INTERNATIONAL EXHIBITION,

MELBOURNE,

1880.

CATALOGUE OF

CEYLON EXHIBITS,

WITH AN

APPENDIX OF STATISTICAL INFORMATION

BY

A. M. FERGUSON,

COMMISSIONER FOR CEYLON,

AND

J. FERGUSON.

COLOMBO:

"CEYLON OBSERVER" PRESS,

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Government Agent, Western Province.

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GROUP 1. Works of Art.

CLASS 2.

Drawings.

Exhibitor.—Government Agent, Kandy.

No. 1 Specimens of Kandyan Drawings.

CLASS 3.

Sculpture.

Exhibitor.—W. A. Fernando. Esq.

No. 2 An Elephant cut out of Plumbago.

Exhibitor.—Messrs. Delmege, Reid & Co.

No. 3 An Elephant cut out of Plumbago.

GROUP 2.—Education and Instruction; Apparatus and Processes of the Liberal Arts.

CLASS 9.

Books and Periodical Publications.

Exhibitor.—Government of Ceylon.

No. 4 The Government Gazette in Sinhalese.
5 do do do in Tamil.
6 The Blue Book of 1878.
7 Administration Reports.
8 Sessional Papers.
9 Ceylon Civil List.
10 Catalogue of Plants in the Royal Botanic Gardens.
11 Public Works Department Rules.
12 Postal Guide for 1879.
13 Government Printer's Almanack 1880.
14 Four newspapers printed and published in Jaffna.

Exhibitor.—Government Agent, Kandy.

No. 15 Two Sinhalese Ola Books, each R25·00

Exhibitors.—Messrs. A. M. and J. Ferguson.

No. 16 Ceylon publications: Books and Newspapers.

Ferguson's Ceylon Hand-book of Useful Information and Directory—by A. M. & J. FERGUSON.

The Ceylon Coffee Planter's Manual.

Liberian Coffee in Ceylon: the history of the introduction and progress of the cultivation with information of the soil, climate and mode of culture, best suited for the tree, estimates of cost of opening a plantation; references to its culture in Africa, India, the West Indies, &c.

The Campaign of 1879 against Coffee Leaf Disease (Hemileia vastatrix,) by the Coffee Planters of Ceylon, assisted and guided by D. Morris, Esq., M. A., F. G. S., Assistant Director of the Royal Botanical Gardens, Peradeniya.

The Coffee Tree and its Enemies: being observations of the Natural History of the Enemies of the Coffee Tree in Ceylon.

Cocoa as grown in Trinidad and How to Plant it in Ceylon.

"Thirty Years Ago," or Reminiscences of the early days of Coffee Planting in Ceylon.

A Brief Sketch of the Administration of Ceylon under British rule from 1796 to 1878, with incidental notices of the Dutch and Portuguese rule and a chronological table of events of any importance from 1860 to 1878.

Exhibitor.—The Rev. C. de Alwis.

No. 16*a*. Singhalese Handbook in Roman Characters. History of the Island of Lanka.

CLASS 10.

Exhibitor.—Government Agent, Kandy.

No. 17 Twenty-five styles.

18 Two wooden Book-covers.

CLASS 11.

Exhibitor.—J. B. Gomes, Mudaliyar.

No. 19 Eighteen carved figures representing different natives of Ceylon.

CLASS 12.

Photographic Proofs.

Exhibitors.—W. L. H. Skeen & Co.

No. 20 Five frames, each containing 9 photographic views of Ceylon Scenery, Buildings, Ruins, &c.; value of each frame R50·00.

Exhibitors.—J. Lawton & Co.

No. 21 One album containing Photographic Views of Pollonuara, &c. value R100.

22 Four frames with photographic pictures, c. 3 at R20 each and 1 R15.

Exhibitor.—C. A. Hay, Esq.

No. 23 Photographic Views of Windsor Forest Tea Estate.

Exhibitor.—A. M. Ferguson, Esq.

No. 24 Two frames containing photographs illustrative of the cultivation and manufacture of the leading products of Ceylon.

Exhibitor.—W. A. Fernando, Esq.

No. 25 One frame containing photographs illustrative of the preparation and packing of plumbago at his stores.

CLASS 15.

Coins and Medals.

Exhibitor—Stephen Peter de Silva.

No. 26 A collection of Ceylon Coins.

Exhibitor—Government Agent, Kandy.

26a A collection of Ceylon Coins old and recent.

CLASS 16.

Maps, &c.

Exhibitor—A. C. Dixon, Esq.,

27 A Geological Map of Ceylon.

Exhibitors—Messrs. A. M. & J. Ferguson.

28 Maps of Ceylon, &c.:

MAP OF THE ISLAND OF CEYLON (corrected up to 1879), Shewing the Principal and Minor Roads, Rest-Houses, Railways, Rivers, Mountains and their heights, Areas of Provinces (including the newly created North Central Province) marginal tables of distance of places, Census returns, Postal and Railway stations, &c. published, by A. M. and J. Ferguson, "Ceylon Observer" Office.

CEYLON RAILWAY: MAP OF THE RAILWAY from Colombo to Kandy, shewing the various routes proposed as well as the one finally adopted.

MAP OF THE HILL-COUNTRY OF CEYLON, shewing the positions of the principal coffee plantations.

GROUP 3.—Furniture and Accessories.

CLASS 17.

FANCY FURNITURE.

Exhibitor—Government of Ceylon.

			R.	c.
29	Two large lacquered chairs (child's)	each	10	00
30	One small do do (do) ...		3	00
31	One large do tea-poy with 4 branches		15	00

Exhibitor—Mr. A. C. Sumps.

32	One rattan lounging chair		30	00
33	One do tea-poy		15	00

Exhibitor—Andris Perera, Arachchi.

34	One revolving tea-poy made of different varieties of wood		40	00

Exhibitor—Government Agent, Kandy.

35	Two corner stands... ...	each	5	00
36	One table of flowered satinwood and elephant's bones		75	00
37	Two small tables—wood and elephant's bones	each	37	50

Exhibitor—Don Andris of Galle.

No. 38 Two carved ebony lounging chairs, each 100 00

Exhibitor—Don Simon Rajapakse of Galle.

39 One pair of wall brackets 25 00

Exhibitor—Mr. D. F. de Silva.

40 One carved ebony stand 100 00

41 One pair of ebony couches, elaborately carved 1000 00

CLASS 18.

Bed Furniture.

Exhibitor—Government Agent, Kandy.

42 Two Kandyan pillow-cases ... each 00 50

43 One do counterpane (Samukkalawa)... 5 00

CLASS 20.

Pottery.

Exhibitor—Ceylon Government.

44 Two pairs goglets (clay) ... each 2 00

45 Two tumblers (clay)... ... each 00 50

Exhibitor—Harmanis Dias.

46 One pair goglets (clay) 4 00

47 One tobacco jar (do) 00 50

Exhibitor—A. P. A. Dessanayeke Mudaliyar of Panadure.

48 One Box of Ceylon earthenware.

CLASS 21.

Mats for Floor.

Exhibitor—G. Fernando Mudaliyar.

49 Six tunheriya rush mats—coarse... each 00 25

Mats for Couches or Beds.

Exhibitor—G. Fernando Mudaliyar.

50 One rush mat 00 50

Exhibitor—S. Jayatillike Mudaliyar.

51 Six Kandyan fibre mats (colored) each 2 50

Exhibitor—P. B. Palipane Ratemahatmeya.

52 One Kandyan Fibre Mat (colored) ... 2 50

Exhibitor—Halpe Ratemahatmeya.

53 Two Kandyan rush mats (colored) each 1 00

Exhibitor—C. E. Tennekoon Ratemahatmeya.

54 Ten Kandyan rush mats (colored) ... 1 00

Exhibitor—Government Agent, Kandy.

55 Ten Kandyan mats... ... each 3 00

Exhibitor—Mr. A. C. Sumps.

56 One piece of coir matting, 2½ ft. × 6 ft., per square yard 00 78

57 One coir door rug, 1½ ft. × 1 ft., weight 2¼ lbs. ... ...per lb 00 37

Class 23.

Cutlery.

Exhibitor.—Dissanaike Mudaliyar.

No. 58	One Sinhalese country knife ...		Ro	50

Exhibitor.—G. Fernando Mudaliyar.

59	Model Sinhalese waist-knife ...		0	50

Exhibitor.—Halpe Ratemahatmeya.

60	Three silver-mounted Kandyan knives,	each	5	00

Exhibitor.—Ceylon Government.

61	Two knives (models)	each	0	25
62	One handknife (model) ...		0	25

Class 24.

Silversmiths' Work.

Exhibitor.—Ceylon Government.

63	One large silver carved box ...		112	50
64	One silver carved cigar case ...		45	00
65	One silver carved arecanut cutter ...		20	00

Exhibitor.—P. B. Palipane Ratemahatmeya.

66	Five silver carved boxes	each	10	00

Exhibitor.—Halpe Ratemahatmeya.

67	One silver carved box ...		10	00

Exhibitor.—Government Agent, Kandy.

68	Three silver chunam boxes	each	5	00
69	Three large silver boxes,	each	15	00
70	One small do box		12	00
71	One carved silver box (very old) ...		100	00

Exhibitor.—Mr. D. F. de Silva.

72	Four silver napkin rings	each	10	00

Class 25.

Metal Work and Castings.

Exhibitor.—Ceylon Government.

73	One brass lamp and chain ...		4	00
74	One do spittoon ...		2	00
75	One do betel stand ...		2	50
76	One do chembu (small pot) ...		1	00
77	One copper do ...		3	00

Exhibitor.—Government Agent, Kandy.

78	One copper shrine ...		10	00

Class 28.

Hair Oil.

Exhibitor.—K. Hormusjee.

79	Twelve bottles of king cocoanut hair oil,			

CLASS 29.

Fancy Basket Work.

Exhibitor.—K. Hormusjee.

No.					
80	One set of Kalutara baskets (large)	...	R	6	00
81	One do do do (small)	...		5	00
82	Two Cigar Cases (Kalutara)	each		1	00
83	Two Tampachees (do)	„		2	00
84	Two Purses (do)	„		0	50
85	Two Caps (do)	„		2	00
86	Two Betel Bags (do)	„		0	50
87	Two Caps (do)	„		1	00

Exhibitor.—Government Agent, Kandy.

88	One betel stand	...		5	00
89	One do box	...		2	50
90	Two Images of Buddha, in ivory	each		10	00
91	Two ivory chains	„		10	00
92	Three ivory Images	„		10	00
93	One ivory box	...		10	00
94	One ear and tooth pick	...		10	00
95	One carved egg shell	...		25	00
96	One Image of Buddha, with glass cover	...		50	00
97	One ivory Image	...		15	00
98	One ivory earpick	...		5	00
99	Ivory boxes for medicines	...			
100	One silver ear and tooth-pick	...		7	00
101	One copper chunam box	...		2	00

Exhibitor.—Don Andris Dewapuratne Jayasinghe.

102	One Jewel box	...		50	00
103	One carved cocoanut shell	...		50	00

Exhibitors.—Don Nicholas de Silva Weerajayasundara Goonewardene.

104	One pair ivory carved elephants	...		262	50
105	One carved calamander work-box	...		147	00
106	One carved ebony case, for cigars or gloves			94	50

Exhibitor.—P. B Palipane Ratemahatmeya.

107	One wooden lacquered betel-stand	...		2	50

Exhibitor.—D. J. Werasiri.

108	One white dressing comb	...		20	00
109	Six large do do do ...	each		5	00
110	Twelve small do do ...	do		2	50
111	One large crooked dressing comb	...		15	00
112	One small do do do ...			3	00
113	Two dressing combs with big teeth	each		3	00
114	Five tail combs ...	do		1	50
115	Two handle combs ...	do		2	00
116	Six round combs	...		1	50
117	Three black combs ...	do		4	00
118	Six small plain combs ...	do		2	00
119	One very small dressing comb	...		1	00

No. 120	One round cigar case, with white spots	...	R 20	00
121	Six shoe horns ...	each	1	50
122	Five large paper-cutters ...	do	3	60
123	Twelve small paper-cutters ...	do	1	50
124	One thick do do	...	3	00
125	Four flat cigar cases ...	each	20	00
126	Three round cigar cases ...	do	15	00
127	Six ladies' card do ...	do	15	00
128	Three gentlemen's card cases	do	10	00
129	Seventeen bookmarkers ...	do	0	50
130	One spectacle case	...	6	00
131	Eighteen napkin rings, numbered in silver	...	1	66
132	Twenty-four plain napkin rings	do	0	75
133	One tortoise shell box	...	100	00
134	One do fan	...	100	00
135	Three whist markers	...	20	00
136	One white pin	...	2	00
137	One tortoise shell fiddle	...	1	00
138	One tortoise made from tortoise shell	...	100	00
139	One tortoise shell pen-holder	...	2	00
140	Four small ivory elephants	each	1	00
141	Five Kalatura baskets	„	0	50
	Exhibitor.—Rankalasge Adonis Martos.			
142	One porcupine quill work box	...	25	00
143	One do do cash box	...	6	00
144	One cocoanutwood work box	...	6	00
	Exhibitor—Don Adrian Wijenarayane.			
145	One porcupine quill box	...	R110	00
146	Two tortoise shell boxes with silver mounting, ...	...each	100	00
147	Twenty-eight small paper cutters ...	„	1	50
148	Five large dressing combs ...	„	5	00
149	Three „ do do ...	„	4	50
150	One yellow carved „ ...	...	10	00
151	Two ebony watch stands ...	each	20	00
152	One pair ebony elephants ...	...	12	00
153	One „ „ „ ...	...	5	00
154	Twenty-three book-markers ...	each		25
155	Twelve shoe horns... ...	„	1	50
156	Two tortoise shell tooth-picks	„	1	50
	Exhibitor—Bentara Yahatugoda Badalge Tepanis Hami.			
157	One pair ivory elephants... ...	...R	50	00
158	One „ do do	...	40	00

Exhibitor—Aturaliya Welandugodage Subehami.

No. 159 One ebony writing desk, carved ... R100 00
160 One porcupine quill do ... 50 00
161 One calamander desk, carved 40 00
162 One ebony writing desk... ... ... 20 00
163 One ebony inkstand, carved 10 00

Exhibitor—Kattalabadde Vedanege Carolis de Costa.

164 Four pairs watch cases with inkstands each R 40 00
165 One ebony inkstand carved 40 00

Exhibitor—Bentara Yahatugoda Badalge Banban Hami.

166 Two ladies' ebony boxes richly carved and inlaid with ivory ... each... R 75 00

Exhibitor—Don Carolis Wijesundara Abeynarayane.

167 Seven sets straw baskets of 12 per set...R 5 00
168 One set do do of 6 ... „ ... 2 00
169 Four porcupine quill boxes ... each 6 00

Exhibitor—Don Daniel de Silva Werajayawardene Goonawardena.

170 One pair ivory elephant's R100 00

Exhibitor—Attanagalle Koralla.

171 One ivory rose water sprinkler... ...R 30 00

Exhibitor—Mr. D. F. de Silva, Jeweller.

