhat doubtful under the present incomplete system.

In the province of São Paulo exist large iron works at Ipanema, formerly mentioned belonging to the Government. The place is said to be immensely rich in mineral wealth, the iron ore being of every high quality, yielding 50 to 90 per cent. of oxide, and producing a most valuable iron. There is water-power to any extent needed for machinery. The Government does not, however, benefit much by these works, which so far have been a loss.

BRAZILIAN RAILROADS.

(From the Ceylon Observer, 28th March 1878.)

Government continue to promote by every means the construction of railways. With this object a body of Brazilian and foreign engineers has been commissioned by Government, and has commenced, in the province of S. Pedro do Rio Grande do Sul, to study the general system of roads of the Empire; an authorization having been given to Government by the Legislative body to grant, during 30 years, a guarantee of 7 per cent. a year, or to warrant the provincial guarantee, on the capital employed in those provincial railroads which, by their plans and statistics, show a probability of a net annual

revenue of 4 per cent.; the capital to be guaranteed is limited to 100,000,000,000 reis. In lieu of a guarantee, Government may grant a kilometric subvention.

These engineers are to construct the itinerary map of Brazil, indicating the existing roads, and those which ought to be constructed, in accordance with the general system, which must be referred to geodetical triangles of the 1st and 2nd order, so that the position of the projected roads may be indicated with exactitude.

For the more rapid execution of this interesting work, the territory of Brazil was divided into 24 districts, discriminating between the inhabited portion, in which it is only necessary to improve the roads, and that which requires more accurate study. Government have already availed themselves largely of this authorization, having given the guarantee of 7 per cent. or warranted the provincial guarantees on the sum of 80,750,000,000 reis. destined for those railroads, in construction or only projected, which can more easily fulfil the conditions of the law. Of all the means of conveyance, the railroad is that which, of late years, has received the greatest impulse in Brazil. In 1867 there were only six railroads in the Empire, of the aggregate length of 683 kilometres 200 metres; in 1872 there were 15, with 1,026 kilometres 596 metres; and now there are 22 lines with 1,660 kilometres 110 metres under traffic; 16 with an extent of 1,362 kilometres in construction; and 28 with an extent of 6,531 kilometres under survey: these numbers represent a mean of 138 kilometres of railroads constructed every year since that date.

The assistance given to these railroads in the provinces, has in no way been detrimental to the extension of the great trunk lines.

The works of the D. Pedro II. line continue with all convenient expedition; and the surveys for the extensions of the Bahia and Recife lines, the former 556 kilometres 232 metres and the latter 618 kilometres 600 metres in length, having been finished, Government called for tenders for the construction of these roads, and 324 kilometres of the former were given out at the rate of 26,000,000 reis per kilometre for the construction of the bed of the road.

The surveys, made for Government account, of the strategic and commercial railway, authorized by the Legislative power, between the cities of Porto Alegre, the capital of the province of S. Pedro do Rio Grande do Sul, and Uruguavana, on the frontier of the Argentine Republic, 772 kilometres in length; and those of the also strategic and commercial line, between the city of Curitiba, the capital of the province of Parana, and Miranda, in that of Mato Grosso, 852 kilometres 229 metres in length, are also concluded. This is one of the most complete works of the kind. Among other interesting subjects, the immense unexplored riches which Brazil possesses in that vast expanse are discovered at first sight.

After the construction of this road the journey from the city of Rio de Janeiro to Cuyaba capital of the province of Mato Grosso, may be made in from 7 to 10 days, whilst at present, by way of Buenos Ayres, it cannot be made in less than 30 or 40 days. The journey from Rio de Janeiro to the northern frontier of Paraguay will also be reduced to five days, and to Chuquizaca, in Bolivia, to 12 days.

The definite studies for the extension of the Santos and Jundiaby line are nearly finished; this line is open nearly as far as Limeira, and will shortly reach Rio Claro. The studies extend over 660 kilometres, from that city to Santa Anna do Paranahyba, on the banks of the river Parana, which separates the province of Minas Geraes from Goyaz. The surveys and studies of the first portion of the railroad from the south to the north of the Empire are also finished; this line connected with the Dom Pedro II. railway by the navigation of the S. Francisco, and with the city of Bethlem, in Para, by the fluvial line of the Tocantins, will place the capital of the Empire in rapid communication with many of the provinces of the extreme north. The surveys for the railway between the cities of Rio Grande and Alegrete, in the province S. Pedro Rio Grande do Sul, are being made.

The number of kilometres surveyed for railways since 1867, amounts to nearly 5,796, and the sums paid by Government for this service amount to 2,130,226,321 dols. Besides this, the sum of 1,650,000,000 dols. was voted in the last budget, for the studies of the railroad from Curitiba to Miranda, already finished, and for those of the

railway from the south to the north of the Empire

[We quote this article from the *Brazil and River Plate Mail* to shew that whatever we in Ceylon may do or be permitted to do, our imperial rival is determined to "go-ah a l."—F. B. C. O.]

COMMERCE OF BRAZIL FOR 1877.

(From Kern, Hayn & Co's Circular.)

Immigration has somewhat increased during last year, but has, in spite of the large amounts spent by the government to further the same, far from reached the point it ought to attain, and, unless prudent steps are taken to populate the country more freely by immigration, the want of labourers will ere long be strongly felt, because the emancipation is in favorable progress, exceeding by far the extent fixed by law, as the freeing of slaves by private people is becoming more and more frequent, it being quite common now that any festivity in a Brazilian family, so as a birthday or wedding-day, is marked by the freedom of one or more slaves.

Our principal export article, Coffee, suffered here during 1877 almost as heavy fluctuations as during the year 1876, whereas in the consuming countries fluctuations were smaller. On the whole, business in coffee during the last twelve months was not lucrative, the planters, as mentioned above, being the only party who made money, whereas for the dealers and exporters the year 1877 has been but a very poor one, as shipments, with exception of those made between end of March and beginning of May, have on the whole left a loss or in the most favorable instances only reached cost-price.

On the average the currency prices here were during 1877 about 15 per cent higher than in 1876, whereby the planters of course profited, and they attained this favorable result principally through their clever management, say by making their remittances of produce to this market in such a way as to prevent any accumulation of stock. From the beginning of January to the end of August, say during eight months, the stock only once and but for a short period (end of March beginning of April) surpassed 100,000 bags and on the regular mail days of 8th and 23rd of each month the stock only four times during the entire year surpassed the cypher of 100,000 bags.

In consequence of the proportionately high prices which have ruled for coffee during the last years, most of the planters have become independent, and are not, as formerly, obliged for want of money to sell their produce *à tout prix* and are consequently now better than before in a position to influence prices of the Rio

market. This influence is of course more apparent when the crop is small, because with a large yield the planters are often obliged to send down their produce as soon as the weather permits them to do so, but when the crop is small the planter makes his remittance of produce only when he considers it to be to his advantage, thus often holding his coffee back and speculating on higher prices, and with the gradual extension of railways the remittance of coffee to this market, which in former years from many places required months, is now effected in a few days, whereby the planter is more able to govern the stock here.

These are the principal reasons why it has been possible for the Brazilian planters during the last year to keep prices here above the level of those in consuming markets which state of things is undoubtedly an abnormal one

SHIPMENTS OF COFFEE FROM RIO DE JANEIRO

from 1st January to 31st December.

	1875	1876	1877
	Tons	Tons	Tons
North of Europe...	44,534	48,519	39,706
Mediterranean ...	15,042	23,190	20,474
Europe... ..	59,576	71,709	60,179
United States ...	117,731	82,606	96,100
Cape & Sundries...	5,821	4,728	5,826
Total... ..	183,128	159,043	162,105

SHIPMENTS OF COFFEE FROM SANTOS

from 1st January to 31st December.

	1875	1876	1877
	Tons	Tons	Tons
North of Europe...	38,083	29,622	31,222
Mediterranean ...	4,233	5,895	4,430
Europe... ..	42,316	35,517	35,652
United States ...	7,442	3,412	5,143
Total... ..	49,758	38,929	40,795

Let us see how the aggregates come out :—

1875	{ Rio tons	183,128	{ Total, tons	232,886
	{ Santos „	49,758		
1876	{ Rio tons	159,043	{ Total, tons	197,972
	{ Santos „	38,929		
1877	{ Rio tons	162,105	{ Total, tons	202,900
	{ Santos „	40,795		

Total exports from Brazil in 3 years, tons 633,758
 Average „ 211,253

YEARS.	RIO.	SANTOS.	TOTAL.
1875	183,128	49,758	232,886
1876	159,043	38,929	197,972
1877	162,105	40,795	203,900
Total...	504,276	129,482	632,758
Averages	168,092	43,160	211,253

	RIO.	SANTOS.	TOTAL.
Years.	T'ons.	T'ons.	T'ons.
1873 ...	136,903	34,074	170,977
1874 ...	154,271	43,903	198,174
1875 ...	183,128	49,758	232,886
1876 ...	159,043	38,929	197,972
1877 ...	162,105	40,795	202,900

Totals ...	795,460	207,459	1,002,909
Averages ...	159,090	41,492	200,582

COFFEE.—From departure of the “Elbe” and up to the end of last year business was dull, owing to increased receipts from the interior and unfavourable advices from the consuming markets; sales during that period were limited to about 17,000 bags and prices were nominal, holders asking 6\$450 to 6\$500 for Goodfirst, but at the time exporters refused to submit to these prices.

The advices which came to hand from consuming markets during the first days of this year were by no means brilliant, on the contrary, and it therefore created surprise to see that the first two business days of the year, the 2nd and 3rd, witnessed transactions of more than 51,000 bags on the basis of prices asked by holders, say 6\$5450—6\$500 for Goodfirst. This activity was however a mere passing one: with continued unfavorable advices from Europe as well as the United States and a further increase in the receipts, the market has again relapsed into dulness, closing flat.

The Total SALES since 22nd ultimo are estimated at:—

Channel, England & Elbe..... 5,000 bags.

Baltic, Sweden, Norway }
& Denmark ... } ... — ”

Antwerp, Havre & Bordeaux 8,150 ”

North of Europe..... 13,150 ”

Mediterranean..... 10,600 ”

United States..... 57,000 ”

Cape of Good Hope... 2,000 ”

Sundry ports..... 4,050 ”

86,800 Bags of 60 kilos.

Our brokers quote :—

	s.	d.	—	s.	d.	
WASHED.....	—	—	—	—	—	
PRIME SUPERIOR....	85	8	—	86	9	f.o. b. incl. 5 % Com. Freight 30/ & 5 % p. ton and Ex- change 24d. & \$ 4.90.
SUPERIOR.....	83	6	—	84	7	
PRIME GOOD FIRST }						
GOOD FIRST	80	10	—	81	5	
REGULAR FIRST.....	77	1	—	78	2	
ORDINARY „	72	9	—	74	11	
GOOD SECOND.....	67	5	—	69	7	
ORD. „	59	10	—	63	1	

The STOCK consists to-day of about 117,000 bags ; the RECEIPTS since the 22nd instant having averaged about 7,650 bags per day.

In our report of 1st January, 1877, we stated that the closing quotations of the year 1876 must be considered as nominal, in view of holders asking considerably higher prices, and the opening quotations of 1877 showed in fact an advance of 400 reis per 10 kilos,* being 7\$000—7\$100 for Goodfirst. These extreme prices were, however, but of short duration, owing to an increase in receipts during the period from 8th to 23rd January, of from 4,400 to 8,100 bags per day ; already on the 23rd of January, the quotation for Good first had declined to 6\$900—7\$000 and with an increase in receipts during the succeeding fortnight to a daily average of 9,150 bags dropped to 6\$600—6\$700, which were the quotations on the 8th February, but successively receipts decreased somewhat again, whereby holders were in a position gradually to raise prices again 200 reis per 10 kilos, in which they succeeded so much easier, as a decline in exchange counterbalanced the advance. A further rise of 100 reis at the first part of March, however, caused exporters to withdraw from the market, business not re-opening before prices for Good first declined again to 6\$800—6\$900, and, as towards the end of March, the advices from consuming markets were very unfavourable, declaration of war between Russia and Turkey being imminent, prices suffered a further decline of 250 reis per 10 kilos, so that quotations for Good first up to 25th April ruled 6\$550—6\$650.

The war once a *fait accompli*, together with the then reigning probability of no other power except Russia and Turkey being involved in the same, re-established confidence to some extent and called forward more demand both in Europe and in the United States, which re-acted upon our market, causing a very sharp advance in prices here, say of 350 reis up to end of April, and of further 400 reis per 10 kilos up to 5 of May,

* About 23½ lb?—Ed. C O

quotations for Goodfirst being 7\$300—7\$400, which remained in force up to about end of May, when the favourable result of the Dutch auction caused a further advance of 100 reis, so that the closing quotations for the first semester of 1877 were 7\$400 to 7\$500 for Goodfirst.

During the first days of the 1877/78 campaign a very brisk demand reigned for fine new coffee, almost every exporter being desirous of sending at least some new coffee by the first available opportunity, whereby prices for Goodfirst during the early part of July advanced to 7\$500—7\$750, but scarcely had this first demand been satisfied, before prices again declined to 7\$100 to 7\$200. At these reduced prices a slight demand sprung up again and a small advance of 50—100 reis was even established, but in spite of extraordinary large transactions it was, with the very abundant receipts, impossible for prices to maintain themselves, and up to about the middle of November prices successively declined to 6\$150—6\$250 for Goodfirst, not counting several trifling fluctuations, which at intervals checked the decline, without, however, being able to prevent it.

The prices of 6\$150—6\$250 called forward a very brisk demand at about the middle of November, and, as at the same time advices from the United States brought an advance of about 6 % and receipts from the interior owing to rain decreased substantially, a new advance of about 400 reis per 10 kilos was established up to the middle of December, and at times it was even impossible to buy at the quotations of 6\$600—6\$650 for Goodfirst. These high demands of holders made however buyers reluctant, the more so as with a change in the weather receipts increased again and also reports from all consuming markets turned very flat, especially from the United States, where the large shipments from here had made a bad impression, and gradually business came to a standstill; since 18th ult. transactions were very limited and since 21st ult. prices nominal, but holders decline to part with their stocks below 6\$400—6\$450, at which prices there are however no buyers at present.

The quality of the present crop was at the beginning of the season much more satisfactory, the coffee presented a large bean and more cleanliness, but during the last 4 months the quality has been far from satisfactory, good and fine coffee being extremely scarce, and the reason for this is, in our opinion, to be sought in the circumstance that the planters have been anxious to profit by the high ruling prices; we hope that from about the middle of January the selection will be a better one.

The total export from Rio de Janeiro during the year 1877 amounted, as will be seen from the table below, to 162,105 tons against 159,043 tons in 1876 and 183,128 tons in 1875, thus showing an increase of 3,062 tons compared with 1876 and a decrease of 21,023 tons compared with 1875.

The shipments to the United States during 1877 compared with 1876 show an increase of 13,494 tons, whereas those to Europe show a decrease of 11,530 tons against 1876.

Comparing the exports of the last three years during the second semesters only, it will be seen that from 1st July to 31st December 1877 shipments amounted to 92,008 tons against 89,211 and 95,196 tons respectively in 1876 and 1875, showing consequently an increase during the six months of 2,797 tons against 1876 and a decrease of 3,188 tons against 1875.

Shipments to the United States during the last six months of 1877 show an increase against same period 1876 of 6,044 tons, whereas to Europe they show a decrease of 3251 tons.

In our report of 7th July 1877, we stated that with regard to the extent of the 1877/78 crop, the different estimates varied between 1,800,000 and 2,500,000 bags of 60 kilos, and that in our opinion 2,200,000 bags was the figure, which would most likely prove to be correct; further that with the stock of coffee on the 30th June in Rio de Janeiro and in the interior there would be an available quantity for this crop-season of about 2,700,000 bags; but that in our opinion the quantity which would come for export during the 12 months from 1st July 1877 to 30th June 1878 would likely not reach more than about 2,500,000—2,600,000 bags.