172 One gold mounted tortoise shell box contained in a porcupine quill box R350 00
173 Four silver mounted tortoise shell box each 100 00
174 One silver mounted tortoise shell box ... 50 00
175 One gold mounted cigar case ... 30 00
176 One pair ivory elephants 35 00
177 Two „ do do ... each... 30 00
178 Nine pairs do do ... „ ... 25 00
179 Three „ do do ... „ ... 20 00
180 Two „ do do ... „ ... 15 00
181 Two „ do do ... „ ... 12 50
182 Three „ do do ... „ ... 10 50
183 Five „ do do ... „ ... 10 00
184 Six „ do do ... „ ... 7 50
185 Two „ do do ... „ ... 5 00
187 Forty large paper cutters ... „ ... 2 00
187 Thirty Small „ „ ... „ ... 1 00
188 Thirty-six book markers ... „ ... 1 00
189 Fifty book markers... ... „ ... 1 50
190 Sixty-four shoe horns ... „ ... 1 00
191 Four dozen elephant's teeth knife handles per dozen 12 50
192 Four dozens elephant's teeth knife handles per dozen 7 50
193 Four dozens elephant's teeth knife handles per dozen 5 00

No. 194	Twelve small dressing combs ...	each	R	1	00
195	Two large do do ...	„		5	00
196	Eight do do do ...	„		4	00
197	Ten round combs	„		1	00
198	Fifteen handle paper-cutters ...	„		1	50
199	Twelve large cigarette cases ...	„		7	50
200	Twelve small do do ...	„		6	00
201	Twelve cigar cases	„		10	00
202	Three light-colored dressing combs	„		15	00
203	Three do handle combs	„		7	50
204	Three do tail combs ...	„		7	50
205	Six large paper-cutters... ...	„		3	00
206	Eighteen small do ...	„		1	00
207	Forty-eight napkin rings ...	„		1	00
208	Twelve handle combs	„		1	50
209	Twelve tail combs	„		1	50
210	Twelve round combs	„		1	00
211	One pair elephant's teeth pagodas...			7	00
112	One do do do ...			6	00
213	Three pieces elephant's teeth ...	each		3	00
214	Sixteen do do do ...	„		2	00
215	One piece do do ...			4	00
216	Two pieces do do ...	each		2	25
217	Eleven do do do ...	„		1	75
218	Fifteen do do do ...	„		1	25
219	Twenty-three do do ...	„		1	00

Exhibitor.—Anganitta Cornelia Tillekeratne.

220 One satinwood jewel box mounted with silver.

GROUP 4.—Textile Fabrics, Clothing and accessories.

Class 30.

Cotton, dressed and spun.

Exhibitor.—Kalugalle Ratemahatmeya.

No. 221 A sample of spun cotton
222 A do of cotton cloth

Class 36.

Lace Embroidery, &c.

Exhibitor.—Ederewire Patabendege Thenishami.

No. 223	Five yards lace ...	per yard	R	3	75
224	Eight-and-half do do ...	„		4	00
225	Four do do ...	„		2	50
226	Eight do do ...	„		1	50
227	Six do do ...	„		1	25
228	Six do do ...	„		1	25
229	Eleven do do ...	„		1	25
230	Seven do do ...	„		1	25

No. 231	Five yards lace ... per yard	R 1	00
232	Five-and-half do do ... „	0	75
233	Eight-and-half do do ... „	0	62½
234	Eight do do ... ... „	0	50
235	Five do do ... ... „	0	50
236	Three pieces do ... ... per piece	0	75
	Exhibitor.—Don Adrian Wijenarayane.		
237	Five yards of lace ... ... per yard	2	50
238	Eighteen do do ... ... „	1	50
239	Twenty-nine-and-half do ... „	0	75
240	Twenty-nine yards do ... „	0	50
241	Twenty-nine yards do ... „	0	25
242	Twelve yards do ... „	0	15
	Exhibitor.—The Revd. R. T. Dowbiggin.		
243	One parcel lace and embroidery, value	12	50

CLASS 37.

Fans, Walking-sticks, Whips, &c.

Exhibitor.—Government Agent, Kandy.

244	One Kandyan Chief's fan (anatu)	R20	00
245	One smaller do do (Waddana talatu)	10	00
246	One Kandyan fan	1	50
247	Ten do walking sticks each	3	00
248	Fourteen do whips ... ... „	1	00
	Exhibitor.—D. A. T. Dissanaike Mudaliyar.		
249	Two fans, with ivory handles... each	5	00
	Exhibitor.—Don Adrian Wijenarayane.		
250	Fourteen palmyrah walking sticks each	00	50
251	One ebony carved do do	10	00
252	Two do do do do each	6	00
253	Two do do do do „	5	00
254	Two do do do do „	4	00
255	One do do do do „	2	00
256	Two do do do do „	7	50
	Exhibitor.—B. G. Don Andris.		
256	Twelve king cocoanut walking sticks each	00	75
257	Twelve palmyrah do do „	00	75
	Exhibitor.—Mr. D. F. de Silva.		
258	One gold mounted belt	10	00
259	One silver do do	3	00

CLASS 38.

Native Costumes.

Exhibitor—Ceylon Government.

No. 260	Seven pieces of Chettadai, of assorted colors each	1	00

Exhibitor—Government Agent, Kandy.

No.				
261	One Kandyan cloth (Tadappu)	...	4	00
262	Two hats do	each ...	2	00

CLASS 39.

Jewellery and Precious Stones.

263	One large silver cross	...	12	00
264	One small do do	...	6	50
265	One do do do	...	6	50

Exhibitor—Government Agent, Kandy.

266	One pair bangles, silver, (Kandyan)	...	7	50
267	One do do brass do	...	2	50
268	One do earrings (Todu)	...	3	00
269	Two necklaces (silver, coral and brass)	each...	15	00
270	One pair ear ornaments (Kuru)	...	2	50
271	One do do (Pullemal)	...	2	50
272	One silver ring	...	2	50
273	One ancient Kandyan silver chain, made of old Kandyan coins	...	1,000	00
274	One silver ring		1	00

Exhibitor—D. J. Werasiri.

(TORTOISE SHELL ORNAMENTS)

275	One yellow flower necklace ...	...	50	00
276	One pair yellow flower earrings	...	4	00
277	One yellow flower brooch ...	...	7	50
278	One pair yellow flower bangles...	...	15	00
279	One yellow flower bead necklace	...	40	00
280	Six pairs yellow flower bead earrings,	each	2	00
281	Two do yellow flower bangles	do	25	00
282	Three pairs do do earrings	do	3	00
283	Three yellow flower brooches...	do	6	00
284	One do do watchguard		7	50
285	One do do chain ...	...	12	00
286	One do do do ...	...	20	00
287	Six black flower necklaces ...	each	15	00
288	Three black flower star necklaces	do	10	00
289	Six do do bead do	do	15	00
290	Six pairs bangles	do	10	00
291	One pair bracelets	do	10	00
292	Six do earrings	do	2	00
293	Six black brooches	do	2	50
294	Eight lockets	each	5	00
295	Two sets white studs	„	4	00
296	One set black studs		2	50

No.					
	297	Fourteen sets black studs	each	2	00
	298	Two black crown crosses	„	2	50
	299	Three pairs star bangles	„	4	00
	300	Two pairs flower hair pins... ...	„	4	00
	301	One pair star hair pins		4	00
	302	Two star brooches	each	3	00
	303	Two black bird brooches	„	2	50
	304	Two white do do	„	5	00
	305	One black broach with snake ...		5	00
	306	One pair white cable-pattern earrings ...		4	00
	307	Three ivory crosses	each	3	00
	308	One carved pin, with picture ...		7	50
	309	One plain do do		5	00
	310	One pair black bangles, mounted in silver		7	50
	311	One pair bracelets, with black links ...		7	50
	312	One pair short star earrings ...		1	50
	313	Seven pairs black long do ...	each	1	25
	314	One black necklace, with a locket ...		12	50
	315	One small black cable-pattern chain ...		5	00
	316	Two long chains, goes twice round the neck,		20	00
	317	One black flower cross		00	50
	318	One do leaf broach		2	00
	319	One pair black long star earrings ...		3	00
	320	One do do ball earrings ...		2	00
	321	Six pairs do earrings, with six pendant balls	each	12	00
	322	One black flower necklace ...		12	00
	323	One oval links black chain ...		5	00
	324	One pair short ball earrings ...		1	00
	325	One carved white brooch		7	50

(Gold and Silver Ornaments.)

326	One single ruby ring		50	00
327	One ring, with five pearls		20	00
328	One ring, with two pearls and one ruby		50	00
329	One silver gown holder		20	00

Exhibitor.—Don Adrian Wijenarayane.

(Tortoise Shell Ornaments.)

330	One tiger claws necklace		110	00
331	One pair do earrings		16	00
332	One do do broach		18	00
333	One do do pin		16	00
334	One do do chain		8	00
335	Thirty sets of black studs... ...	each	2	00
336	Two pairs black bangles	„	8	00
337	Three black watch-guards with chains ...	„	4	00
338	One yellow locket chain		25	00
339	One do do do		20	00
340	Eight sets yellow studs	each	4	00
341	One yellow locket watch-guard ...		10	00

No. 342	Four black oval shape watch-guards ...	each	R	3	50
243	Three do do do long chain	each		7	50
344	Four yellow hair pins	„		10	00
345	One do brooch			40	00
346	Twelve pairs solitaires	each		00	75
347	Six pairs tortoise shell earrings, with pendant balls	each		2	00
348	One flower do necklace ...			12	00
349	Thirty-nine small ivory elephants for charms	each		1	50
550	Four do do do ...	„		00	50
351	Two tortoise shell plain hearts ...	„		1	00
352	Three black locket charms ...	„		10	00

(Gold and Silver Ornaments.)

353	One blue sapphire ring		110	00
354	One do do do		60	00
355	One do do do		50	00
356	One pair earnobs, set with rubies ...		80	00
357	One silver bead necklace of two rows		16	00
358	One do do do of three rows		22	00

Exhibitor.—Bentara Yahatugoda Badalge Tepanishami.

359	Twenty-four ivory elephants for Albert chains	each	2	00

Exhibitor.—Don Carolis Wijesundara Abeynarayane.

360	Nine silver puzzle rings of seven ...	each	2	00
361	One do do do of eleven ...	„	3	00
362	One pair silver earrings		5	00

Exhibitor.—Don Gabriel Dewapura Wemalaratna Jayesinghe.

363	One gold hair-pin set with Ceylon diamonds	85	00
364	One pair earrings, set with emeralds ...	40	00

Exhibitor.—Don Suwaris Ratnawibusane.

365	One coconut gold broach	80	00

Exhibitor.—Don Sodris Ratnawibusane

366	One pair of gold earrings set with rubies	25	00
367	One set of gold broach, set with rubies and pearls	65	00

Exhibitor.—Don Carolis Ratnawibusane.

368	One gold locket set with water-sapphire and torquoise	70	00
369	One gold chain	40	00
370	One do ring set with rubies and emeralds	15	00
371	One do do do do	15	00
372	One do do set with a Ceylon ruby	15	00
373	One do puzzling ring of eleven together	15	00

No.					
374	One puzzling ring of four ...		R10	00
375	Six do do do of seven ...	each	5	00
376	One do do do of eleven ...		7	50
377	One pair gold earrings, set with coral...		5	00

Exhibitor.—Mr. D. F. de Silva.

(GOLD AND TORTOISE SHELL JEWELLERY.)

378	Two sets, two broaches and two pairs pearl-grape earrings, ... each set		150	00
379	Two sets do do do ...		140	00
380	One set moonstone necklace, bracelets and earrings...		150	00
381	One large pearl cross		80	00
382	Three small pearl crosses	each	35	00
383	One pearl pin		25	00
384	One do do		12	50
385	Seventy ivory charm elephants ...	each	00	50
386	Six light coloured necklaces ...	,,	7	50
387	Thirty-two sets large solitaires ...	,,	1	00
388	Forty-one sets small do ...	,,	00	50
389	Twelve sets light coloured studs and solitaires	,,	4	00
390	Six sets light coloured broaches ...	,,	4	00
391	One set cheetah's claws necklace, broach and pair of earrings		100	00
392	One large cat's-eye ring		150	00
393	One do do do		100	00
394	Two do do do	each	75	00
395	Two do do do	,.	50	00
396	Three pearl hoops	,,	60	00
397	One half-pearl hoop		80	00
398	One square do ring		30	00
399	One pearl and emerald rose ring ...		30	00
400	One do and sapphire hoop ...		20	00
401	One large gent.'s sapphire ring ...		75	00
402	Two sapphire hoops	each	150	00
403	Two do do	,,	100	00
404	One half-sapphire hoop		150	00
405	One do do two rows ...		100	00
406	One do do		20	00
407	Two ruby do	each	50	00
408	One do do		55	00
409	One do do		60	00
410	One do do		12	50
411	Six silver lockets	each	10	00
412	Six large crosses	,,	10	00
413	Six small silver crosses	,,	3	00
414	Six silver mounted cheetah's claw pins	,,	1	00
415	Six gold do do do ...	,,	10	00
416	Two horse shoe pearl pins	,,	50	00
417	One gold samy bracelet		75	00

No. 418	One gold samy locket		45	00
419	One do do do		30	00
420	One do do broach		40	00
421	One pair do earrings		15	00
422	Two beetle broaches	each	25	00

Exhibitor.—H. D. Tillekeratne, Mudaliyar.

423 One gold article called "Hallabontique" used for cardamons and spices by Sinhalese ladies.

Exhibitor.—A. P. Tillekeratne Dissanaike, Mudaliyar.

424 One gold article or purse called "Bagaldasia"

425 do do or scent ball do "Ambiribole"

CLASS 40.

Side Arms.

Exhibitor.—P. B. Palipane, Ratemahatmeya.

426 One Dessawa's waist knife, mounted with gold above 200 years.

427 One Ratemohotta's waist knife and stylus, mounted with silver (ancient)

428 One Lekama's waist knife, brass mounted (ancient)

Exhibitor.—Government Agent, Kandy.

429	Five spear heads, with handle ...	each	25	00
430	Three axes for killing bears	,,	4	00
431	Six Kandyan knives	,,	10	00
432	One small spear		1	00
433	One spear head, without handle		15	00

Exhibitor.—Gabriel Fernando, Mudaliyar.

434	One model crease (poniard)	00	50

CLASS 42.

Toys.

435	One set Jaffna wooden lacquered toys, 24 pieces	10	00
436	One do Galle do do do 9 do	3	00

GROUP 5.
Raw and Manufactured Products.

Class 43.
Products of the Cultivation of Forests and of the Trades appertaining thereto.

Exhibitor.—Ceylon Government.

No. 437	One cabinet Box, containing specimens of Ceylon woods	40	00

Exhibitor.—Mr. H. B. Peiries.

438	One cabinet box containing specimens of Ceylon woods	40	00
439	Twenty-seven specimens of Ceylon woods, exhibited by D. A. T. Dissanaika Mudaliyar	13	50
440	Twenty-one specimens do do by Gabriel Fernando, Mudaliyar	5	25
441	Two boxes containing specimens of do do exhibited by R. A. Martos ... each	5	00
442	One box do do do exhibited by D. A. Wijenarayane	17	50
443	One box, containing 50 specimens of do do exhibited by A. W. Subehami	10	00
444	One box, containing 50 specimens of do Exhibited by B. G. Don Andris	25	00

Exhibitor.— D. A. T. Dissanaika Mudaliyar.

445	One mat (common)	00	25
446	One dish mat (Etul Patia)	00	25
447	One basket (common)	00	25
448	One bag do	00	12
449	One spoon holder do	00	12
450	One talipot umbrella	00	50
451	One do fan	00	50
452	One do book	00	25

Bark for Tanning.