Shipments from 1st July to 31st December 1877 amount to 1,577,233 bags, the stock to-day consists of about 128,000 bags, and the estimates of old coffee still left in the interior vary between 800,000 and 1,200,000 bags. Which of these two figures is the correct one or rather the one nearest the truth is difficult to say, and only the future will show this as it is impossible to obtain any exact or reliable information on this point. We have, however, reason to suppose that the quantity left in the interior of old coffee is rather more than less than one million of bags, because a supplementary blossom during last year increased the crop somewhat beyond first estimates, and the yield of the so-called "café das águas" was also pretty liberal,

In consideration of these different facts it appears likely that shipments during the twelve months from

1st July 1877 to 30th June 1878 will prove somewhat larger than estimated by us under 7th July 1877, but estimates of about three millions of bags as probable shipments during the above-mentioned period appear to us as exaggerated.

With regard to the extent of the 1878/79 crop it is much too early to form an opinion yet, but, according to all reports, prospects are very favorable. Yes, we may even say that Rio, if the prospects are realized, is likely to turn out a larger crop than ever before, and it will principally depend on the weather during the next few months if these brilliant prospects are realized to their full extent or not, so that within some months we may come back upon this point.

We will likewise not omit to mention that during the last years several new coffee plantations have been opened in the provinces of Rio de Janeiro and Minas Geraes, as many sugar planters of the northern provinces of the empire have moved to the provinces Rio de Janeiro and Minas to cultivate coffee, so that after some years we may look for a further increased production of coffee here.

We have from several sides heard the opinion expressed that the arrivals of 1878/79 crop coffee will be much earlier than usual, it being even asserted that we may expect to see new washed coffee in January—February and regular arrivals of “serracima” coffee already at the beginning of May, but to some extent these statements must be considered as exaggerated, and there is scarcely any doubt that the bulk of the 1878/79 crop will come late to the market, as is generally the rule with large crop.

Exchange has during the year 1877 on the whole not ruled so high as during the year 1876, and the fluctuations have also been smaller than in 1876.

The last year opened with rates on London of 24½d. for Bankpaper and 25d. for Tradebills, which rates advanced a little, say ½d., till beginning of February, but then declined, with small fluctuations up to about middle of April, Bankpaper ruling during this period between 24½d. and 24d. and Privatebills between 24½d. and 24¼d.

Afterwards, say on 25th April, when the outbreak of the Russian-Turkish war was known here, a panic came on the market and a sharp and rapid decline of exchange set in, rates being reduced almost at every hour and touching bottom only with 23d for Bankbills and 23¼d. for Privatepapers, which has been the lowest point during the year and lasted up to beginning of May.

During May rates recovered and gradually advanced to 24d. for Bank and 24½d.—24¼d. for Privatepaper ;

during June and up to about middle of July the rising movement was interrupted by some weakness and decline of $\frac{1}{2}$ d. to $\frac{1}{4}$ d., but from then and up to about middle of November the tendency continued on the whole, small fluctuations excepted, to be a rising one and rates advanced during said period to 25 $\frac{1}{2}$ d.—25 $\frac{1}{4}$ d. for Bankpaper and 25 $\frac{3}{4}$ d.—25 $\frac{1}{2}$ d. for Tradebills. Since middle of November rates have again gradually declined, closing flat at the end of the year at respectively 24d. and 24 $\frac{1}{4}$ d.—24 $\frac{3}{4}$ d.

DISCOUNT—Bankrate has during the whole of last year ruled 9 o/o per annum.

FREIGHTS—have during the greater part of the year ruled very low, just as in 1876. The rates, at which the last year opened, were the closing ones of the year 1876, say 42/6d.—47/6d. for Channel and Mediterranean, 27/6d.—32/6d. for the Northern and 30/—35/ for the Southern ports of the United States. About the same rates lasted through January, but during February they advanced 12/6d.—15/, the extremes then being 55/—60/ for Channel and Mediterranean, 40/—45/ for the Northern and 45/—55/ for the Southern ports of the United States, but this relatively high position did not last long; from beginning of March freights began to decline and with exception of a few neutral vessels, chartered in April at very high rates for Europe in consequence of the first alarming impression of the war-news, the tendency on the whole has ever since been a declining one, or, at least, when now and then some firmness prevailed and a small advance could maintain itself for some time the rates never took a range above very low ones. I reached their lowest point, especially for the United States, towards the end of the year, the closing rates being 30/—37/6d. for Channel and Mediterranean, 12/6d.—17/6d. for the Northern and 15/—17/6d. for the Southern ports of the United States.

As a general rule there is not much *floating capital* in the Brazilian provinces, the bulk of it being centred in Rio de Janeiro. On these grounds English capital employed in making their railways is no doubt valuable to them; but if it will not come for such an object, they have shown their ability to raise it on the spot. That the value of produce in this province will be greatly augmented by railway communication there cannot be a shadow of a doubt.

BRAZIL.

(From "*Brazil and the River Plate*," by Wm. Hadfield.)

As I have before remarked in this review of occurrences since 1870, Brazil has suffered comparatively

little during the financial and monetary crisis that has passed over the globe. Her great staple trade of coffee has continued good, and there has been no undue speculation in Rio de Janeiro. The rise that has lately taken place in the value of sugar will greatly relieve the Northern Provinces, and it is to be hoped lead to a revival of trade there. The chief events as regards Brazil have been the passing of a Slavery Emancipation Act in 1871 and a Reform Bill during the last session, under which a new parliament has been elected, supposed to be favourable to the Conservative party, but likely to contain more of the Ultramontane elements.

The financial position of South American countries is now the great question of the day, and as regards Brazil I can give the following very satisfactory summary, lately published. The next budget will be promulgated at the meeting of the Chamber elected under the new Reform Act, and I believe it will be a full and frank one, calculated to confirm the favourable opinion entertained as to the financial position of the Empire]

BRAZILIAN DEBT AND FINANCES.

The Public debt amounts to (June, 1876) a sum of £72,013,434, made up as follows:—

Foreign Debt ...	...	...	£19,815,400.
Home Funded ...	...	...	29,000,000
Floating Debt ...	...	...	23,198,034

£72,013,434

Brazil has seven loans (all at Rothschild's) in London, which amounted in January, 1876, to the following sums:

1852 4½	per cents.	£1,210,000	emitted at	95
1859 5	"	270,000	"	93
1860 4½	"	775,000	"	90
1863 4½	"	2,690,000	"	88
1865 5	"	6,184,200	"	94
1871 5	"	3,385,000	"	89
1875 5	"	5,301,200	"	98

£19,815,400

The original amount of the above seven loans reached £23,222,000, showing that £3,406,600 has been already redeemed.

The Home Debt of Brazil is made up as follows:

Government stocks, four, five, and sixes	£26,000,000
Gold Bonds, 6 per cent. ...	3,000,000
Government notes and Treasury bills ...	20,000,000
Orphan Fund, &c. ...	3,200,000

£52,200,000

The six per cents. are always above par, and these include almost the whole funded debt; five per cents. only amount to £220,000; and four per cents. to £12,000. About 84 per cent. of the Home Debt is held in Rio de Janeiro, 3 per cent. in Bahia, and 12 per cent. in foreign countries:

In Brazil	...	...	£25,200,000
In England	...	...	2,100,000
In other countries	...	...	1,700,000

£29,000,000

The credit of Brazil on the London market ranks almost on a level with France, her 5 per cent. stock being usually near par. The home paper-money debt and Treasury bills do not include 4 millions sterling of bank notes not guaranteed by the State.

The Government paper-money of Brazil was only seven millions sterling before the Paraguayan war, but it rose to twenty-two millions sterling in 1869 and since then has been every year reduced; being now about nineteen millions sterling, including Treasury bills. Besides the Government paper-money three banks have right of emission, viz., Bank of Brazil £3,500,000, including £670,000 at the branches of Pernambuco, Bahia, San Paulo, Minas, Maranhão, Para and Rio Grande do Sul.