453	a quantity of cushew (cadju) bark
454	a do of tunhiriya do
455	a do of kahata do

Bark for Rope Making.

456	a quantity of Linia bark
457	a do Kallawilla bark
458	a do Dambinara do
459	a do Nuga do
460	a do Ehatu do

Exhibitor.—Ceylon Government.

461	Seven specimens of basket work	2	50
462	One talipot basket for clothes (Kaddupeddi)	1	00

Exhibitor.—J. F. Drieberg, Esq.

No. 463 Five bundles of cinnamon sticks
464 One bag cinnamon leaves
465 Two parcels cinnamon bark

Exhibitor.—Government Agent, Kandy.

466 a quantity of Kekuna seed
467 a do gingelly do

Exhibitor.—Ceylon Government.

468 a quantity of madul seeds
469 a do nah seeds (Iron wood tree)

Exhibitors.—Messrs. G. and W. Leechman.

The Coconut Palm, its Products and their uses.

470 One ordinary coconut plant
471 One do king coconut plant
472 One do coconut plant with 3 sprouts
473 One do do do with 2 sprouts
474 Six ordinary coconuts
475 Six do dry coconuts
476 Six real medicinal king coconut (very scarce)
477 Six ordinary king coconuts
478 Six maldive coconuts
479 Six sweet coconuts
480 Six ordinary coconuts, husked
481 Six do king do do
482 six Maldive do do
483 Six sweet do do
484 Three dwarf do do
485 Six ordinary dry do do
486 Six real medicinal do do
487 One bottle coconut oil (extra fine)
488 One do do (white)
489 One do do (ordinary)
490 One do coconut arrack
491 One do do vinegar
492 One do do treacle
493 One do do jaggery
494 One do king coconut hair oil
495 One do do oil 35 years old, used for rheumatism
496 Three coconut boards
497 Six coconut plaited leaves
498 One do fibre broom with common handle for cleaning roof
499 One coconut do do with coconut handle
500 Two do Ikel brooms without handle

No. 502 Two cocoanut ikel brooms, with cocoanut handles
503 Two „ leaf brooms with cocoanut handles
504 One „ ikel fishing net
505 Four „ flower stalk torches
506 Four „ leaf torches
507 One „ husker
508 Two „ flower stalks
509 One „ strainer made out of the film of cocoanut stalk
510 Twelve „ walking sticks
511 Three „ tree climbers
512 One „ coir cigar lighter
513 Three dry cocoanuts, with husk, shell and kernel ripped and dried
514 Twelve dried „ kernel whole
516 Fifty „ „ kernal or copperah
517 One coil „ coir rope 200 feet by ¼″
518 One „ „ „ 100 feet by ½″
519 One „ „ „ 75 feet by ¾″
520 One „ „ „ 75 feet by 1″
521 One box „ oil soap, 6 bars
522 One „ „ „ „ cake or poonac
523 Two cocoanut leaf mats
524 One cocoanut shell, ornamental
525 Seven „ shells used for carrying water in fishing canoes
526 Four „ shell scoops with cocoanut handles
527 Eight „ shell spoons
528 Three „ shell funnels
529 Two bundles cocoanut bristle fibre
530 Two „ fibre No. 1.
531 Two „ mattrass fibre
532 One cocoanut coir bag for feeding horses
533 Four „ coir brushes for stencil plates
534 Two cocoanut brushes for whitewashing
535 Twelve pieces cocoanut husk partly combed
536 Six „ „ „ for tar brushes
537 One cocoanut coir rug 2″.6 × 1″.6 inches colored border
538 One „ „ plain
539 One „ „ bag for copperah 3″ × 2½″
540 One „ „ „ for coals 2½″ × 2″
541 Two „ leaf bags
542 One „ coir matting, twilled plain 20″ × 3″
543 One „ „ „ twilled coloured 20″ × 2½″
544 One „ „ „ 20″ × 2″
545 One bundle coir yarn, very fine
546 One „ „ No. 1.
547 One „ „ No. 2.
548 One „ „ No. 3.
549 One „ „ No. 4.

No. 550 Two cocoanut ikel tats
551 One „ hobble bobble or hookah
552 One „ scraper
553 Three cocoanut leaves
554 One „ wood gutter, 13 feet by 8 inches
555 Two „ rafters

Exhibitors—Messrs. A. M. and J. Ferguson.

556 Section of a coffee tree

Exhibitor.—Ceylon Government.

No. 556a. The Palmyrah, its products and their uses.

No.	Articles.	Uses.
1	Fan	
2	Olah kudai ...	Used as an umbrella
3	do Vadappatto ...	do
4	Mattrass mat ...	Used for beds
5	Mat, sitting ...	Used for sitting
6	Mat, lying ...	Used for sleeping
7	Thadukkupai ...	Infant's sleeping mat
8	Kudai ...	Used for storing paddy, &c.
9	Umal ...	do any grain
10	Chumaikadakam ...	Used for carrying loads [in feasts.
11	Rice basket ...	Used for keeping boiled rice to serve
12	Kunchukadakam ...	A hand basket for keeping or carrying things.
13·1	Naarkadakam ...	A large basket for do
13·2	Naarpeddy ...	Used in road work, &c. [presents.
14	Chalarapeddy ...	Used to keep valuables to be given as
15	Charakkupeddy ...	Used to keep currystuffs
16	Adukkupeddy ...	Used to keep money and petty articles
17	Betel basket ...	Used to keep betel, arecanuts, &c.
18	Panikarapeddy ...	Used to keep cakes
19	Karunarkadakam ...	Used in taking offerings to temples
20	Toy baskets ...	Used by children in play
21	Kitchen basket ...	Used in keeping kitchen provisions
22	Cloth basket ...	do cloths
23	Aripeddy ...	Sieve for sifting flour
24	do Kunchukkadakam	do
25	Neettuppeddy ...	Basket for boiling puddu
26	Koddaippeddy ...	Betel box
27	Uttuppeddy ...	Used for extracting oil
28	Talaippaddai ...	Used as cap [ses.
29	Kolupaddai, small ...	Used to draw water for ordinary purpo-
30	Kaippaddai ...	do
31	Peelippaddai ...	Used for watering gardens
32	Chulaku ...	Used for winnowing and sifting grains
33	Tadduchchulaku ...	Receiver of coarse grains sifted
34	Tat ...	A kind of mat ceiling
35	Arupeddy (large) ...	Toddy drawing basket
36	do (small) ...	do

THE PALMYRAH PALM—*Continued.*

No.	Articles.	Uses.
37	Toddy Pot ...	Toddy drawing pot
38	Chunnam kuddan ...	A receptacle for chunnam, which when applied to the blossoms makes sweet toddy
39	Eyanakuddan ...	Toddy drawer's case for knife, &c.
40	Chunnam brush ...	Used to apply chunnam to the blossoms
41	Koddan ...	Wooden hammer to beat the blossoms to make them yield toddy
42	Talainaar ...	A tied string which aids climbing
43	Kanthewan ...	Cattle linking rope
44	Vadam ...	A kind of rope for tying anything
45	Tampukkayaru ...	Rope used for tying brass pots in drawing water
46	Uri ...	A suspender to keep earthenware
47	Tirukanai ...	Stands for pans chatties
48	Eervani ..	Tying rope for cattle
49	Elephant ...	A play thing
50	Anaipeddy panan kaddy ...	Elephant stuffed with jaggery as a matter of curiosity
51	Kelukeluppai ...	Children's toy
52	Nut ...	Seed of palmyrah palm
53	Puran with ...	Kernel of the nut, eatable
54	Kilanku ...	The root „ „
55	Umal ...	The shell of the nut, used as coal, after being burnt, by smiths
56	Kurumbai ...	Fruit bud, food for cattle
57	Nonku ...	Tender state of the fruit, contents in the shell eatable, the husk food for cattle
58	Panankai ...	The ripe fruit eaten in its raw state being acidulated, and by roasting
59	Odial ...	The dried raw root when ground into flour, pottage and puddu are prepared and eaten
60	Pulukkodial ...	Root boiled and dried
61	Sheep folding maddai railing...	Pen for folding sheep
62	Gate ...	The entrance door on the outer fence of a dwelling compound
63	Stalk and ola ...	Used for various purposes fencing thatching, &c.
64	Ladder ...	Used for climbing
65	Manger ...	Receptacle for feeding cattle
66	Kokkaly ...	A model platform for storing paddy, &c.
67	Erkkal ...	A part of the plough
68	Measuring pole ...	Used in measuring lands
69	Adze handle ...	Handle used for adzes
70	Pounder ...	Used in pounding paddy, &c.

No.	Articles.	Uses.
71	Ruler ...	Used in ruling papers
72	Walking stick ...	Used by people when they take a walk.
73	Jaggery ...	An extract of sweet toddy, a substitute for sugar
74	Jaggery spiced ...	Jaggery prepared with spices
75	Kallakaram ...	Essence of sweet toddy used for medicinal purposes in lieu of sugar candy.
76 1	Ola book with frames ..	Native manuscript
76 2	do common ...	A book where vernacular alphabets are written
77	Panippanadu ...	The pulp pressed in jaggery molasses (a luxurious eatable)
79	A house ...	Model of a house usually occupied by common people
80	A well with well sweep, &c.	A model shewing the manner in which the people of Jaffna get the water supply both for drinking and irrigating their lands
81	Kalappai ...	Used for thrashing corn
82	Penaddo ...	Condensed juice of palm fruits
83	Large fan ...	
84	do Kalupaddai ...	A big water basket
85	Charcoal ...	Burnt palmyrah nut
89	Folding fan ...	
90	Male Palmyrah timber	Used for inferior works
91	Female do ...	do substantial do
92	Palmyrah reeper ...	Used for house works, fences, &c.

CLASS 44.

Products of hunting, shooting, fishing—Machines and Instruments connected therewith.

Exhibitor.—Ceylon Government.

No. 557	One box of marine shells	R27	00
558	One box of pearl oyster shells ...		

Exhibitor.—Antonia De Domenico.

559	A black coral tree fished off the coast of Ceylon.	150	00

Exhibitor.—Government Agent, Kandy.

560	One net for fishing	4	00
561	One net to catch hares	2	50
562	One elephant tusk	300	00

Exhibitors.—Messrs. Delmege, Reid & Co.

563	One bundle deer horns		

Exhibitor.—Mr. J. P. William.

564 Seven Carpenter Birds' Nests, 1 to 5 feet-long ... ... each... 00 50

CLASS 45.

Agricultural Products not used for food.

OILS.

Exhibitor.—D. A. T. Dessanaika, Mudaliyar.

565 Cocoanut Oil
566 Gingelly do
567 Margosa do
568 Castor do
569 Kekuna do
570 Mee do
571 Cashew (Cadju) do

Exhibitor.—Ceylon Government.

No. 572 Gingelly Oil
573 Margosa do
574 Cocoanut do
575 Eruppai do

Exhibitor—Messrs. Delmege, Reid & Co.

No. 576 One bottle Cocoanut oil
577 One do Citronella do
578 One do Cinnamon bark do

Exhibitor.—J. F. Drieberg, Esq.

579 One phial cinnamon bark oil
580 One do do Leaf do

Tobacco in leaves or Manufactured.

Exhibitor.—Ceylon Government.

No. 581 Six bundles of Tobacco.

Exhibitor.—J. K. Ingleton, Esq., Rajawelle Estate.

Dumbara Cigars.

No. 582	"Rajah"	per 1000	...	...	75	00
583	"Ranee"	,,	...	...	65	00
584	"Loko Nono"	,,	...	...	55	00
585	"Nona"	,,	...	...	45	00
586	"Poonchee nona"	,,	...	...	35	00

Dumbara Cheroots.

No. 587	"Loko Nono"	per 1,000	...	...	50	00
588	"Medda"	,,	...	...	40	00
589	"Poonchee"	,,	...	...	30	00

Dumbara Vevey Cheroots

No. 590	"Deega"	per 1,000	...	...	40	00
591	"Kotta"	,,	...	...	30	00

Exhibitor.—Government Agent, Kandy.

No. 592 A quantity of Dumbara Cigars.

Exhibitors.—Messrs. Delmege, Reid & Co.

No. 593 One bundle Tobacco.

Exhibitor.—Mr. J. P. William.

No. 594 Six leaves of Tobacco.

Exhibitor.—Ceylon Government.

No. 595 Eight kinds of smoking Tobacco.
596 Two „ chewing do
597 Tobacco as prepared for exportation.

Exhibitor.—Dessanaike Mudaliyar.

598 (1) Dammer from trees
595 (2) Dammer (ground)
600 One Beeswax (mee etc.,)
601 Two do (Bambara eti.,)
602 Three do (Kanayeya eti.,)
603 Four do (Dandowala eti.,)
604 Cashew (Cadju) Gum

Fibres.

605 Nianda
606 Dool
607 Pineapple
608 Coconut
609 Kitul

Exhibitors—Messrs. Delmege, Reid & Co.

610 Four ballots coir fibre
611 Four do coir yarn

Exhibitor—Ceylon Government.

612 Resin
613 Hal Resin

Exhibitors—Messrs. Delmege, Reid & Co.

614 Two bundles kitul fibre
615 One bottle arecanuts
616 One parcel orchella weed

Exhibitor—Government Agent, Kandy.

617 A quantity of saffron
618 A do of arecanuts
619 A do of gamboge
620 A do of cotton

Exhibitors—Messrs. Mackwood & Co.

621 A bundle of Fibre from the Neyandro plant.

Exhibitor—Mr. J. P. William.

		R.	C.
622	Two large cocoanuts, each weighing 10½ lbs, each	1	00
623	Fifteen Halnuts ... per 100	2	00
624	Three Halnuts in stalk		
625	Half pound Hal Gum... per lb...		50

626 One phial Hal Gum oil ... per bottle R 1 05
627 One piece Hal Bark per lb 8
628 One piece Hal Plank ... per sq. ft. 10
629 One piece white Cashew Gum 3 ft. long, per lb 25
630 One do do do 1 ft. long, per lb. 25
631 Four lbs Madunut Seed, ... per lb. 37
632 One Madunut plant... 50
633 One piece Boorende wood ...per lb 87

Exhibitor—A. C. Sumps.

634 One rattan Tiffin Basket... ... ... 7 50
635 One pair of Rattan Flower Holder, japanned 3 00
636 One „ do do unpainted ... 2 00
637 One „ do do single white ... 75
638 One „ do do do japanned ... 1 00
639 One „ do Hanging Flower Baskets... 12 00
640 One Rattan Work Basket 7 00
641 One do Paper do 1 50
642 Samples of Bamboo, Rattan, Rattan Fibre and Kus-kus Tats

Exhibitor—Ceylon Government.

A collection of agricultural and pharmaceutical products from the Royal Botanic Gardens.*

643 Grains
644 Oils.
645 Resins
646 Starches
647 Fibres
648 Ropes
649 Mats
650 Medicines
651 Condiments
652 Products of the Areca Palm
653 do Talipot Palm
654 Bamboos
655 Domestic Articles made from Bamboos
656 Rattans, &c.

CLASS 46.

Cinchona Bark.

Exhibitors—Messrs. Lee, Hedges and Co.

657 One sample Cinchona Succirubra bark—quill.

Exhibitor—T. C. Owen, Esq., Oonoonagalla Estate.

658 One sample cinchona bark.

Exhibitors—Messrs. Mackwood and Co.

659 One sample Cinchona Succirubra bark.

* A detailed list of these exhibits, prepared by the Director, is published as an Appendix.