The Bank of Bahia emits £160,000, and that of Maranhão £27,000; which, added to the sum for the Bank of Brazil, make up a total of £3,867,000 in bank emission.

The growth of Brazilian revenue in late years is shown by the following figures:

1864	...	...	...	£6,100,000
1868	...	...	...	7,830,000
1873	...	...	...	12,098,000
1874	...	...	...	11,240,000

The Budget for 1876 showed as follows:

RECEIPTS.

Import duties	...	...	...	£6,100,000
Export duties	...	...	...	2,000,000
Pedro II. RR	...	...	...	720,000
Stamps	...	...	...	2,200,000
New Loan Account	...	...	...	2,600,000

£13,620,000

EXPENSES.

Interest London Debt ...	£1,040,000
Ditto Home Debt ...	1,860,000
Railways and Colonies...	3,240,000
Army ...	1,680,000
Navy ...	1,240,000
Docks and Harbours ...	1,200,000
Custom House ...	2,800,000
Emperor, Parliament, &c. ..	320,000
Law Courts ...	600,000
Churches and Schools ...	520,000
Foreign affairs ...	100,000

£14,600,000

It may be remarked that the sum of £2,600,000 derived from the London loan of last year for £5,000,000 sterling, has been entirely devoted to making new railways.

BRAZIL'S PROGRESS.

(*Brazil and River Plate Mail*, May 23.)

The following important statement is taken from the "Anglo-Brazilian Times":—

We give a comparison of the exports of the principal staples at two epochs distant from each other thirty years, for greater certainty taking the average of the five years preceding each, as the respective annual export.

QUANTITIES EXPORTED.

Average of	1839 to 1844	1869 to 1874.
Rum ...	5,503 tons	5,769 tons
Cotton ...	10,374 „	54,435 „
Sugar ...	82,169 „	153,285 „
Coffee ...	83,687 „	165,114 „
Hair ...	158 „	552 „
Hides ...	12,500 „	27,932 „
Tobacco ...	4,300 „	14,975 „
Gum-elastic... ..	391 „	5,382 „
Herva Maté... ..	2,486 „	15,717 „

No less interesting is the table of railways actually working or in construction, as follows:—

	Kills.
Pedro II. Railway ...	475
Macahe and Campos ...	100
San Paulo and Santos ...	140
Ituana (San Paulo) ...	158
Pernambuco and San Francisco ...	125
Capitagallo and Magdalena ...	77
Bahia line ...	124
Jundiahy and Campinas ...	45

	Kilos.
Leopoldina	... 26
Maui and Estrella	... 20
New Hamburg (Rio Grande)	... 75
San Jeronymo	... 20
Campos and S. Sebastian	... 20
Nitherohy and Neves	... 27
Ceara and Baturite	... 21

—1,423

There also 17 lines actually in construction, making up 1,648 kilometers, and it is estimated that by the end of 1876 there will be nearly 1,500 miles of railway open to traffic. Surveys have, moreover, been made for 6,530 kilometers (say 4,000 miles) of projected railways, the most remarkable being from the Atlantic to Matto Grosso (1 500 kil.), from Rio Grande to Misiones (1,122), and prolongations of the existing lines from Bahia, Pernambuco, and Rio Janeiro to the great San Francisco river.

In such work Brazil has expended over £20,000,000 sterling, and the London loan of 1875 is being devoted to the same end. At the same time equal attention is paid to fluvial communication and the improvement of the various ports of the Empire. Sir John Hawkshaw has just made a survey of all the ports on the seaboard, from Rio Grande do Sul to Para. Lines of steamers are subsidised between Rio Janeiro and the head-waters of the Amazon on one side, and the capital of Matto Grosso on the other, say 3,500 miles in either direction.

THE BRAZIL COFFEE CROP.

(*From the Ceylon Observer, March 29, 1878.*)

If our good friend, Mr. Scott Blacklaw, is correct in his estimates, Brazil is about to exceed all that even she has done as a coffee-producer. We have known, of course, that for years back, under the influence of high prices for coffee, a large portion of the slave labour available has been diverted from the cultivation of cotton and sugar to that of the better paying berry. But, granted all this, with increased railway and road facilities and good seasonable weather, with recovery of the trees from the insect leaf disease to boot, we were certainly not prepared for a crop equal to seven millions of cwts! The figures we quoted and the averages we deduced in our issue of the 9th instant bore out with wonderful exactness the estimates of the Brazil Government published in connection with the American Centennial Exhibition: that is, as far as report were concerned; for, regarding home consumption,

we must take the figures on trust. What the Brazilians say is, that their average *crop* is equal to 260,000 tons, or 5,200,000 cwts. The average of this quantity taken for home consumption is 60,000 tons, equal to 1,200,000; leaving for export 200,000 tons or 4,000,000 cwts, about half the quantity consumed by all countries in the world which do not produce coffee. The authentic figures for five years, shewing exports, though they varied from 170,000 tons to 232,000, gave an average of almost exactly 200,000 tons. Now if, instead of her average of 5,200,000 cwts, Brazil is about to produce 7,300,000, or 2,100,000 cwts in excess of the average, the important question is: How much is she likely to send abroad of this excess? Supposing the home consumption remained at 1,200,000 cwts, the quantity available for export would be no less than 6,100,000 cwts, or 2,100,000 cwts above the average. The very excess is equal to two years' supply from Ceylon and Southern India; does not indeed fall far short of all that Java added to those countries will export in this wretched season 1877-78. If, therefore, Brazil could or would force her great crop into the consuming markets in one year, those markets would certainly be, to a large extent, "swamped." As matters stand, the effects on the markets have become already apparent, but they are likely to be spread over two years. An export of 5,000,000 cwts has hitherto been the extreme limit of the quantity which Brazil has been able to send away in any one year; and, supposing the facilities for export have been increased, it is more than doubtful if the planters, who are able to bide their time, will avail themselves of those facilities with the certain result of sending down prices to a serious extent. There can be little doubt, therefore, that a considerable proportion of the greatest Brazil crop of coffee ever yielded, that of 1878-79, will be held over for export in the succeeding year. All experience favours this conclusion, but Mr. Blacklaw's statements are before our readers, who can form their own judgment as to the immediate future of coffee in view of his astounding figures. With all our respect for Mr. Blacklaw and his authorities, we cannot help thinking that the actual out-turn of the Brazil crop of 1878-79 will fall considerably short of the estimates. The shipments of 1877-78 are not likely to any appreciable extent to exceed the average of 4,000,000 cwts, or 200,000 tons. If 1878-79 could shew an export of one-third beyond this, say of 300,000 tons or 6,000,000 cwts, that would be simply one fifth beyond the largest previous perform-

ance. Mr. Blacklaw, however, believes in a possible export of 6,000,000 cwts, or sevenfold our now average crop. If this is accomplished, Brazil must be recognized as more than ever THE GREAT COFFEE COUNTRY OF THE WORLD. No other country can shew even as a good second.