Exhibitor—E. H. Cameron, Esq.

659½ One sample Cinchona Bark.

GROUP 6.—Machinery, Apparatus and Processes used on the Mechanical Industries.

Class 49.

Agricultural Implements, Machines, &c.

Exhibitor—D. A. T. Dessanaike Mudaliyar.

660 Seventeen models of Agricultural implements : mamoti, plough, goad, yoke, hurdles, basket, fly-catcher, scythe, flail, broom, winnow, mat for carrying ears of corn, bags for carrying paddy, catty or bill-hook, felling axe or sickle.

Exhibitor—G. Fernando Mudaliyar.

661 Five models of Agricultural implements : adze, mamoti, catty or bill-hook, axe, reaping knife.

Exhibitor—Ceylon Government.

662 Eight specimens of Ceylon Agricultural implements : mamoti, plough, yoke, ulavaran, axe, grass-cutter, sickle and spade.

Exhibitor—J. F. Drieberg, Esq.

663 Three specimens of implements used in the preparation of cinnamon, catty (bill-hook), peeling-knife, scraping-knife.

Exhibitor—Mr. Harmanis Dias.

664 One model Hackery R22 00

665 One do double Bullock-cart ... 21 00

Exhibitor—Ceylon Government.

666 One model double Bullock-cart ...

667 One do Hackery ... ...

668 One do Hand-cart ... ...

Exhibitor—Government Agent, Kandy.

669 Three Bill-hooks ... ... each 2 00

670 One Grass-cutter 1 00

671 Two Adzes ... ... each 4 00

672 Two Mamoties ... ... each 1 00

673 One Smoothing-board 1 00

674 One box containing specimens of Agricultural implements 75 00

CLASS 50.

Apparatus, &c., used in the preparation of Alimentary Products.

Exhibitor.—G. Fernando Mudaliyar.

No. 675 One arecanut cutter.

Exhibitor.—Ceylon Government.

676 One grinding stone and roller (model).
677 One mortar and pestle (model).
678 One cocoanut scraper (model).
679 One arecanut cutter (model).
680 One vegetable and fish cutter (model).
681 One cocoanut water ladle.

Exhibitor.—P. B. Palipane Ratemahatmeya.

682 One silver and brass mounted Arecanut cutter R10 00

Exhibitor.—Halpe Ratemahatmeya.

683 One brass arecanut cutter ... .. R 5 00

Exhibitor.—Government Agent, Kandy.

684 Two cocoanut scraper each... ... R 5 00
685 One mortar and pestle... ... ... 1 00
686 Eight arecanut cutters each... ... 2 50
687 One betel pounder and pestle 2 50

Exhibitor.—Mr. Harmanis Dias.

688 Model chekoo (oil mill).

CLASS 54.

Ropes and Tackles,

Exhibitor.—Messrs. Delmege, Reid & Co.

689 One coil coir rope, half inch.
690 One ,, ,, one inch.
691 One ,, ,, two inches.
692 One ,, ,, three inches.
693 One ,, ,, four inches.
694 One ,, ,, five inches.
695 One ,, ,, six inches.

Exhibitor.—Government Agent, Kandy.

696 One Kandyan rope (waramadu) ... ... R 1 00

CLASS 55.

Apparatus used in Weaving.

Exhibitor.—Government Agent, Kandy.

697 One spindle (Kandyan)... ... ... R 1 00
698 One weaver's comb (Kandyan) 2 00

CLASS 61.

Exhibitor.—Government Agent, Kandy.

699 One set of reins for bullocks ... ... R 1 00

CLASS 64.

Exhibitor.—G. Fernando Mudaliyar.

700 One chisel.

Exhibitors.—Messsrs. Mackwood & Co.

701 A specimen of block building cabook (laterite)

701*a* A specimen block of concrete used in the construction of the Colombo Breakwater.

CLASS 65.

Boats, Barges, &c.

Exhibitor.—Ceylon Government.

702 Model of Pada boat
703 do double canoe
704 do single canoe with outrigger
705 do Kattamaran
706 do outrigger boat, with lines for fishing
707 do with wali del nets for fishing
701 do a boat used for fishing with nets in the sea

GROUP 7.—Alimentary Products.

CLASS 67.

Cereals.

Exhibitor.—Wattagama Ratemahatmeya.

No. 709 Ten specimens of paddy.

Exhibitor.—D. A. T. Dissanaike Mudaliyar.

No. 710 Seventeen specimens of paddy :
Palukhamban, Kalukurumandi,
Muttumanickkan, Mada Ell,
Hinati, Kaluhatile,
Dewaradderi, Ell,
Ratkondumawi, Kattearan,
Ratawi, Sudumawi,
Honorawala, Podiwi,
Ratkonadahatile, Pol-el,
Kurulutuda.

No. 711 Eight specimens of rice :
Pulukhamban, Kaluhatile,
Ratkondumanie, Dewaradderi,
Hinati, Ell, Honarawala, and Sudumawi.

No. 712 Eight Specimens of dry grain :
Amu,
Menari,
Kurukkan,
Kolloo,
Karal Iringu, (Millet.)
Haketa Iringu, (do.)
Bada Iringu, (Maize.)
Tala, (Gingelly.)

No. 713 Two specimens of pulse.
Me, (Beans.)
Moongoo, (Green Grains.)
Exhibitor.—Hallugalle Ratemahatmeya.

No. 714 Eleven kinds of native grains.
Exhibitor.—C. F. Braine, Esq., Becherton Estate.

No. 715 A Sample of Arrowroot.
Exhibitor.—Ceylon Government.

No. 716 Thirteen kinds of Native grains from Jaffna.
717 Three kinds of fine grains from Ratnapura.
718 Three kinds of paddy from do.
Exhibitor.—Government Agent, Kandy.

No. 719 Thirty-two kinds of paddy.
720 Eleven kinds dry grain.
721 Three kinds of rice.

CLASS 69.

Exhibitor—Government Agent, Kandy.

722 Four bottles cow ghee.

CLASS 71.

Exhibitor—Ceylon Government.

723 Sample of arrowroot tubers from Ratnapura.

Exhibitor—Government Agent, Kandy.

724 A quantity of jack seeds.
725 A do of beans.

CLASS 72.

Condiments and Stimulants.

Tea.

Exhibitor—Messrs. Lee, Hedges & Co.

726 Six samples Ceylon Tea,
Pekoe,
Pekoe Souchong,
Flowery Pekoe,
Broken Pekoe,
Souchong,
Unassorted.

Exhibitor—T. C. Owen, Esq,, Oonoonagalla Estate.

727 One sample Tea.

Exhibitor—C. A. Hay, Esq., Windsor Forest Estate.

728 Six samples Ceylon Tea,
Orange Pekoe,
Pekoe Dust,
Broken Pekoe,
Pekoe
Pekoe Souchong,
Souchong.

Exhibitor—C. S. Armstrong, Esq., Rookwood Estate.

729 Six samples of Ceylon Tea,
Pekoe,
Pekoe souchong,
Souchong,
Congou,
Broken pekoe,
Broken tea.

Exhibitors—Messrs. Keir, Dundas & Co.

730 Samples of Loolecondera estate tea.

Exhibitors—Messrs. Haldane and Anton,

731 Samples of Calsay estate tea.

Exhibitor—A. J. Stork, Esq.

732 Sample of Blackstone estate tea.
733 Do. of Oodawariana do

Exhibitor—James Nelson, Esq.

734 A sample of tea prepared from the plants in the Royal Botanic Gardens.

Exhibitors—Ceylon Company.

735 Twelve samples of Ceylon Tea:
Pekoe souchong,
Flowery pekoe,
Silvery pekoe,
Orange pekoe,
Souchong pekoe,
Broken pekoe,
Hyson,
Young hyson,
Pekoe tips,
Congou,
Unassorted,
Broken tea.

Exhibitor.—P. R. Shand, Esq.

736 Six samples of Ceylon Tea.
Pekoe.
Pekoe souchong.

Exhibitors.—Messrs. G. & W. Leechman.

737 Four samples of Ceylon tea from Agrawatte estate.
Orange pekoe.
Pekoe souchong.
Souchong.
Congou.

Exhibitor.—Messrs. Mackwood & Co.

738 Six samples of Tea from Galbodde Estate.
Pekoe Tea.
Souchong.
Pekoe souchong.
Broken pekoe.
Pekoe dust.
Orange pekoe.

Coffee.

Exhibitors.—Messrs. Lee, Hedges & Co.

739 Three samples plantation parchment coffee.
Peaberry.
Flat beans.
Liberian.

740 Two samples prepared plantation coffee.
Peaberry.
Flat beans.

741 One sample native coffee.

Exhibitor.—T. C. Owen, Esq., Oonoonagalla Estate.

742 One sample coffee.

Exhibitors.—Colombo Commercial Company.

743 Samples of plantation coffee.

Exhibitor.—J. F. Baker, Esq.

744 Samples of plantation coffee from Yakkabendakelle estate.

Exhibitors.—Messrs. Whittall & Co.

745 Samples of plantation coffee.

Exhibitors.—Messrs. Courthope. Bosanquet & Co.

746 Four samples of plantation coffee.
One sample parchment.
One do No. 0 Elephant beans.
One do No. 1 Bulk Size.
One do Peaberry.

Exhibitors.—Messrs. Mackwood & Co.

No. 747 Four samples of coffee.
Dried cherry.
Parchment.
Flat beans, large size.
Peaberry.

Exhibitors.—Messrs. Delmege, Reid & Co.

747½ Nine barrels plantation coffee the produce of Langdale, Kintyre and Tillicoultry estates,

Exhibitor.—A. Bawa, Esq.

748 Two tins Ceylon patent cafe-au-lait or coffee and milk condensed.

749 Two dozen packets of prepared coffee, milk and sugar compressed into cakes.

Spices.

Exhibitors.—Messrs. Lee, Hedges & Co.

750 Two samples plantation cinnamon, Nos. 1 and 2.

Exhibitor.—Sampson Rajapakse, Esq., Mudaliyar.

751 Five samples of Cinnamon.
1 bale—100 lbs. Superfine.
1 „ —100 lbs. No. 1.
1 „ —100 lbs. No. 2.
1 „ —100 lbs. No. 3.
1 „ —100 lbs. No. 4.

Exhibitor.—Mr. Hendrick de Silva.

752 Three samples of Cinnamon.
1 bale—100 lbs. No. 1.
1 „ —100 lbs. No. 2.
1 „ —100 lbs. No. 3.

Exhibitor.—T. C. Owen, Esq., Oonoonagalla Estate.

753 One sample cardamons.

Exhibitor.—J. F. Drieberg, Esq., Ekelle Estate.

754 Seven parcels cinnamon.
755 One parcel do chips.

Exhibitors.—Messrs. Delmege, Reid & Co.

756 One bundle cinnamon.

Exhibitor.—S. Jayetilleke Mudaliyar.

757 Five lbs. vanilla.

Exhibitor.—Government Agent, Kandy.

758 A quantity of cinnamon
759 A „ of mustard.
760 A „ of pepper.

Exhibitor.—H. L. Dasanayaka Mudaliyar.

761 A quantity of pepper.
762 A „ of mustard.
763 A „ of bird pepper.
764 A phial of kitul syrub.
765 A „ of bee honey.

CLASS 82.

Minerals, &c.

Exhibitors—Messrs. Lee, Hedges & Co.

766 Two samples plumbago :
Lump,
Dust.

Exhibitor—W. A. Fernando, Esq.,

767 Four Samples plumbago of the first quality :
One box containing one large lump,
One small barrel containing ordinary lump,
One do do do chips,
One do do do dust,

Exhibitors—Messrs. Delmege, Reid & Co.

768 One box plumbago.
769 Three bottles do

Exhibitor—W. Ferguson, Esq.

770 One box containing two specimens of breccia or Pamunugama stone.

Exhibitor—P. B. Palipane, Ratemahatmeya.

771 A lump of plumbago from the Kurunegala district.

Exhibitor—Ceylon Government.

772 A small lump of plumbago from Ratnapura.
773 Sample of a species of plumbago generally found in the beds of rivers.

Exhibitor—Government Agent, Kandy.

774 A quantity of plumbago.

Exhibitor—A. C. Dixon, Esq.

775 One case of specimens illustrative of the Geology and Mineralogy of Ceylon.*

SUPPLEMENTARY LIST.

GROUP I.—Works of Art.

CLASS 3.

Sculpture.

Exhibitor—Messrs. Armitage Brothers.

776 One carved plumbago elephant.

* For detailed list see Appendix.

GROUP 2.—Education and Instruction, Apparatus and processes of the Liberal Arts.

CLASS 15.

Coins and Medals.

Exhibitor.—J. B. Gomes, Mudaliyar.

No. 777 Ceylon Coins.
1 Gold.
9 Silver.
14 Copper.
1 Gold stone.

Group 3.—Furniture and Accessories.

CLASS 24.

Silversmith's Works.

Exhibitor—J. B. Gomes, Mudaliyar.

No. 778 One carved silver box ... value R500 00

GROUP 4.—Textile Fabrics, Clothing and Accessories

CLASS 39.

Jewellery and Precious Stones.

Exhibitor—J. B. Gomes Mudaliyar.

No. 779 1. Rubies, 1 cut, 6 uncut.
780 2. Sapphires, 1 „ 2 „
781 3. Topazes, 1 „ 5 „
782 4. Cat's eyes, a pair of cat's eye earrings andfive uncut stones.
783 5. Starstones, 4 cut 1 uncut.
784 6. Amethyst, 3 „ 1 „
785 7. Aquamarinas, 1 cut, 7 uncut.
786 8. Tormalines, 2 „ 4 „
787 9. Moonstones, 3 „ 9 „
788 10. Cinnamonstones, 4 cut, 11 uncut.
789 11. White sapphire, 4 „ 4 „

Group 5.—Raw and Manufactured Products.

CLASS 45

Oil.

Exhibitors.—Messrs. Armitage Brothers.

No. 790 1 Hogshead coconut oil weighing Cwt. 4—2—5.

Group 7.—Alimentary Products.

CLASS 72

Coffee.

Exhibitors.—Messrs. Armitage Brothers.

No. 791 4 Barrels Ceylon plantation coffee.
1 do No. 0. weighing cwt. 2
1 do No. 1. do 2
1 do No. 2. do 2
1 do pea berry do 2

Exhibitor.—H. G. Voller, Esq.

798. Two lbs. Vanilla.

GROUP 10.—Mining Industries, Machinery and Products.

CLASS 82.

Minerals.

Exhibitor—Messrs. Armitage Brothers.

No. 792 One case and one barrel plumbago.
lumps weighing cwts. 2—1—25
chips do do 2—3— 6
dust do do 1—2—18

CLASS 42.

Exhibitor.—W. Ferguson, Esq.

793 Two specimens of tree ferns, (*Hemitelia Walkeriæ*, Hooker) with rough ends of fronds removed.

CLASS 82.

Exhibitor.—W. Ferguson, Esq.

794 One bottle of white sand, Cinnamon Gardens, Colombo, natural state.

795 One bottle of same, washed and freed from vegetable matter.

796 One bottle of black sand, mouth of Kelani River, natural state.

797 One bottle of same, washed and freed from vegetable matter.

LIST OF

Geological and Mineralogical specimens from Ceylon.

Collected and Exhibited by A. C. Dixon, Esq., B. Sc., F.C.S., Colombo.