Some of the information embodied in the elaborate tables which accompany Mr. Blacklaw's interesting letter has already reached us and been duly noticed,—such as the list of shippers from Rio; the extreme freights for 1877; the extreme prices for coffee from 1874 to 1877, with lowest and highest figures for exchange on London. The monthly sales in 1877 of sacks of 60 kilogrammes, or 132½ lb each, shew no fewer than 347,682 such sacks, or over 400,000 cwts in the one month of September. In May the sales were so low as 109,250 sacks. The aggregate for the year was 2,846,555 sacks. It would seem that practically all the coffee which reaches Rio is sold on the spot: none shipped on account of growers. The destinations of the exports were:—

United States	...	1,710,073 sacks
Channel and North of Europe		804,197 „
Mediterranean	...	144 721 „
Cape (70,718), &c.	...	187,564 „

Total ... 2,846,555 „

The figures for 24 crops are given for 1877 and previous years, distinguishing calendar and crop years, the latter ending with 30th June. Occasionally the figures shew a good deal of discrepancy, but of course the results over a course of years pretty nearly agree. For instance, let us take the three last years and crop seasons of the series:—

	Calendar year.		Crop year.
	Sacks.		Sacks.
1875	3,152,296	1874-75	3,205,567
1876	2,765,922	1875-76	2,889,990
1877	2,846,555	1876-77	2,781,612
Totals	8,764,773		8,877,199
Averages	2,921,591		2,959,666

The difference, it will be observed, is trifling. The next table gives the exports, in sacks, of coffee from Rio for each year from 1833 to 1877. In the interval of 44 years, with such fluctuations as are common to all coffee countries, the progress has been rapid and great. In 1833, when Ceylon was only becoming known as capable of producing coffee, the export from Rio was 687,136 sacks. In 1877 the export had

increased to 2,846,555, or more than four-fold. But a greater result had been reached long previously. So long ago as 1856, the export of coffee from Rio had reached 3,197,464 sacks. But this was outdone in 1867, when no fewer than 3,225,980 were shipped. This was and still is *the* greatest export from Rio. The 3 millions of bags were again exceeded in 1869, and after a considerable interval in 1875, but the export was actually so low as 2,433,709 in 1874, while 2,498,995 had been reached so long ago as 1851. If Rio sends away 4,000,000 sacks in 1878-79, that will be 774,000 in excess of her greatest previous performance. *Can* she thus excel herself? Let us see what the progress has been in groups of years:—

Between 1832 and 1840 the progress was from 687,136 to 1 307,921.

In 1850 the figures were... 1,644,648

In 1860 " " ... 2,825,157

In 1870 " " ... 2,704,742

In 1877 " " ... 2,846,555

For 1879 " the estimate is ... 4,000,000(?)

Such a spring as this would entirely eclipse 1867, which shewed 3,225,980 against, for the previous year, 2,368,635. The remaining table has reference to the trade of the port of Santos and the revenue of the Province of San Paulo. The figures are for the ten fiscal years, ending March, extending from 1867-77. The first year of this series shewed an export of coffee from Santos of 27,524,006 kilos of coffee, rising to 37,899,979 next year, going down again to 32,883,765 in 1872-73, then springing up suddenly to 46,322,472 and 49,410,895 in the two succeeding years, and then sinking to 44,436,200 and finally 39,013,044. The fluctuations are certainly great and may perhaps be explained by what Mr. Blacklaw says about frost. The export of cotton began with 8,185,000 in the first year of the decade; close to 10,204,000 in 1871-72, and sank to a little over 2,000,000. Tobacco began with 486,474, rose to 976,000, and ended with 472,000. Bacon began with 310,000, fluctuated until it went down to 105,000 in 1875-76, and next year took an enormous spring to 978,000. The value of all these productions of San Paulo began with 17,740,000 reis (of about 2/ value), rose in 1873-74 to 31,673,000, and ended with 20,232,000 say £2,300,000). The productions of other provinces exported did but slightly affect these figures, the average value of such productions being about 250,000. The provincial duties collected on those exports began with 709,564 reis; rose in the two great coffee years to 1,300,165 and 1,223,650; and ended with 798,463.

The duties seem to range about 3 per cent on value, but our readers must recollect that provincial duties in Brazil are levied in addition to much heavier imperial duties.

There is doubtless a great future for Brazil, but like ourselves, she will learn the lesson of not putting all her eggs in one basket. Nearly all available labour has been concentrated on coffee, and thousands upon thousands of the population have died of famine.

BRAZIL : LETTER FROM MR. A. SCOTT BLACKLAW.

Fazenda Angelica, São João do Rio Claro, São Paulo,
Brazil, 30th January 1878.

Messrs. A. M. & J. FERGUSON, Colombo, Ceylon.

MY DEAR SIRs,—It is a long time since I wrote you—so long that I have forgotten about the date. Four months ago, I made a supreme effort to pay many of my debts of friendship, and you were put down as a firm to whom I must pay something on account—but, on 6th October last, I met with an accident whilst out riding by which my two wrists got dislocated, the bones of both arms fractured, and the rest of my body a good deal shaken, and so letter-writing had for a time to be considered one of the things I could not possibly attempt.

In August I began a letter to our late friend G. A. C. I wrote then two sheets, in September I wrote him other two, and now that I am in a position to finish a letter to him comes the mournful intelligence of his death, which I notice in your paper (arrived a few days since) to have taken place on the 24th of November.

Personally I feel his death very much, and could say a great deal on the geniality and sociability of his character. Although now two years since he paid me a visit here, it seems like yesterday. He was then fresh with the seemingly new lease of life which a short sojourn in Europe had given him, and full of hope of what he could still achieve in Ceylon.

All the enquiries he made into the railway system in this country were in order that he could bear a hand in pushing on the railway enterprise in Ceylon. The railway to Uva was the great idea of this last stage of his life, but he could not live to see it carried out. Ceylon cannot at present afford to lose such men. He was a warm supporter of the *Observer* in its endeavours to further the interests of the Island, and he always gave you two gentlemen his hearty sympathy when you had to fight against and expose public abuses.

I well remember the animation with which he recited to me the quotation from one of the speakers at a meeting of Ceylon men held in Aberdeen, shortly before he visited Brazil, and at which meeting he was present: "Governors may come and Governors may go, but the *Observer* goes on for ever."

I have not time by this steamer to give you a long letter, but the returns for the year have just been published, and I must send you some showing the past state of the Brazilian coffee market.

The total of crop for season 1876-1877, year ending 30th June, shipped in Rio de Janeiro, was 2,781,642 sacks of 60 kilogrammes.

do. Santos 624,007 do.

The estimate of the Rio crop for 1877-78

is set down at 2,300,000

Considering, however, that there is already shipped for

six months ending 31st December 1877

1,586,245 sacks (60 kilos),
there is little doubt but it will by 30th June be made up to 2,800,000 sacks of 60 kilogrammes.

Santos is estimated to give for crop

1877-78 1,000,000 sacks (60 kilos),

I have not as yet seen a return for

the last six months, but judging

by what I have seen I do not

think the crop by 30th June

will turn out more than 800,000 sacks.

I enclose a few tables:—1st. Showing monthly sales of coffee at Rio from 1st Jan. to 31st December 1877.

2nd. Destination of Rio coffee same period.

3rd. Names of the exporting firms for same.

4th. Export of coffee for 24 years ending 31st December in each year.

5th. Export of coffee for same period calculated by crop year, 1st July one year to 30th June the following year.

6th. Table showing the export of coffee from Rio de Janeiro for last 45 years, ending December 31, 1877.

7th. Freights for coffee during the year 1877 given in shillings per ton.

8th. The prices of coffee in Rio during the last four years, quotation for coffee being so much per 10 kilos and exchange to same period, it being calculated at so many pence to the milreis (a thousand reis, and written 1\$000).

9th. Table copied from "Almanack de São Paulo" for 1878, showing the quantities and value of various articles exported for last ten years. This is for the

fiscal year ending 31st March in each year; and you will notice that it will not agree with any of the others, nor with those I sent you on a former occasion. I remarked to you once before, the difficulty in getting any two authorities in Brazil to agree as to figures. This arises from some calculating from 1st January to 31st December in each year; others by the fiscal year, and copying ministerial statements; while very few seem to know that what commercial men and the planters look to as their year is that from 1st July in one year to 30th June in following year. This is really the crop season. Picking commences to be general only about end of June or beginning of July, and in ordinary years all the old crop or nearly all will have reached the market, while little of the new can possibly have entered the sea port.

Estimates of Crop 1878-79.—We now come to the most important part, as it affects Ceylon, the estimate of crop 1878-79.

In a letter I addressed to Messrs. Jas. A. Hadden & Co., London, I said that crops would be considerable, and would compare with crop of season 1874-75, which was so large that the shipments extended over two years. This letter was written six months ago, and you gave notes on it in your paper of 24th October last. Particular anxiety seemed to be manifested at my statement as regards the crop, and it now rests with me to confirm it.

My statement was based on my observations of the climate in my own neighbourhood, and the statements of residents in the other districts that supply the sea ports with coffee for shipment, from travellers passing through, lastly the notices from time to time in the newspapers. The years '75-'76 were very dry in all the coffee districts, and in the Province of São Paulo we had, in addition, very severe frosts. The winters of 1875 and 1876 were very severe. The crops for three years running were thus very small. The year 1877 has been hot in summer and mild in winter—the winter season almost quite free from frost in province S. Paulo.