1. Dolomite from Wattegama,
2. Dolomite from Wariapola,
3. Dolomite from Wilson's Bungalow,
4. Dolomite from Wellawa,
5. Dolomite from Kurunegala,
6. Dolomite from Alu-Wihara,
7. Dolomite, with blue spinel, from Wariapola,
8. Limestone from Jaffna.

Nos. 1 to 7 furnish examples from country limestone which occurs in beds in the gneiss. They vary much in texture, colour and composition, but they all contain carbonate of magnesia. It is used as building stone, when burnt forms a very useful lime for estate purposes or for building. These dolomites occur in somewhat parallel beds which traverse the gneiss in a northerly direction. I have indicated their position on a rough geological sketch map sent along with the collection.

In the various specimens we have accidental minerals such as magnetite, pyrites, spinel, phlogopite, wollastonite, chrysolite and zircon. No. 8, Jaffna limestone, furnishes a very pure lime. The formation occuring in the north is probably cretaceous and equivalent to the Pondicherry beds of India.

9. Mica in nodules found in the valleys of the Dimbula district.
10. Gneiss decomposed forming the bottom layer of the gem pits.
11. Magnetite, showing a peculiar cleavage occuring locally on Harmony estate, Pussellawa.
12. Limonite (Botryoidal) occuring under the cinnamon sand in the Negombo district.
13. Iron conglomerate still in course of formation in various ravines of the island. It occurs in very extensive patches; such a deposit subjected to decay would form a rock resembling our laterite.
14. Iron ore from Nuwara Eliya.
15. Gneiss containing nodules of iron from Kottagala.
16. Gneiss (garnetiferous) from Horape quarry, near Mahara.
17. Gneiss (ordinary) from Mahara quarry, the stone from which is used in the construction of the Colombo Breakwater.
18. Gneiss from Mahara.
19. Gneiss with green felspar.
20. Laterite or cabook from Colombo, quarried very extensively for building purposes.

Case II.

No. 21. Graphic Granite from Balangoda, so called because the quartz, one of it constituents, stands out prominently resembling an inscription.

22. Syenitic Gneiss from Hokawela, Matale Railway. The ordinary blue gneiss can be seen passing into this altered variety. It closely resembles Peterhead granite.

23. Jasper (crude) from Balangoda, an impure opaque form of silica.

24. Gneiss from Petiyagalla with molybdenum.

25. Sandstone from Talpitiya, a resent breccia taken from 300 yards from shore at a depth of 25 feet. The particles of sand are held together by a calcareous

26. Plumbago found in veins in several districts. Large specimens are sent from a commercial point of view.

27. Quartz (crystalline) with plumbago from Diatura.

28. Hornblende rock from Madola Saffragam.

29. Mica found in considerable quantity in packets in the decomposed gneiss.

30. Hornblende rock from Wattegama, Matale Railway.

31. Decomposed gneiss from a depth of 20 feet, from Labugama. The felspar of our rocks when subjected to action of water soon decompases.

32. Kaolin from Maturata also found largely at Nuwara Eliya. It makes a very fair porcelain.

33. Gneiss decomposed from Pallekande. The green colour is due to epidote and chlorite.

34. Iron Pyrites from Nambapana.

35. Smoky quartz from Medakanda, Balangoda.

36. Calcareous Tufa (Panugal of the Sinhalese.) This is a deposit of carbonate of lime from the hot springs of Bintenna. It is burnt by the natives of the district and used to chew with their betel.

37. Sandstone from Pamunugama, a recent formation occurring on the sea coast from Negombo to Mount Lavinia. The black crystals are magnetic iron. The particles of sand are held together by calcareous matter.

38. Sandstone from Pamunugama, another variety.

39. Gneiss from the top-most rock of Adam's Peak. It is very quartzose and agrees on the main with the common rock of the island. It is upon this that the sacred foot-print is placed to which so many thousands of pilgrims resort annually.

40. Rock crystal from Ratnapura.

Case III.

41. Sapphire (crystals) Nil-padiyan.

42. Sapphire, Sudu-nil.

43. Sapphire, Otu-nil.

44. Sapphire, Nil-kanti.

45. Star Sapphire.

46. White Sapphire.

47. Ruby, Ratu-keta.
48. Amethyst Oriental.
49. Corundum.
50. Topaz.

Nos. 41 to 49 represent the sapphire family which crystallizes in the hexagonal system. The numerous members of this group are divided according to colour, hardness, &c. Thus, when blue it is called sapphire ; red, ruby : purple, amethyst ; when it lacks transparency and is of dull colour it is known as corundum.

No. 44 is partly blue and partly red.

No. 43 partly blue and white. The Sinhalese can by heating such with lime distribute the colour evenly through the stone, or with greater heat can discharge the colour and so imitate the white sapphire.

No. 45 on account of lamellar structure when cut in convex form shows a star of 6 rays.

No. 48 is the oriental amethyst, so-called in order to distinguish it from the quartz amethyst.

Green corundum is known as the oriental emerald & yellow as topaz.

51. Spinel (crystal).
52. Spinel—a very abundant mineral, crystallizes in the cubic system generally in octahedrons or dodecahedrons, specific gravity about 3-5 while the ruby is 4, and the garnet 3-8.
53. Garnet (Kurundugal).
54. Cinnamon stone (Essonite) a kind of garnet.
55. Garnet.
56. Tourmaline, Pachcha-toramalli.
57. Tourmaline, Peni-toramalli.
58. Tourmaline.

Tourmaline is very abundant, both crystalline and massive. It is of various colours and crystallises in the hexagonal system.

59. Peridot of Ceylon.
60. Chrysoberyl, the true cat's eye—an ordinary kind of cat's eye is quartz when cut *en cabochon.*
61. Pleonaste, a kind of spinel.
62. Zircon, very abundant in Ceylon, crystallizes in the tetragonal system ; disregarded by the Sinhalese, except the white variety which is cut and sold as Matura-diamond; often, however, Matura-diamonds are rock crystal.
63. Moonstone, a pearly variety of felspar, quartz, and selenite are often cut and sold as Moonstone.
64. Steatite or soapstone, a massive variety of talc.
65. Quartz (teruwana.)
66. Quartz (crystal) palingu.
67. Refuse stone.
68. Gem sand.
69. Unassorted gem stones.
70. Gem-sand from Pelawatta, Kalutara.
71. Cinnamon Garden sand.
72. Cabook gravel from Colombo.

ARTICLES SENT TO THE

Melbourne Exhibition

From the Royal Botanic Garden, Peradeniya.

CEYLON.

1880.

1 Medicines and Condiments, Nos. 1-8, 12-24, 53, 121-136, 161-181, 188-201, 218-290, 290, 293, 318-329.

2 Grains, 25-41, (varieties of Paddy); 159, 160, (also 18 and 160).

3 Starches, 41-45.

4 Oils, 47-52, 54-66, 291, 292.

5 Resins and Gums, 309-317.

6 Fibres, Ropes and Mats, 67-85, 107-117, 182, 183, 185-187, 232-219, 331, 333.

7 Products of *Areca catechu*, (Betel Palm) 9, 9 & 11, 86-106, 119.

8 Products of *Corypha umbraculifera* (Talipot Palm) 116, 117, 139, 150, 154, 157, 184, 302-36.

9 Domestic Articles made from Bamboos, Rattans, &c., 137, 140, 149, 151-153, 156, 158, 294, 308.

10 Bamboos from Royal Botanic Garden, Peradeniya.

MEDICINES AND CONDIMENTS.

Nos.	Sinhalese Name.	
1	Aralu	... Terminalia Chebula
3	Cardamungu	... Elettaria cardamomum
4	Carambu	... Eugenia caryophyllata
5	Gammiris	... Piper nigrum
6	Ulundu mœ	... Phaseolus radiatus
7	Wada kaha	... Acorus calamus
8	Nalli	... Phyllanthus Emblica
12	Uluwa	... Trigonella Fænum-gracum
13	Walangasal	... Piper cubeba
14	Atnaranchi	... Pedalium murex
15	Leeneya gass	... Helicteres Isora
16	Mahaduru	... Fæniculum Panmorium
17	Sududuru	... Cuminum cyminum
18	Amu	... Paspalum scrobiculatum
19	Cottamalli	... Coriandrum sativum
20	Asamodagan	... Pimpinella Anisum
21	Kaluduru	... Nigella sativa
22	Aba	... Brassica (Sinapis) juncea
23	Mun Etta	... Phaseolus mungo
24	Kaha	.. Curcuma longa
53	Goda Manil	... Crinum ornatum
121	Ingini-eta	... Strychnos potatorum
122	Kurakkan	... Eleusine coracana
123	Dewa duru	... Carum Carui
124	Ati udayan	... Aconitum hetorophyllum
125	Satakuppa	... Anethum sowa
126	Kola aralu	... Leaf galls (from Terminalia Chebula)
127	Sid-ingooroo	... Zingiber officinalis
128	Tippili	... Piper longum
129	Kelindahal	... Holarrhena antidysentericum
132	Kumburu-eta	... Guilandina Bonduc
134	Gajatippili	... Piper longum
135	Tala-eta	... Sesamum Indicum
136	Kandu Ensāl	... Elettaria Cardamomum var. major
161	Irimusu	... Hemidesmus indicus
162	Diya-mitta mul	... Cissampelos Pareira
163	Beli-mul	... Ægle marmelos
164	Kumburu mul	... Guilandina Bonduc
165	Eta-verella mul	... Dodoncea Burmanniana
166	Katukanda	... Barleria Prionitis
167	Dehi	... Citrus limetta
168	Bewila	... Sida retusa
169	Diya-midella	... Barringtonia racemosa
170	Polpala	... Ærva lanata
171	Nika mul	... Vitex Negundo
172	Jayapala	... Croton Tiglium
173	Nataran	... Citrus sp.
174	Madurutala	... Ocimum sanctum
175	Bin-kohomba	... Munronia pumila
176	Olinda	... Abrus precatorius
177	Ela-batu-mul	... Solanum sp.
178	Wel-kappatiya	... Croton aromaticum
179	Indi mul	... Phœnix sylvestris
180	Saksanda mul	... Aristolochia indica
181	Yakinaran mul	... Limonia monophylla
188	Gas-karalhebba	... Achyranthes aspera
189	Penera wel	... Cardiospermum Halicacabum
190	Sevendra mul	.. Andropogon muricatus
191	Aswenna	... Alysicarpus vaginalis
192	Nasnaran	... Limonia sp.
193	Pila	... Tephrosia purpurea
194	Wal-kahabiliya	... Tragia cannabina

No.	Sinhalese Name.	
195	Yak-bey-riya	... Crotalaria verrucosa
196	Dum-mella	... Trichosanthes cucumerina
197	Ela-bin-tamburu	... Ipomœa rugosa. var. alba
198	Keppetiya	... Croton lacciferum
199	Apasu-madu	... Ipomœa cymosa
200	Alariya mul	... Plumera acuminata
201	Eka-weyriya	... Ophioxylon serpentinum
218	Pitta-wakka	Phyllanthus Niruri
219	Erandu	... Ricinus communis
220	Tumba	... Leucas marrubioides
221	Dodang-pana,	... Glycosmis arborea
222	Muda-mahana	... Sphœranthus sp.
223	Waila	... Gynandropsis pentaphylla
224	Ratu-bim-tam-buru	... Ipomœa rugosa
225	Kuppa-mey-niya	... Acalypha Indica
226	Munamal	... Mimusops Elengi
227	Nasnaran	... Limonia sp.
228	Amuk-kara	... Withania somnifera
229	Adatoda	... Justicia Adhatoda
230	Jaya-pala	... Croton Tiglium
231	Attikka	... Ficus oppositifolia
232	Pam-bu-ru-gass	... Limonia Missionis
233	Tim-bi-ri-gass	... Diospyros Embryopteris
234	Gam-mi-ris	... Piper nigrum
235	Delun	... Punica Granatum
236	Kukuruman	... Randia dumetorum
237	Ettaria	... Muaraya exotica
238	Æhala	... Cassia Fistula
239	Sooriya	... Thespesia populnea
240	Binpol	... Chlorophytum breviscapum
241	Mee Mul	... Bassia longifolia
242	Era-mudu	... Erythrina Indica
243	Anguna	... Hoya viridiflora
244	Iriwariya	... Plectranthus zeylanicus
245	Kurundu	... Cinnamomum Zeylanicum
246	Et-tora	.. Cassia alata
248	Ela-netol	... Plumbago zeylanica
249	Et-demata	... Gmelina rheedei
250	Gerandi-dool	... Anodendron paniculatum
251	Kudu-miris wel	... Toddalia aculeata
252	Bomi-gass mul	... Tetranthera Roxburghii
253	Samadara	... Samadera indica
254	Weta-keya	... Pandanus odoratissimus
255	Mada-tiya	... Adenanthera pavonina
256	Ahu	... Morinda bracteata
257	Kalu-wa-ala	... Alpinia Galanga
258	Magul-karanda	... Pongamia glabra
259	Monera-kudimbiya	... Vernonia cinerea
260	Ratnetol	.. Plumbago rosea
261	Katu-kurundu	... Scolopia Arnottianus
262	Tunpatkurundu	... Limonia alata
263	Kaha-penala	.. Harpullia imbricata
264	Tiras-tawalu	... Ipomæa Turpethum
266	Divi-kaduru	... Tabernœmontana dichotoma
267	Ma-dan	... Syzygeum caryophyllifolium.
269	Totila	... Calosanthes Indica
270	Kadupara	... Gynura lycopersicifolia
271	Nawa	... Sterculia Balangas
272	Wellangiriya	... Paramignya monophylla
273	Wara	... Calotropis gigantea
274	Hatawariya	... Asparagus falcatus
275	Godakaduru	... Strychnos nux-vomica
276	Midee	... Premna serratifolia

No.	Sinhalese Name.		
277	Kapprawalliya	...	Coleus aromaticus
278	Tambala	...	Ehretia buxifolia
279	Katu-pila	..	Flueggea Leucopyrus
280	Olinda	...	Abrus precatorius
281	Heen saksenda	...	Aristolochia indica
282	Tibbatu	...	Solanum ferox
283	Embul-dodang	...	Limonia sp.
284	Ratam-bala	...	Ixora coocinea.
285	Timbiri	...	Diospyros Embryopteris
286	Bulu	...	Terminalia belerica
287	Bo	...	Ficus religiosa
290	Mum-mœ	...	Phaseolus sp.
293	Ela-Olinda	...	Abrus precatorius, var alba
318	Kakoona eta	...	Aleurites triloba
319	Andaru eta	...	Ricinus communis
320	Mee—eta	...	Bassia longifolia
321	Mun-eta	...	Phaseolus Mungo
322	Madatiya eta	...	Adenanthera pavonina
323	Jayapala	...	Croton Tiglium
324	Rata-andaru	...	Jatropha Curcas (Physic nut)
325	Sang-kottan Tam.	...	Semecarpus sp.
326	Tatta-paya-ru Tam.	...	Lablab vulgaris
327	Kollu	...	Dolichos uniflorus
328	Irya	...	Myristica Irya
329	Mala mocka	...	Phaseolus aconitifolius

2. GRAINS

18	Amu	...	Paspalum scrobiculatum
25	Calu Hatiyal	...	Oryza sativa (Paddy)
26	Sudu Hatiyal	...	do do
27	Heenati	...	do do
28	Sudu wee	...	do do
29	Honarawala	...	do do
30	Handiran	...	do do
31	Kuru wee	...	do do
32	Al wee	...	do do
33	Kalu Dahanala	...	do do
34	Kuru al wee	...	do do
35	Poluk Hanban	...	do do
36	Kalu Honarawala	...	do do
37	Podie wee	...	do do
38	Ma wee	...	do do
39	Maha ma wee	...	do do
40	Sudu ma wee	...	do do
41	Kalu ma wee	...	do do
159	Kalu duru	...	Nigella sativa
160	Tana	...	Panicum italicum

3.—STARCHES.