The yearly estimate given by the *Jornal do Commercio* of Rio de Janeiro came out a few days since, and I now give you a translation of what the writer says:—

“As regards the future crop of 1878-79 we may say that appearances promise a large crop. If the weather keeps regular and if the heat does not turn the points of the branches—as it did last year—we shall have a large picking. Making all these reservations, we estimate the crop, according to information on which we can rely, at 5,000,000 sacks of 60 kilogrammes.”

This, you observe, refers only to the districts which supply Rio de Janeiro market with coffee, and has no relation to Santos. Let us examine and see if the same authority is correct in his former estimates. I have them by me for the last three years, and copy from the *Jornal do Commercio* the quantities estimated and those picked.

The year 1874-75, with which I compared the present, was estimated at 4,000,000 to 4,500,000 sacks. 3,205,367 were shipped, but 1,000,000 sacks were calculated to be in the interior.

1875-76. Estimated at 2,000,000.	2,889,990
was shipped; this included the 1,000,000 sacks of former season.	

1876-77. Estimated at 3,000,000.	2,781,642
----------------------------------	-----------

1877-78. Estimated at 2,500,000 has up to December 31 1,586,245 already shipped for six months. The likelihood is that it will turn out about 2,800,000.

Taking one year with another, I cannot but believe that the estimator is a fair judge of the expectations for season 1878-79.

Santos is estimated to ship for season 1878-79	1,200,000
sacks, with Rio	5,000,000

6,200,000

Say in round numbers, 7,300,000 cwts.

The districts which supply Rio not being able to transport such an extra quantity in one year, although they may be able to pick it, may calculate that not more than 4,000,000 sacks of 60 kilos can be shipped at Rio. Santos can easily ship, thanks to the railway, 1,200,000

5,200,000 sacks of 60 kilos, or, say, in round numbers, 6,000,000 cwts from Santos and Rio from July 1, 1878, to June 30, 1879. I have spun this out unnecessarily long, and must leave what else I have to say for another occasion.—I am, yours very truly,

A. SCOTT BLACKLAW.

APPENDIX.

CHAPTER VII.

BRAZILIAN MEASURES, WEIGHTS, AND MONEY.

The following will be found of use to intending emigrants :—

LAND MEASURE.

Territorio=4 Square Leagues	Acres	43,058·1883
Square league=9,000,000 Square Braças	„	10,764·5472
Alqueire=25 Geiras	„	11·96
„ of S. Paulo...	„	5·98
Geira=400 Square Braças	„	·4784
1,000 Square Braças	„	1·196
83,612 „ „	„	100

WEIGHTS.

Ton=13½ Quint = P. Av.	1748·9320432
Quintal = 4 Arrobas= „	129·55052032
Arroba =32 Libras = „	32·38763003
Libra = 2 Marcos = „	1·01211344
Marco = 8 Onças = „	·55655672
Onça = 8 Oitavas=G. Av.	442·810720
Oitava =72 Graõs „	55 351340
Graõ = „	768768

MONEY (AT PAR).

	British.	United States.
Contos = 1,000 mil reis	£112,10,0	550\$
Milreis = 1,000 reis	2,3	\$55
Cruzado= 400 „	10·8	\$22
Patacão= 320 „	8·44	\$16·1
Testão = 100 „	2·7	\$05 56
Vintem = 20 „	·54	\$01·1

BRITISH COINS.

Gold	Sovereign	R. 8\$888
------	-----------	-----------

UNITED STATES COINS.

Gold	Dollar	R. 1\$800
------	--------	-----------

Advertisements,

(In the Press.)

THE CEYLON AND INDIA

Planting Directory:

—ooo—

WITH A LIST OF COFFEE, TEA, CINCHONA,
AND OTHER

PLANTATIONS

IN INDIA AND CEYLON;

A REVIEW OF PLANTING AND

AGRICULTURAL ENTERPRISE;

LATEST AND FULLEST STATISTICS, ESPECIALLY FOR

Ceylon;

AND A

GENERAL DIRECTORY

OF ALL WELL-KNOWN RESIDENTS IN
CEYLON AND TRAVANCORE.

PAGES (about) 450.

Price R.4 ; by post in Ceylon R.4.50 ; to any part
of India R.5.

“Observer” Office, Colombo : 20th March 1878.

“THIRTY YEARS AGO”

OR REMINISCENCES OF THE EARLY DAYS OF

COFFEE PLANTING

in Ceylon, by P. D. MILLIE.

Pages 600 ; price R.5 ; postage included.

Handbook to Cinchona Planting for
Ceylon Planters. By HAROLD A. WHITE. Price R1 ;
ostage 4 cents.

“Ceylon Observer” Office.

THE LATE MR. CRUWELL'S LETTERS ON BRAZIL,

with other information on that Country.

About 200 pages.—Price R.2.50 per copy.

LIBERIAN COFFEE CULTIVATION

with Coloured Drawings from Photographs of Tree,
Fruit, Flower, &c.

All the information on the subject of Liberian
Coffee. About 200 pages.—Price R.4. per copy.

AN ESSAY ON

TEA PLANTING

by "a Nilgiri Planter," written specially for Ceylon.—

Price R.2.50 per copy.

NEW MAP OF CEYLON:

NEW MAP OF CEYLON, on Thick Paper
showing the Principal and Minor Roads,
Rest-houses, Railway, Rivers, Mountains and
their Heights, Areas of Provinces (including
the newly-created North-Central Province), Margin-
al Tables of Distances of Places in Miles from
Colombo and other Chief Stations, Census Returns,
Postal and Railway Stations, &c.

Coloured	Price	Credit	R.7.00
"	"	Cash	6.00
Uncoloured	"	Credit	6.00
"	"	Cash	5.00
	Postage		0.08

Mounted on rollers, coloured and
varnished (ornamental as well
as useful)

Cash 10.00
8.75

Advertisements.

Map of the Coffee Districts.

	<i>Uncoloured.</i>	<i>Coloured.</i>
On thin Paper	Rs. 7-00	9-50
Postage 8 Cents.		
On thick Paper	8-00	10-50
Postage 8 Cents.		
Bound in Case to fold up ...	10-00	12-50
Postage 16 Cents.		
Mounted on Rollers and		
Varnished	15-00	17-50
Postage 24 Cents.		

[Ten per cent. off for cash, accompanying order; fifteen per cent. where three or more copies are ordered and paid for.]

[The Map is of the same size as that of Ceylon published at this Office, namely 32 × 24 inches.]

Ceylon Travellers' Pocket Guide

AND

Railway Time Table.

WITH Ceylon Government Railway Time and Fare Tables for all Lines and between all Stations; Rates and Rules for Goods Traffic; also, Coach, Carriage, Mail Steamer, Ferry Steamer, Hotel, and other Intelligence. 41 pp. 16mo demy; suitable for the vest-pocket. Price 37½ cents postage 4 cents. To be had at all Railway Stations and Hotels, and at the "Ceylon Observer" Office. 19th March 1878

ADAM'S PEAK.

LEGENDARY, Traditional, and Historic Notices of; with the Pilgrims' Route from Colombo to the Holy Footprint.

BY THE LATE

WILLIAM SKEEN,

Member of the Ceylon Branch of the Royal Asiatic Society.
Fop. 4to. fine paper, with Map and 10 Engravings.
412 pages.

A few copies of this interesting and valuable work are for sale at the *Observer* Office, strongly bound in cloth with lettered back, &c. Price R8; cash R7; postage 68 cents. Copies in paper cover, in arrear R7; cash R6; postage 52 cents.

The Ceylon Civil Service Manual.

Being a compilation of Government Proclamations, Minutes, Circulars, &c., with
an Appendix, by

C. DICKMAN, C. O. S.

Second Edition.

The value of the work may be judged of by the following excerpts (merely a sample) from the many testimonials received by the Compiler:—

(TESTIMONIALS.)

"The Manual is fraught with useful information on every subject connected with the Island."—*H.E. the Governor.*

"The Manual is very complete and there can be no question as to its usefulness. I have to thank you too for dedicating it to myself."—*The Hon'ble H. T. Irving.*

"It is a most useful book; we are all greatly indebted to you for it."—*Govt. Agent, Kandy.*

Copies to be had only at the *Ceylon Observer Office, Colombo*:—

PRICE: R 6 cash.

„ R 6.50 credit.

Postage 44 cents additional.

BOOK-KEEPING FOR PLANTERS.

A SYSTEM OF ACCOUNTS

(By "DOUBLE ENTRY")

Adapted to the requirements of Coffee Planters, and of the Managers of Estates generally,

by "A CEYLON COFFEE PLANTER"

CONTENTS:—Journal; Cash Book; Coast Advance Book; Ledger; Private Ledger; with Indexes—made up as for the "Oodawattie" and "Delgahawattie" Estates.

Including a Ready Reckoner for Check Roll Entries and other tables.

Neatly printed on good paper—Demy Octavo, oblong form. Bound in stiff cartridge, price cash R 2; credit 2.50; postage 12 cents extra.

Observer Office.

Ceylon Miscellany.

COPIES of Nos. 2, 3 and 4 of Vol. I, and No. 1 of Vol. II., can be had. Each no. contains a Literary, Legal, and Medical Miscellany. The following are amongst the contents:—Vol. I. No. 2; Periodicals and Newspapers of Ceylon; The Rodiyas, by S. Casie Chetty; Adversaria Taprobanensis; Decisions of Supreme Court; Esophagotomy by Mr. Authonisz; Account of Malabar Coolies in Ceylon; Notes on Topography of Chilaw, &c. No. 3: The Military and the Supreme Court; Planting; Topography of Chilaw; Quarantine; Court Appeals, &c. No. 4: Education in Ceylon; Malabar Coolies; Grasses of Ceylon Topography of Batticaloa; Account of the Maldives, &c. Vol. II. No. 1: Ceylon Past and and Present; Treatment of Dysentery; Quarantine, &c. Price, each no. R1.50; cash R1.00; postage 16 cents. *Observer Office.*

CEYLON: PICTURE-HEADED NOTE PAPER.

Forty-eight sheets of fine Fancy Note Paper: various colours; specially adapted for Overland Letters to friends at home. Headed with 88 separate engravings illustrative of CEYLON SCENES, RACES, COSTUMES, and ODDITIES; with an Engraving of the Talipot Palm printed on the Leaf of the Tree.

Price R 2.25 per Packet.

POSTAGE BY INLAND BOOK POST.		C.
1 packet	.....	16
2 packets	.....	33
3 do	.....	48
4 do	.....	64
6 do	.....	86
VIA SOUTHAMPTON.		
1 packet	.....	32
2 packets	.....	64
3 do	.....	80
VIA BRINDISI.		
1 packet	.....	64
2 packets	.....	1.28
3 do	.....	2.48

Advertisements.

CONTENTS OF THE PACKET.

Views, &c.

TALIPOT PALM (printed on Leaf of the Tree)
Nuwara Eliya & Pidurutalagala
View on the Nilweliganga
Fort Ostenburg, Trincomalee
Part of a Panoramic View of Colombo
Part of Galle Harbour with Bazars
Gibbet Island, Galle Harbour
The Dalada Maligawa (Temple of the Tooth), Kandy
View on the Mahaweliganga, No. 1
Old Light House, Colombo
Entrance, Queen's House, Colombo
Mount Lavinia, near Colombo.
Jetty and Court House, Galle
View on the Mahaweliganga, No. 2
Entrance, Buddhist Temple, Dondra Head.
The Old Palace Gateway, Dondra Head
The Iron Lighthouse, Galle
The Pavilion, Kandy
Entrance to Royal Botanical Gardens, Peradeniya, near Kandy
Katugastota Iron Lattice Bridge
Bridge of Boats over Kelani River
Sinnapittia Coffee Estate, Gampola
Ceylon Railway: Operations on the Kadugannawa Pass
Ceylon Railway: First Locomotive passing under Maradana Bridge
Ramboda Falls
A Mutuwal Mansion, Colombo
A Kollupitiya Bungalow, Colombo
Rock Cuttings and Tunnels on the Ceylon Railway Incline
General Fraser's Satinwood Bridge
Great Dekanda Embankment & Culvert, Utuwankanda in the distance
Front View of Railway Station, Colombo
South View of ditto
Kandy Lake, looking down
Ruins of Tuparama Dagoba, Anuradhapura [naruwa]
Ruins of Jetawanarama, Polonnaruwa
View on the Mahaweliganga, near Gangaruwa
Falls of the Huluganga
The Dead Elephant in the Kraal
The Young Tusker noosed in the Kraal

FIGURES AND COSTUMES.

Kandian Adigar & Fan Bearer
Tamil Horsekeeper
Queen's House Lascorreen
Sinhalese "Toddy" Drawer
Sinhalese Dhobi
" Ayah
" Buddhist Priest
Tamil Grass-cutter
Lama Etana (Sinhalese Lady)
Sinhalese Fisherman
" Coffee Picker
" Appu
" Mudaliyar
Ceylon Chetti
" Moorman (Trader), full dress
Sinhalese Bridegroom & Bride
Tamil Man and his Wife
Parsi Man and his Wife
Ceylon Moorman (Mason)
Ceylon Malay
A Jaffna Tamil
Tamil Women
A Kandyan Lady.

ILLUSTRATION OF CEYLON

DEMONOLATRY.

The Black Princely Devil.

MALE ODDITIES.

The Sinhalese Barber
" Waterman
The Musical "Mechanic"
The Fat Nattukottai Chetti
The Minstrel Priest (Hindu Beggar).

FEMALE ODDITIES

Kafir Beggar Woman
Malay Sweetmeat Woman
Tamil Parched-Pulse-Selling Woman.

LAW COURT ODDITIES.

Supreme Court Judge
Sword Bearer
Mace Bearer
Queen's Counsel
Prisoner's Counsel
Jurymen
Prisoner
Police
Military
Inter Peter
Witness
Fiscal's Peon
Registrar
Marshal
Crier
Proctor
Client
Law Student.

VIEWS OF CEYLON.

THE Publisher has received a quantity of the views of Ceylon grouped on cards (each containing about a dozen pictures), suitable for hanging up on a wall. The following account of each of the six varieties will shew that they are well worthy of a place in any bungalow.

CARD A.—Ceylon Scenery and Vegetation.—In the centre is Mr. Nicholls' Beautiful Group of Ceylon Vegetation (coloured) containing the Cinnamon, Areka-palm, Banana, Coconut palm, Coffee, &c., &c. Grouped around this picture are views of the Nilweliganga, the Devon Falls, Dimbula, Badulla, Group of Palms and allied plants in the Peradeniya Royal Botanic Garden, the Sinnapittia Coffee Estate, Ruins of the Dewala, Polonnaruwa, Union of the Banian Tree and Palmyra Palms, "Ferguson's View" looking towards Kurunegala from the Incline, &c.

CARD B.—Colombo.—Panoramic Views from the ramparts looking East, North and South, the Bridge of Boats, the Custom House Wharves, Inner Harbour, the old Lighthouse and Flagstaff, the entrance of Queen's House, Mt. Lavinia, &c.

CARD C.—Kandy.—Panoramic View of the Lake and Town from Arthur's Seat: the entrance to the Royal Botanical Gardens at Peradeniya, the Kandy Terminus, the Pavilion, Views of the Mahaweliganga and the Iron Lattice Bridge, the Dalada Maligawa (Temple of the Sacred Tooth), General Fraser's Satinwood Bridge, View of the Kandy Lake looking down, &c.

CARD D.—Galle and the neighbourhood.—Views of the Town, Fort, Harbour, Lighthouse, Jetty and Court House of Galle: the remains of the old Temple Gateway, Dondra Head: entrance to the Buddhist Temple, Dondra Head; Law Court Oddities, &c.