42	Batala	...	Ipomœa Batatas
43	Manyokka	...	Manihot utilissima
44	Arrowroot	...	Maranta arundinacea
45	Kos	...	Artocarpus integrifolia

4.—OILS.

47	Mee tel	...	Bassia longifolia
48	Okuru tel	...	Cleidion javanicum
49	Domba tel	...	Calophyllum Inophyllum
50	Dummalla tel	...	Ground resin oil (see no. 312)
51	Kong tel	...	Schleichera trijuga

No.	Sinhalese Name.		
52	Tala tel	...	Sesamum indicum
54	Koseta tel	...	Artocarpus integrifolia
55	Dorana tel	...	Dipterocarpns glandulosus
56	Aba tel	...	Brassica (Sinapis) juncea
57	Tolol tel		
58	Kapu tel	...	Gossypium barbadense
59	Meriya tel	...	Isonandra grandis
60	Nelu tel	...	Strobilanthes sp.
61	Madol tel	...	Garcinia echinocarpa
62	Kohomba tel	...	Azadirachta indica
63	Titta tel	...	Trichadenia Zeylanica
64	Mala kakuna tel	...	Canarium Zeylanicum
65	Urukannu gass tel	...	Lasiandra apicalis
66	Del tel	...	Artocarpus nobilis
291	Erandu tel	...	Ricinus communis
292	Telkekuna	..	Aleurites triloba
309	Kaju meliyan	...	Anacardium occidentale
310	Hal doommala	...	Vateria indica
311	Doon do	...	Doona Zeylanica
312	Bin do	...	Ground resin (origin uncertain)
313	Hik meliyan	...	Odina Wodier
314	Na doommala	...	Mesua ferrea
315	Devool meliyan	...	Feronia elephantum
316	Hora doommala	...	Dipterocarpus Zeylanicus
317	Kekoona mala	...	Canarium Zeylanicum

6.—FIBRES, ROPES and MATS.

67	Borupan pedura.	...	Eleocharis plantaginea
68	Tunhiriyapan ,,	...	Cyperacea
69	Gal-eha-pan ,,	...	,,
70	Hevanpan ,,	...	,,
71	Halpan ,,	...	,,
72	Dunukeiya ,,	..	Pandanus humilis
72a	Nalapan ,,	...	Cyperacea
73-75	Getapan ,,	...	,,
74	Wetakeiya ,,	...	Pandanus odoratissimus
76	Potukolapan ,,	...	Cyperacea
77	Wetakeya etulpat	...	Pandanus odoratissimus
78	Halpan	...	Cyperacea
79	Sevendra	...	Andropogon muricatus
80	Tunhiriya	...	Cyperacea
81	Galeha	...	,,
82	Hevan	...	,,
83	Borupan	...	,,
84	Getapan	...	,,
85	Henpan	...	,,
107	Wee-pahura	...	Calamus rudentum
108	Tam-bo-tu pahura	...	do
109	Weni-wel-pahura	...	Coscinium fenestratum
110	Eta-miriya-pahura	...	Erycibe paniculata
111	Nawa-patta-pahura	...	Sterculia Balanghas
112	Tala-pat-wiya-lanu	...	Corypha umbraculifera
114	Beli-patta	...	Paritium tiliaceum
115	Epala-patta	...	Triumfetta pilosa
116	See No. 112	...	Corypha umbraculifera
117	See No. 116	...	do
182	Neyada-kasa	...	Sanseviera Zeylanica
183	Neyada-ton-lanu	...	do
183a	do	...	do
184	Talapat-awana	...	Corypha umbraculifera
185	Wewel-heramitiya	...	Calamus rudentum
186	do	...	do

No-	Sinhalese Name.		
187	Kuru-adiya	...	Pandanus humilis
202	Kaduru-ketiya-wel	...	Combretum "Wightianum" Thw.
204	Muwa-keriya-wel	...	Sarcostemma Brunoniana
205	Leeniya-patta-gas-wel	...	Helicteres Isora
206	Mimini-gas-patta	...	do
208	Kiri-wel	...	Ichnocarpus frutescens
209	Bela-wel	...	?
210	We-wel	...	Calamus Roxburghii
211	Pus-wel	...	Entada scandens
212	Kala-wel	...	Derris uliginosa
213	Beli-patta	...	Paritium tiliaceum
214	Alandu-gas-wel	...	Allæanthus Zeylanicus
215	We-wel	...	Calamus rudentum
331	Ney-anda	...	Sanseviera Zeylanica
333	Paduru-ana	...	Scirpus sp.

7 PRODUCTS OF ARECA CATECHU (Betel Palm.)

9	Puwak	...	Areca Catechu, Seeds (Betel-Nuts)
9	Puwak	...	Varieties of Betel
11	Kalli-pakkoo, Tam.	...	Areca Catechu (sliced young nuts)
86	Puwak-kola-patta	...	Rodiya's Rice-plate, Leaf-sheath
87	do	...	do
88	do	...	do Rice-bag
80	do	...	do vessel for drawing water
90	Puwak-kolapata	...	Bag
91	do hapota	...	Broom (midribs of leaf)
93	do ula	...	Instrument for digging yams
94	do yot-roda	...	Fishing-reel
95	do ula	...	Instrument for husking coconuts
97	do lee dunna	...	Bow for shooting stones
99	do hella	...	Fishing spear
100	do katliya	...	Pingo for carrying weights on shoulder
101	do henda	...	Spoon
102	do kewun-badina-henda	...	Spoon for frying cakes
103	do kinissa	...	Ladle
104	do busna	...	Brush
105	do kewun-wadena kura	...	Cake pin
119	Kaippu	...	Catechu—extract from young Betel-nuts

8. PRODUCTS OF CORYPHA UMBRACULIFERA. (*Talipot Palm.*)

116	Talapat-wiya-lanu	...	Corypha umbraculifera rope
117	do	...	do do
138	Tal-kulla	...	Winnower
139	do daranoowa	...	Chatty stand
150	do Bulat-watti	...	Box for keeping betel
154	Bushna	...	Broom made from tender leaves
157	Bogawa	..	used in ploughing
184	Tala-pat-awana	...	Fans
302	Malla	...	Bag for carrying paddy
306	Pot-gediya	...	Leaves prepared for writing upon

DOMESTIC ARTICLES MADE FROM BAMBOOS, RATTANS, &c.

137	Udahalla	...	Calamus rudentum. Hanging baskets
140	Kulla	...	Beesha stridula. Winnower
149	Wewel darenu	...	Calamus Roxburghii. Chatty stand
151	Hadi alua	...	do spoon-holder
152	Bulat patti	...	Beesha stridula. Betel-box
153	Wapurana patti	...	Pandanus humilis. Baskets used in seed-sowing
156	do	...	,, odoratissimus
158	Haremetiya	...	Cyathocaly zeylanicus. Kandyan walking stick

No.	Sinhalese Name.	
294	Wata pota	... Andropogon muricata. Fan used by Buddhist priests
295	Goyan petti	... Oryza sp. Ornaments for temple-offerings
296	Peha	... Calamus Roxburghii. Used for expressing oil
297	Hendi aluwa	... Scirpus sp. Stand for spoons, &c.
298	Wapurann-petti	... CalamusRoxburghii, Seed-sower's basket
299	Peha	... do for expressing oil
301	Irratiya	... Cocos nucifera (midribs), fish trap
300	Hatti	... Beesha stridula. Hat for paddy fields
302	Malla	... Corypha umbraculifera. Paddy bag
203	Takka-rap-po-ruwa	... Beesha stridula. Rattle for frightening birds
306	Pot-gediya	... Corypha umbraculifera. Blank ola book

10. BAMBOOS FROM ROYAL BOTANICAL GARDEN, PERADENIYA.

12 Walking-sticks of various bamboos grown in Peradeniya garden

4 Specimens of large bamboos grown in Royal Botanical garden, Peradeniya.

HENRY TRIMEN, *Director.*

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10. BAMBOOS FROM ROYAL BOTANICAL GARDEN, PERADENIYA.

17 Walking-sticks of various bamboos grown in Peradeniya garden

4 Specimens of large bamboos grown in Royal Botanical garden, Peradeniya.

HENRY TRIMEN, *Director.*

Appendix.

Appendix.

Appendix.

PHOTOGRAPHS:

Illustrative of the

LEADING PRODUCTS OF CEYLON,

viz:—

COFFEE—ARABIAN AND LIBERIAN; TEA; THE COCONUT PALM; CINCHONAS; CINNAMON; AND CACAO,

WITH NOTES BY THE CEYLON COMMISSIONER.

EXHIBITED BY MR. A. M. FERGUSON

OF THE

"CEYLON OBSERVER,"

COMMISSIONER FOR CEYLON TO THE MELBOURNE EXHIBITION.

CONTENTS.

FRAME No. I.

Nine photographs illustrative of the early stages of coffee, tea and cinchona culture in Ceylon.
Taken on Abbotsford estate, Dimbula.

FRAME No. II.

No. 1.—Spring Valley estate, Badulla.
,, 2.—Coffee curing: Sinhalese, Tamil and Moor women engaged in picking.
3.—Leangolla estate, Knuckles district.
4.—A. Branches of Liberian and Arabian coffee.
B. Coconuts in various stages—the sheath containing the flower, the expanded flower, small and large nuts with husk and without, and nuts cut open.
C. Branches of the red and golden varieties of cacao.
,, 5.—Coconut palms, Batticaloa.
,, 6.—Bloemendal coffee curing establishment, Colombo.
A. General view of the mills.
B. Interior of the picking room.
,, 7.—Cinnamon peelers: Sinhalese men.
,, 8.—Cinnamon garden: cutting branches for peeling.
,, 9.—Cinnamon peelers: Sinhalese women.

[The photographs in both frames are by Messrs. W. L. H. Skeen & Co., of Colombo.]

NOTES BY EXHIBITOR.

The Commissioner for Ceylon at the Melbourne Exhibition, although he feels precluded by his position from shewing produce of his own, in the shape of COFFEE, TEA, or CINCHONA, may well consider himself not only at liberty, but bound in duty to produce illustrations of and some information respecting, the leading products of the Colony in which, for a period verging closely on forty-three years, he has watched and through the press recorded the progress of agricultural enterprise and industry : fostered, as they have been, by British capital and rendered possible by a plentiful supply of Indian labour directed by European intelligence and energy. As in the island continent of the South, so in the "utmost Indian isle, Taprobane," progress has been varied by vicissitude, and any deficiencies in the contributions which Ceylon sends to the International Exhibition at Melbourne must claim the indulgence due to the fact that the chief enterprise of the colony, that which has made Ceylon the third coffee country of the world, is now passing through a crisis of great severity, due to the ravages of a fungus blight and to abnormal seasons. But a revival of prosperity is confidently anticipated in connection with old products as well as by the introduction of new sources of agricultural wealth. Choosing a selection of photographs as his text, therefore, the representative of Ceylon at the MELBOURNE INTERNATIONAL EXHIBITION offers a few words of information respecting the products which take the lead in the agriculture and commerce of Ceylon.

The left-hand frame contains nine views selected from a series taken on Abbotsford estate, Lindula (Dimbula), on which Arabian coffee, tea and cinchona are cultivated. This is a mountain estate, varying in altitude from 4,560 feet above sea level to nearly 6,100, the mean temperature ranging between 60° and 65°, according to elevation, and the average annual rainfall being about 110 inches.

COFFEE is cultivated here (about 7° north of the equator) up to 5,300 feet and flourishes at this extreme altitude in sheltered situations, the question being certainly more one of shelter from wind than of mere altitude. As a general rule, however, the best zone for coffee in Ceylon begins with 2,500 feet and ends with 5,000. In most parts of the northern districts indeed, 4,500 feet indicate the limit of elevation beyond which it is not profitable to go with coffee. In the genial climate as well as fine soil of the eastern or Uva dis-

tricts of the Ceylon mountain system, however, the plant yields good returns up to 5,500 feet. But as elevation increases the trees take an appreciably longer period in coming to maturity so as to give returns of crop. At 3,500 feet and below that altitude a good maiden crop is yielded at 2½ years from planting out into the field, and the first full crop (often 10 cwts. per acre average in pre-fungus times) is due in the fourth year. But on low hot estates, while the yield is earlier and larger, the trees become sooner exhausted and worn out.

It is probable that the same experience may be obtained with TEA, which flushes very early in life and gives most luxuriant returns of leaf in the low hot districts of Ceylon. At high elevations the crops of coffee and tea are yielded neither at so early a period nor often in such quantity, as at lower altitudes; but, given fair shelter from wind, the trees may probably last considerably longer and the flavour of the produce will be certainly more delicate. On Abbotsford there are tea bushes scattered along the paths (chiefly seed bearers) from the lowest level, but the regularly planted tea fields run from 5,300 to 5,900, and promise very fairly indeed; the superior varieties, Assam indigenous and best hybrid, growing more luxuriantly even than the smaller-leaved China kinds, which have also an objectionable tendency to flower and seed prematurely. In Ceylon the age of coffee, is invariably calculated from the date of planting out in the field, which is seldom done under eight to twelve months after the sowing of the seed in the nursery. Indian tea planters on the other hand, count the age of the tea plants from the date of putting the seed into the nursery, or into the pits in which they are permanently to grow, a mode sometimes adopted and called "planting at stake." When, therefore, it is said in treatises on tea that the plants should not be plucked, even moderately, until they are three years old, their second year in the field if nursery plants, or their third from "planting at stake," is understood. Where "planting at stake" is adopted (and it has been tried in a few cases with coffee) two or even three seeds are put into one hole, and the most vigorous left to grow. In Ceylon, it really seems as if tea would flourish from sea level to 6,000 feet, wherever the rainfall is sufficiently copious. Ceylon being so near the equator, tea does not get the same "wintering" as in Northern India, and it is probable pruning will be performed in the height of the winds and rains of the south-west monsoon (June-July) instead of November, as in Northern India, where the trees "rest" during the dry and cold season until the following March. It is believed that experience in Ceylon

will disprove the dictum of a leading Indian authority on tea culture, that "a climate good for tea cannot be salubrious." The export of tea from Ceylon (although the plant seems to have been introduced in the period of Dutch rule,) has only really commenced within the past couple of years and hopes are entertained that the Ceylon pure and delicate leaf, (chiefly the produce of best Assam hybrid introduced mainly within the decade now closing,) may find special favour in Australia, equally with the perhaps stronger produce of the Indian gardens. The export for the commercial year ending 30th September next, promises, when these notes are written, to approximate in quantity to 80,000 lbs., but aconsiderably greater quantity, perhaps 150,000 lbs., has been consumed locally. As local demands will soon be fully met and a considerable acreage is coming into full bearing, a rapidly increased export may be anticipated.