CARD E.—Trincomalee, &c.—Views from Fort Ostenberg of the Dockyard buildings, &c.; from Judge's Hill of Fort Frederick; and from Elephant Ridge of Fort Ostenberg and the entrance to the Harbour, Adam's Peak from Ambagamuwa, the Ruins of Jetawanarama, Polonnaruwa, the

Advertisements.

Tupare Tank, Portraits of the various races of Ceylon, showing their costumes.

CARD F.—The Colombo and Kandy Railway.—Views of the Termini, the Sensation Rock, the Dekanda Embankment and the Dark Arches, the Bridge over the Mahaweliganga, Waiting for the Blast, the Maradana Bridge, &c.

The price of each card is R 1.50 (with postage R 1.66); for the set of six R 5.25 (with postage R 6.25). Also to be got, framed and covered with glass, ready to be hung on a wall.

The cards can be obtained at the *Observer* Office Colombo, and in London of Messrs. J. HADDON & Co., 3, Bouverie Street, Fleet Street.

Recently Published.

PRICE TWO RUPEES.

THE MUHAMMADAN LAWS OF CEYLON.

PRINCIPLES and Rules of distribution of the inheritance and an Examination of the Special Laws relating to Inheritance and Matrimony with the English text, &c. By L. NELL.

“Observer” Office.

THE LABOUR ORDINANCE.—Copies of the Ordinance No. 11 of 1865, “An Ordinance to consolidate and amend the Law relating to Servants, Labourers, and Journeymen Artificers, under Contracts for Hire and Service.”

Price 36 cents; by post 40 cents.

Notes on the Laws and Local Ordinances of Ceylon, by F. C. SOLOMONS. Price R 1.50; by post R 1.54.

First Year's Work on a Coffee Plantation; by A. L. CROSS, Glasgow Estate, Lindula. *Certum Pete Finem*. [Being the *Essay* which received the first prize from the Ceylon Planter's Association, in 1877.] Price R 1. By post R 1.04.

“Ceylon Observer” Office.

First Year's Work

ON A COFFEE PLANTATION.

BY T. C. OWEN,

Ooononagalla Estate, Madulkele.

"Floreat Marlburia."

[Being the Essay which received the Second Prize from
the Ceylon Planters' Association, in 1877.]

55 Pages.

Contents.

	PAGE
Introduction	1
Choice of Land	2
Felling, Lopping, and Burning	10
Weeding	12
Roads	14
Draining	18
Lining	31
Holing, Filling in, and Dibbling	34
Terracing	36
Planting	37
Grass-planting	43
Staking	43
Topping	45
Nurseries	47
Measurement of Timber	51
Measurement of Grass	53
Tasks for a Cooly	53
Cost of Various Works	54
Estimate of First Year's Work on a 100 Acre Clearing	55

COLOMBO: A. M. & J. FERGUSON. 1877.

Price R 1.50. By post R 1.54.

TAMIL.

Hand-Book of Tamil for the use of
Coffee Planters. By Rev. WM. CLARK, T. C. M.
Price R4.50; cash R4; postage 28c. To be had only at
the *Observer* Office.

PLANTERS' REQUISITES.

A COPY OF THE TABLE shewing the equivalents of Pence and Farthings in Cents according to the new Currency will be supplied with all Check Rolls, Monthly Report Book and Journals printed at this office.

An assortment of new and improved **POCKET CHECK LISTS** on very fine paper, capitally ruled in blue and giving columns as well for Rice issues, bound in leather with flexible back to double up in pocket and also a pocket inside cover to carry loose papers, with Ready Reckoner, and Calendars:—altogether the most useful style of this work ever got up for Planters.

100 leaves	R.2.25
By post	2 40
50 leaves	1.75
By post	1.92

A new supply of very superior **CHECK ROLL Books** (ruled closely so as to admit a large number of names) on fine paper very strongly bound.

Books of 25 leaves	... ..	R.3.50
	By post	3.90
do of 50 do	... ..	4.50
	By post	5.10
do of 100 do	... ..	5.50
	By post	7.00
do of 150 do	.. ..	7.50

LOOSE SHEETS per 100 (200 leaves) 7.50

Coffee Plantation MONTHLY REPORT Books framed after models approved by the leading Planter and Agents; and shewing:—Heads and Details of Expenditure; Rice Statement; Superintendent in account Current with Estate; Distribution of Labour monthly Total; Bushels of Cherry and Parchment coffee Despatched; &c. &c.—strongly bound on good paper.

Books of 25 leaves	R.1.75
(By post 2.99)	
Books of 50 leaves	3.25
(By post 3.65)	
Books of 100 leaves	4.75
(By post 5.50)	
SHEETS per 100 do	3.88

Advertisements.

SHEETS on fine paper for Overland purposes 4.25
do. do. of a more elaborate form
lithographed on fine paper, per 100 R 4.00
do. books of 50 leaves 4.25

(By post 4.65)

WEEKLY REPORTS loose at R4 per 100 copied
RICE and PAY ORDER Books printed on fine paper perforated, strongly bound with flexible backs.

PAY ORDER Books of 200 forms R.3.75

(By post 4.11)

do do do of 300 forms 4.75

(By post 5.05) 5.27

RICE ORDER Books of 200 forms 3.25

(By post 3.61)

do do do of 300 forms 4.25

(By post 4.77)

ALSO



CART NOTE BOOKS—For the despatch of Coffee—printed on fine paper in Triplicate, and perforated; with the fullest particulars required nicely bound in

Books of 50 forms each R3.75 (by post 3.88)

100 5.00 (by post 5.32)

150 6.00 (by post 6.50)

ESTATE JOURNALS FOR COFFEE PLANTERS. Containing 50 leaves. Price R4.50; postage 36 cents extra. Loose leaves of the same may be had, price R7.50 per 100.

Liability of Estate Owners and of Superintendents: being a Collection of Important Decisions on the subject by the Supreme Court and the District Court of Kandy. With an Introduction and Appendix. Edited by E. L. SIEBEL, Proctor, District Court, Kandy.

56 Pages octavo: Price R2; postage 4 cts. [Parties having no account will please remit postage stamps with order.]

“OBSERVER” OFFICE.

THE CEYLON OBSERVER.

—00—
(DAILY EDITION.)

IN ADVANCE.

<i>To Colombo Subscribers.</i>		<i>To Outstation Subscribers.</i>	
	R. c.		R. c.
Per month ...	3.50	Per month ...	4.00
„ quarter ...	9.50	„ quarter ...	11.00
„ half-year ...	18.00	„ half-year ...	21.00
„ year ...	34.00	„ year ...	40.00
(Single copy 25 cents.)		(Outstation rates include postage.)	

N.B.—To secure the advantage of the advance rates, payments must be made by

Monthly subscribers	within	one week,
Quarterly	„	two weeks,
Halfyearly	„	one month,
Annual	„	two months,

from the commencement of their term of subscription. Payments received after the period specified will be considered as made in arrears.

IN ARREARS.

All subscriptions in arrears will be charged an additional 75 cents per month.

A specimen copy will be forwarded on receipt of name and address.

THE WEEKLY CEYLON OBSERVER :

[The most complete and useful tropical agricultural journal in the world giving the best information in respect of Coffee, Tea, Cocoa, Cinchona, &c. &c., Culture.]

Published in time for each outgoing Mail for Europe.

ANNUAL SUBSCRIPTION :	In Advance.	In Arrears.
Delivered in town* ...	R.13.00	R.17.00
To outstations* (with postage)	14.00	18.00
To India, China, the Colonies, &c.	18.00	22.00
To Europe, <i>via</i> Brindisi ...	20.00	24.00
„ „ <i>via</i> Marseilles or		
„ Southampton ...	18.00	22.00

(Single copies 50 cents, without postage.)

Subscriptions should be made payable to the “ PROPRIETORS, CEYLON OBSERVER.”

* In the town and island copies, Supplements with the Week's Telegrams from Reuter and our London Correspondent's Letter are included, making the paper a capital summary of Local and European Intelligence.

25

Date Due

Mar 14 '62 K

Library Bureau Cat. No. 1137