As far as experience has been obtained, the best zone of altitude for CINCHONA is,—from 2,000 feet to 4,500 for *C. succirubra*, the source of the "red bark." For *C. officinalis*, the source of crown or pale bark, the zone commences at 4,000, or, better, 4,500, and runs up to 7,000 or even higher. *C. calisaya*, "yellow bark," is found in its native habitat, on the Andes, chiefly at 5,000 feet above sea-level, but in Java the tendency in regard to the precious variety *Calisaya Ledgeriana* is to go lower down than 5,100 feet, at which elevation the principal plantations were originally established. In British Sikhim (20° further from the equator than Java and Ceylon) the calisayas are cultivated even below 2,000 feet. Where soil is good and the situation is sheltered, there is little doubt that this valuable tree will flourish fairly from the lowest limit of the *C. succirubra* zone to the highest verge attained by *C. officinalis*. But the question of the best altitude for the yellow barks has still to be settled : always remembering that much respect is due to conclusions arrived at in Java and British Sikhim, in favour of comparatively lower altitudes for yellow barks than those found suitable for the crown bark trees. A good friable soil, with a porous, easily drained sub-soil, are important conditions for all the cinchonas. While the zone for *C. succirubra* is taken to extend upwards to only 4,000 or 4,500 feet, the tree flourishes, though growing more slowly, up to 6,000 feet, at which elevation, in suitable soil the three species seem doing well in their earlier stages on Abbotsford and in places similarly situated in Ceylon. But, while the bark of *C. officinalis* and probably that of *C. calisaya* improves in quality and quantity of alkaloids with elevation, it was the opinion of Mr. Broughton, formerly quinologist to the Madras Government, that the bark of *C. succirubra*

deteriorated when grown above 4,500 feet. But further experience has upset many conclusions arrived at in the earlier stages of the culture (only commenced in India and Ceylon a score of years ago); and whatever may be true of natural bark, the processes of partial stripping, mossing, and renewing, have altered the conditions, largely for the better, in the case of all the species, but specially in that of the red bark, which becomes, when renewed, not merely a druggist's bark, useful for decoctions, but of value to the manufacturers of quinine. The mossing process being expensive, much interest attaches to the "scraping" off of the outside bark, as adopted by Mr. Moens of Java. After being scraped the bark is found to renew readily without any covering, and an experiment in Ceylon seems to shew without any of the gaps too frequent in the case of trees subjected to the stripping process. It remains to be proved if bark so renewed is equal in quantity and quality of alkaloids to that which has been protected by damp moss. The export of cinchona bark from Ceylon has increased rapidly in the past three years, and in the commercial year ending 30th September is expected to shew a total of 1,200,000 lbs.

The Abbotsford views are interesting as shewing the aspect of an estate in the earlier stages of the cultivation of coffee, tea and cinchona. As on most of the mountain coffee estates of Ceylon, there is here abundance of what the Americans call "water privileges," streams being numerous and often tumbling in beautiful waterfalls over verdure-clad rocks. From one such waterfall is obtained the power which moves the water-wheel and the pulping machinery of the store, on this plantation.

View No. 2 gives a very vivid idea of the first operation in OPENING AN ESTATE, that of felling the forest, at which, and the subsequent operations of lopping and burning, the native Kandian Sinhalese are very expert. The low-country Sinhalese are tgood carpenters, but the culture and general work on estates are prformed by Tamils, immigrants from Southern India.

No. 1 gives a very good idea of YOUNG COFFEE scattered amongst the felled and partially burnt forest, with CINCHONA in the foreground and a belt of the original jungle left standing in the background. In the distance rise mountain ranges, amongst which may be seen the pyramidal summit of Adam's Peak, "the sacred mountain" of Ceylon and, from its conspicuous appearance from the sea, long regarded as the highest point in our mountain system. There are in reality some half-dozen higher mountains, although the summit of Adam's Peak is 7,352 feet above sea-level. The Elbeda ridge, over a gap of which Adam's Peak appears, is

6,637 feet above sea level, and below, in front of and beyond it, stretching from the Great Western mountain to the Peak, are vast expanses of cultivation, interspersed with luxuriant forest bright streams, and lovely grass savannahs (the Agra and Lindula "patanas," &c.). The forest on the portion of Abbotsford shewn in the view was felled and burnt between November 1871 and February 1872, and the land was not planted until August of he latter year. This view and the others were taken in November, 1875, so that the oldest coffee was only a little over three years : the cinchona trees in the foreground only a little over two.

While No. 1 shews an Estate Path clearly, No. 3, another section of the same comprehensive view, indicates the nature and position of the first sets of "Lines" (labourers' huts) erected for the accommodation of the coolies.

No. 4 gives a near view of COOLY LINES with plantains and other culture in the bits of garden ground attached. The small centre building was for the accommodation of a cow which the head kangani (native overseer) was allowed, as is frequently the custom, to keep. Care has to be taken, however, that the coolies do not convert the verandahs of their lines into abodes for goats, fowls, and even pigs. Sanitary regulations, otherwise require to be enforced to prevent disease, as the coolies, from choice, will crowd into limited room and do not understand the danger of a vitiated atmosphere or polluted water.

No. 6 is a GENERAL VIEW OF THE ESTATE as it appeared in November 1875, with a large portion of the forest still standing round the patches felled. In the near foreground are coffee, tea and cinchona nurseries, with the shading removed from the platform of branches; then two sets of cooly lines, with glimpses of the superintendent's bungalow, the school-house for labourers' children, stables and cattle sheds, the store, two more sets of cooly lines, and finally the assistant superintendent's bungalow on the edge of the new clearings and just below a waterfall. The view is interesting as shewing a young plantation in all stages : rows of coffee three-and-a-quarter years old to the right of the cooly lines in the foreground and towards the bungalow, shading away to plants only one-and-three-quarters year old above the assistant's bungalow; with felled and standing forest beyond, up the sides of the range which divides the estate from Nuwara Eliya, the mountain sanitarium of Ceylon. Out of 549 acres of original forest, all except about 70 acres reserve are now (August 1880) cleared and planted with several millions of coffee, tea and cinchona plants and many thousands of Australian acacias and eucalypti. The latter grow rapidly, and,

for shelter and as timber yielder (especially for firewood, charcoal and railway sleepers), promise to be very valuable gifts bestowed by Australia on Ceylon. Coffee is planted about 1,200 trees to an acre ; tea and cinchonas from 2,000 to (as on Abbotsford) 4,800 per acre. While in the hot valley of the Brahmaputra and in the Indian Terai, tea may require such distances apart as 4, 5, and 5½ feet. In the case of Cinchona 3 × 3 has been advisedly adopted at high elevations in Ceylon, where *C. officinalis* flourishes. Cinchonas so planted can be gradually thinned, even if plants do not "die off" in the proportion which is common in some situations; but planters whose judgment is worthy of respect have recommended 3½ × 3½ for officinalis and 4 × 4 for succirubra. At the commencement of both the tea and the cinchona enterprise, much wider distances were adopted than are now deemed necessary. In consequence of the effects of *hemileia vastatrix* in diminishing the crops of coffee, and the great success of cinchona culture, it is the case on this estate as on so many others, that cinchonas (chiefly *C. officinalis* at high elevations) are planted thickly through the coffee, with rows amongst the tea. The cinchonas, at first sheltered by the coffee or tea bushes, will ultimately return with interest the shelter they received, besides yielding valuable produce in the shape of bark rich in alkaloids. Experience seems to prove too, that where the subsoil is stiff, coffee and tea, from their tendency to send down long tap-roots, as well as from the digging, manuring and weeding they receive, are good preparatory cultures for cinchonas, which are very extensively and often very successfully grown even in ground where coffee is old and exhausted. Exhaustion in Ceylon, except in very favourable circumstances of soil and climate, generally shews about the fortieth year of the coffee tree's existence. It will thus be obvious that the introduction of the fever-plant is of double value to Ceylon : as a primary cultivation and as a successor to old coffee. Liberian coffee and cacao, which flourish from sea-level to about 2,000 feet, are much larger plants than Arabian coffee or tea, and are planted only 450 to 500 to the acre, Arabian coffee being sometimes grown between the rows, to be removed after the fourth or fifth year, by which time the lateral branches of the larger plants shade the ground ; an important consideration where a fervent tropical sun rapidly wastes by combustion the not too plentiful fertile surface soil. In Ceylon culture Arabian coffee is *topped* at 2½ to 3½ feet, according to exposure to wind ; Liberian coffee at 5 to 7 feet ; tea at 18 inches to 3½ feet according to *jât* or species. The general proportions for tea are :—

For	China ...	1½ foot.
,,	Hybrid Assam	3 feet.
,,	Indigenous Assam	3½ ,,

Cinchonas and cacao are pruned but not topped, while the coppiced shoots of cinnamon are not even pruned, the lateral branches not being taken off until the "sticks" are cut for barking.

No. 5 is a comprehensive view, bounded by the "Great Western" mountain, 7,264 feet above sea level, a central and striking object in the grand scenery of DIMBULA, itself one of the largest perfectly cultivated coffee districts in the world. Estate paths are seen radiating from the bungalow (of which only a back view is here given), with portions of a cart road. The ravine above the stables and cattle-shed has since been converted into a very pretty lake, with a boat on it and surrounded by clumps of the gigantic and other bamboos which flourish here at 4,800 feet above sea-level. Indigenous bamboos grow in the forests up to 7,000 feet, but these are small or dwarf species. Very little has as yet been done in Ceylon, in adding to the limited number of good freshwater fish indigenous to the Island; but there is hope that estates may yet have their ponds supplied from the artificial lake at Nuwara Eliya, into which perch and trout have been introduced, the gift of the late Mr. McIvor, who originally brought the fishes from Britain to Ootacamund. Australia, in the matter of acclimatization of animals and fishes, has set an example which it behoves India and Ceylon to follow. The late Mr. Edward Wilson, it may be here noted, drew on the Ceylon fauna for what it contained of useful and beautiful; his attempt to carry fireflies from their tropic home through the cold temperature encountered as even Western Australia is approached, being, however, though well meant, not successful. After the first cold breeze nothing but dust remained in the pierced zinc cases.

No. 7 gives an excellent representation of *Cinchona officinalis:* foliage, flower (pink-coloured and fragrant) and fruit, growing by the side of a bit of water in a depression on a mountain top 5,200 feet above sea-level. This species was shewing flowers and fruits at two years and three months from the date of planting, or three years and a half from the period of being placed in the nursery as a cutting. *C. succirubra*, the much larger foliage of which is shown in No. 9, takes about twice the time in coming to maturity. While *C. officinalis* is merely a large shrub, *C. succirubra* becomes a tall and robust tree, and where it finds the best conditions of growth is often slow of yielding seed. Indeed cinchonas in Ceylon are frequently deprived of their flowers and seed-vessels, under the impression that the formation of seed interferes injuriously with the quantity and quality of alkaloids in the bark. A still more questionable practice is that of so severely pruning

away the branches that cinchona trees, naturally handsome, vie in stiffness with pollarded poplars. Where *C. succirubra* is grown amongst coffee the umbrageous branches must certainly be thinned away, and a clear stem is necessary for the stripping or scrap, ing process, but the removal of nearly all the foliage from a tree would seem to be injurious not only to its growth but to the plentiful secretion of alkaloids in the bark. If only planters can wait so long, the earliest periods for harvesting the cinchona barks are four years from planting out in the case of *C. officinalis* and five to seven in that of *C. succirubra*, whether the coppicing or the stripping and mossing (or scraping), and renewing system is adopted, or the rooting out process. By the former a succession of shoots is obtained ; by the second bark can be taken successively for a series of years, the limit of which is yet unascertained, from trees left standing and increasing yearly in size and yield ; while by the last-mentioned method, the trees are absolutely destroyed ; but, as established in British Sikhim, the bark harvest is increased by one-third in the shape of root bark which generally sells higher than even the best stem bark. The alkaloids are supposed to be more in quantity and richer in quality in root bark, because elaborated under protection from sunlight. The objection to the uprooting process is, that cultivation has to be commenced *de novo*, while the soil, unless exceptionally rich, must be allowed to lie fallow for some years.

We have in No. 8, the "MUSTERING OF THE COOLIES" at the STORE. Subsequently to the taking of this view, the store was enlarged and fitted with a water-wheel to drive a set of Walker's first-class pulping machinery. The ripe berries being, by means of the pulpers, deprived of their outside mucilaginous covering, and so converted from "cherry coffee" into "parchment," the "beans" are spread out on coir mats on the cleared space (in planter parlance "barbacue") on which the coolies are mustered. When the coffee, by being spread on this platform and on the store loft, is which floored with coir matting, is sufficiently ried for transmission to Colombo, it is packed in jute sacks and sent off by cart and railway, where the latter is available. A new use has, recently, been found for coffee store lofts in the drying of cinchona bark, which can also be effected by artificial heat in the tea house, when one exists on the estate. Mr. Moens of Java has found that bark is not injuriously affected by being dried in the fiercest sun heat, while on the Nilgiri Government plantations, where the bark is harvested in wet weather, as most favourable for the stripping and mossing process, the bark is dried by furnace heat, distributed by flues which run under bamboo shelves.

Coffee and tea differ essentially in the extent to which water is used (on estates) for the preparation of the one, while fire, in the shape of glowing coals of charcoal, is the great agent in the preparation of the other,—tea. Before being dried in fine wire sieves over charcoal fires (roasting in copper pans being now generally dispensed with) the green succulent leaves are "withered" by being spread out thinly on matted shelves. When sufficiently soft and satiny to the feel, the flaccid young leaves are rolled, fermented and fired, the proportion of dried leaf to wet being generally as nearly as possible one-fourth. One of the reasons why Indian tea is so much stronger than China is said to be found in the fact that while the Chinese waste the juice which exudes from the leaves in the process of being rolled this juice is carefully reabsorbed into the balls made ready for fermentation after the rolling process in tea preparation as pursued in India and also in Ceylon.

CINCHONA bark, which dries down to from one-third to two-thirds, according to age, quality and season when collected, is taken off much as cinnamon bark is; but the outside bark of cinchonas is carefully preserved (the alkaloids residing in the cellular tissue), and the "quills" are neither so lengthy as in the case of cinnamon nor are they placed one inside the other to be baled. When sufficiently dried, whether on the estate or at a Colombo store, the bark is packed in wooden cases or, much more generally, in double "gunny" bales. It seems essential that red bark (natural red bark at any rate) should be sent away in nice even unbroken quills; the druggists, who use chiefly this kind of bark, judging largely by good appearance and liking to have show pieces of bark for their windows. But as the barks of *C. officinalis* and *C. calisaya* are sold by analysis they can be less carefully cut and packed. Crown bark can be pounded down into the bales without detracting from its value, and some sent recently from Ceylon was actually subjected to hydraulic pressure. The only objection offered to this process is that it was somewhat difficult to obtain specimens from the bales. Thorough drying in the shade, in the sun, or by artificial heat, is essential for cinchona bark in all cases.

Tea can be partially DRIED in the sun, but artificial heat is essential to finish off with, even where "green" tea is made. In the case of coffee artificial heat is deemed inadmissible but the intensity of the fierce tropical sun rays to which the beans are subjected is heightened by the black colour of the Colombo store barbacues, this colour being caused by the tar with which they are coated. About one-half the weight of coffee cherries as gathered from the trees is left on estates in the shape of pulp, and then a ton of the resulting "parchment" coffee as received

in Colombo yields 12 cwt. of clean dried berries as finally packed for shipment in the Colombo stores and sold to be roasted and ground.

The time of COOLIES' Muster at the estate store as shewn in the view (photograph No. 8) is half-past 6 a. m., and the morning sun's rays are just lighting up the top of the ridge behind the building. In front of the Coolies stand the Europeans connected with the estate: the proprietor in the right foreground, the superintendent (with the head kangani by his side) a little to the left, and the assistant superintendent on the extreme left. The kanganies stand in front of their respective gangs. Of the latter only a select number are present, many of these people having a vague dread of the photographic instrument. Indeed one of the men fell down in a fit on the occasion of taking this view, an experience which the photographer said was familiar to him from its frequent occurrence in like circumstances. The Tamils of South India who pass to and fro between the rice and millet fields of their own flat hot land and the mountain plantations of Ceylon, as Irish reapers do to England and back, are inferior to the negroes in physical vigour, but they are docile, and fairly steady workers. The immigration and emigration of these people to and from Ceylon, since the exigencies of the advancing coffee enterprise led to an ever-increasing demand for their labour from 1,840 onwards, has been in excess of two millions (the numbers reported between 1843 and 1879 being 2½ million arrivals and 1,800,000 departures), and the benefits which they have conferred on Ceylon by their labour, and on themselves and their often semi-famished families and countrymen, by the earnings of that labour are incalculable. Not only have they worked estates, but roads (for the abundance and general excellence of which Ceylon is celebrated), railways, and other public works, have been largely constructed by them. While the Sinhalese are an Aryan people and speak a language chiefly derived from Sanskrit, the Tamils are Turanian in race and their language is classed as Dravidian. A good many Tamils (popularly but incorrectly termed "Malabars") have settled in Ceylon, but most of those who save money purchase land in their own country. With all their good qualities, that of extreme honesty cannot be claimed for the Tamils, even by their best friends, any more than the virtue of cleanliness in person, habits and abodes. Gardens are not cultivated around "lines" (the cooly huts) as they ought to be, because the cultivator or a member of his family would have to stay at home to guard the fruits and vegetables from being appropriated by other inmates of the lines; and when a Tamil man and his wife go to visit friends on a neighbouring estate, it is often the

case that the husband carries the cock and the wife the hen which constitute their poultry stock, thither and back again. A planter tells an amusing story of seeing one morning all his potato stalks drooping. His coolies had, during the night, taken the tubers and re-inserted the stalks in the soil. In such cases the patriarchal justice usually inflicted is to fine every cooly on the estate, unless the guilty parties (who are of course well-known) are given up. Until the advent of the "hard times" which have recently visited planters and coolies alike, housebreaking and robberies of a grave nature by estate coolies were infrequent. For the sake not only of the European planters but of the natives of Southern India as well as the forest-fellers, cask-makers, carpenters, cart-drivers, contractors, &c., of Ceylon, it is fervently to be hoped that a good "next year" and a succession of such years will now visit the lately sorely tried coffee enterprise of Ceylon. At the commencement of the decade which ends with 1879-80 the exports of Arabian coffee from Ceylon had advanced to beyond a million of cwts. in quantity and four millions sterling in value. Instead of a largely increased quantity and value in 1879-80, which were reasonably anticipated, we shall ship not much more than 630,000 cwts. of a value of 2½ millions sterling, in lieu of over 1½ million of cwts. worth 6 millions sterling. This disastrous diminution of crop is, as already stated, mainly the effect of a minute but destructive leaf fungus, aggravated, latterly, by abnormal seasons. Signs that the crisis is over and the evil days passing away are not wanting, and while a revival of the special enterprise in Arabian coffee is anticipated in Ceylon its partial failure may (like the potato visitation in Ireland) turn out to be a blessing in disguise, enforcing energetic and persevering attention, as it has done, to such new and valuable products as LIBERIAN COFFEE, CACAO, CINCHONA, and TEA, which have just commenced to figure in the exports of Ceylon, and for which, with the Colony and its inhabitants, we cannot but believe there is a bright future of prosperity and progress. Still of "the Eden of the Eastern wave" it will, we trust, continue be said that it is a land

"Where Europe amid Asia smiles."

The number of plantations, mainly owned and managed by Europeans, in Ceylon is about 1,600; the extent being about 550,000 acres, of which 280,000 acres are in cultivation. The number of managers and superintendents is about 1,250, besides the Europeans in Colombo connected with the curing and shipping stablishments.

The views 1 and 3 in the second frame represent COFFEE CULTURE in an advanced stage. No. 1 shews well the evenness of the rows in which the bushes stand and the regular size to which they have been topped so as to induce lateral growth, for the double purpose of producing the maximum of fruit and securing a covering for the soil from sun-heat and rain-wash. All the asperities of stocks and trunks of the original forest have disappeared in this case, much to the improvement in appearance of the estate. Here we have examples of the mountain streams (often varied by beautiful waterfalls) and the pretty bridges so common on coffee estates in the hill country and mountains of Ceylon. In Brazil and Java the coffee trees are almost universally allowed to grow to their natural size of about eight feet high, and are, therefore, planted so widely apart as to give only about 300 to the acre, that is one-fourth the Ceylon average. In both Brazil and Java land is plentiful and labour scarce. Coffee is grown unpruned and untopped around native huts in Ceylon, but on plantations the few trials made of this mode of culture shewed strongly two grand objections : the trees allowed to grow up untopped throw off their lower primaries which in topped trees bear the heaviest loads of fruit, and crop being concentrated on the top branches these are often broken by the coolies in the process of pulling them down so as to permit the gathering of the "cherries." In Ceylon the most scientific cultivation has been the rule, and the results in quality and quantity of coffee were in proportion until the advent of the leaf fungus. The debilitating influence of this pest has largely decreased quantity of crop, but has not materially affected the quality of the Ceylon bean, which, in the case of best high-grown plantation, ranks with the finest produce of the world.

No. 3, one of the finest ESTATES in Ceylon, affords a good idea of the complete system of paths by which most of the plantations are intersected. On the number and good condition of those paths, to which a cart road is often added, largely depends the careful and economical management of a property. The perfection of the road system of a plantation is that the paths should be so numerous, smooth and well-bridged as to enable the superintendent, day by day, to find easy and rapid access to every portion of it, mounted on his fast trotting or cantering horse. Even when coolies are employed on task-work, frequent and surprise visits from the European superintendent are of great value. The Tamil coolies work well when well looked after. Of the dignity of labour, emulative pride in good work, or conscience as to earning their wages, but few of these people

have much idea. Exceptions there are, however, and these may be expected to increase as the operations of the Cooly Mission are crowned with increasing success. The average number of immigrant Tamils present during the year in all Ceylon (including those working on their own account and comparatively settled,) is not less than 300,000,—men, women and children included. The medical wants of the coolies on the plantations, are provided for by a special and rather onerous acre tax, and their interests and rights are guarded by stringent laws, which, however, seldom need to be enforced, the understanding between employer and employed being generally—almost universally—good. The interest and the duty of the Ceylon planter in the good treatment of his labourers are coincident, for engagements terminable by a month's notice are the rule, while steamers and fast sailing schooners (these last provided by the Ceylon Government) enable the coolies as quickly and cheaply to "returnto their country" (TAMIL, *shîmeikku pôha*) as to come from theircountry to Ceylon.

The middle picture of the top row, No. 2, shews the final process of "COFFEE PICKING" as done by hand,—machinery being capable of *sizing* the beans, but not of discriminating broken from whole ones or separating foreign substances from the coffee. Many thousands of women and children find profitable employment of this nature at the Colombo stores. The picture is interesting as shewing the women of the three leading races of Ceylon—Sinhalese, Tamils, and "Moors"—in their ordinary costumes. The "Moormen" of Ceylon (*Moros* of the Portuguese) are generally descendants of natives, principally Tamils, proselytized centuries ago by Arab refugees or immigrants to India and Ceylon. The men are frequently pedlars and jewellers, and have been appropriately called "the Jews of Ceylon." It is only the women of the poorer classes of these Muhammadans, however, who expose themselves to public gaze.

In photograph No. 6 are combined representations of the exterior and interior features of the COFFEE STORES, the tall chimneys of which are so prominent round the shores of the COLOMBO LAKE. Into these stores the coffee is received from the up-country estates, in a partially dried state, the beans still enclosed in "the parchment skin," the mucilaginous and saccharine outer envelope only (generally containing two beans, placed face to face) being "pulped" away on estates. In the Colombo stores the parchment coffee is finally "cured," being first spread on platforms of brick covered over with tar, until every particle of moisture is expelled. The now brittle parchment skin is then,

broken from the bean by wheels revolving in a circular trough and so suspended as not to crush the beans. The parchment skin, thus reduced to the condition of "chaff" and ultimately used as fuel for the furnaces of the steam machinery employed, is driven away by fanners, and the clean beans are sized in perforated revolving cylinders, hung at an incline which carries the larger sized beans downwards. The final picking and sizing, including the separation of the round "peaberry" (two beans Poalesced) from the flat-faced beans, also broken from whole coffee, with the careful removal of bits of gravel or sand, are done by the deft hands of women and children. When all this is completed the coffee beans are, according to size and quality, packed in casks which are charred inside and well secured, each containing about 8 to 9 cwts., the rate of coffee in cask for freight purposes being 16 cwt. to a ton. Only inferior or "native" coffee is packed in bags, 18 cwt. to a ton. There seems little doubt that the coffee plant was introduced into Ceylon from Yemen (whither it had previously been brought from Abyssinia) by the Muhammadan voyagers, many centuries ago, but it is said that until the advent of Europeans, the natives knew nothing of the stimulative virtues of the berries, only using the flowers as offerings in the Buddhist temples and the leaves as seasoning to their curries! Until the records of Portuguese rule in Ceylon, supposed to exist in Brazil, are examined, it is impossible to say if the virtues of coffee were appreciated by the first Europeans who effected a settlement in Ceylon. The Dutch, who, beyond all doubt, were the first to cultivate cinnamon in Ceylon, paid also a good deal of attention to coffee; but the first regular plantations date only from 1825, ten years after the Mountain Kingdom of "Kandy" came under British rule, and the "rush" of Europeans into the enterprise was later by another decade. In 1837, only a little over 30,000 cwts. of coffee were exported from Ceylon: in almost thirty years the export rose to one million cwts., and this quantity might have been increased by one-half in the succeeding decade, but for the fungus blight already referred to, and the disappearance of which is now hoped for, by effluxion of time rather than by the discovery and application of any effectual remedy. What "rust" often is to wheat in Australia, the leaf fungus is to coffee in Ceylon, with the difference against the tropical colony that the plants affected are perennial, incapable of entire removal and renewal except at, a ruinous loss of time and expenditure of money. Efforts are however, made to introduce "fresh blood." Seeds obtained from Aden of the celebrated "Mocha" coffee have yielded good results, and much is hoped for from the seed of a variety grown in

Coorg, Southern India. The Liberian plant, from the greater size and thickness of its foliage, is, happily, able to resist the fungus.

No. 5 gives a good idea of the mode in which the COCONUT PALMS grow near the seashore. The tendency of this palm to bend, especially towards the light and air which it finds on the seaside, adds much to its gracefulness in scenery : a perfectly straight coconut being according to a Sinhalese proverb as rare as a white crow. The value of the coconut palm to the world and especially to the natives of Ceylon can scarcely be exaggerated. Its products are fully represented at this Exhibition by several Ceylon exhibitors. It is probably not an exaggeration to estimate the number of coconut palms in Ceylon at twenty-five millions. They exist principally in a zone extending two or three miles inland from the sea-shore chiefly on the south-western coast, although there is a good portion of this cultivation near Batticaloa on the east side of the island. The much drier climate of the northern end of the island is not so favourable for this moisture-loving palm. Specimens are found occasionally in the hill country up to 2,000 feet altitude, but they rarely bear heavily at any great distance from the sea air. The closed and expanded flower-spathes and fruit of this palm in different stages are well shewn in the centre of No. 4. The flower-stalk with incipient fruits scattered over it closely resembles a series of gigantic heads of ripe wheat. We have already indicated the acreage of land devoted to the cultivation of coffee (both species), tea, cacao, cinchonas, &c. The coconut palms are spread over about 300,000 acres, and the acreage of the cultivated "cinnamon gardens" is about 20,000. While the vast majority of the coffee, tea, cinchona and cacao plantations are in the hands of Europeans, the very opposite holds good of coconut and cinnamon property. Of cinnamon may specially be said, what is true of all our leading products, except those yielded by the coconut tree, that the vast bulk are exported. The products of the coconut tree, on the other hand, are largely used locally : the nuts for food, oil and coir; the juice of the flower spathe for yeast and fermented and distilled liquors ("toddy," properly *tari*, and arrack); the leaves for mats, thatch, &c. But there is a large export of oil and coir with a considerable though fluctuating quantity of arrack. Some of the most perfect apparatus in the World are used at the Hultsdorf Mills, Colombo, for grinding the dried coconut kernels and expressing the oil. The exceedingly powerful presses can scarcely be called hydraulic, as oil is the liquid now employed to raise the ram. It is believed that the annual export of coconut oil from Colombo considerably exceeds the figures for any other port in the world. The annual exports

of oil from Ceylon (practically all from Colombo), which averaged 407,000 gallons valued at £25,625 for the five years 1837-41, rose to 2,717,750 gallons valued at £271,773 in 1879. The like comparison for cinnamon gives an average of 452,000 lbs. valued at £37,447 in 1837-41 and 1,314,000 lbs. in 1879, valued at £66,000.

The *average* yield of a coconut palm in fruits has been greatly exaggerated, in consequence of persons drawing general conclusions from particular specimens. In favourable situations of soil and shelter, no doubt 100 nuts or more have been yielded by a single tree in a year. But such exception are rare The climate and soil of Ceylon are supposed to be specially favourable to this palm, but careful observation has proved that 40 nuts, the equivalent of a gallon of oil, are rather a high annual average per tree. The harvests of coconuts, in truth, vary exceedingly; being short in a year of drought and plentiful in proportion to rainfall, which at Colombo has in ten years given an average of 88·36 inches, but particular years have shewn such differing results as 159·70 inches in 1878, and 57·03 inches in 1874. Taking 40 nuts as the produce of a tree and as the equivalent of a gallon of oil, it follows that when we export 2,500,000 gallons of coconut oil from Ceylon, we have drawn for this quantity on no fewer than 2½ millions of trees and used the *copra* (dried kernel) of 100 millions of nuts. Coconut oil is largely used for soap manufacture on the continent of Europe, the product of the palm nut of Western Africa being, I believe, preferred for candle-making. Much of the *copra* of Ceylon being dried over fire, owing to the wetness of the climate, the resulting oil generally is somewhat inferior to that exported from Cochin on the western coast of India. It has been stated to me as a fact, however, that choice copra exported from Ceylon to Calcutta and Bombay is not all expressed into oil, but a good proportion of it used as food by native baboos and others, desirous of securing that degree of obesity which natives of India generally associate with rank and dignity. The kernel of the coconut forms a large portion of the food of the people of Ceylon, but whether scooped out of the nut and so eaten, or scraped fine as an ingredient in curries, freshness is desiderated. The large quantity of water enclosed in each coconut is more or less saccharine in proportion to the age of the nut. The water of a young coconut makes a refreshing and wholesome drink, and the same might be said of the juice ("palm wine") extracted from the flower spathe, if used before the setting

up of the fermenting process. The juice when fermented is as intoxicating as beer, and it is the basis of the spirit called arrack, so largely used in Ceylon.

On the right-hand side of No. 4 are representations of branches of two varieties of a tree which even educated and intelligent persons frequently confound with the cocoa (properly coco) palm. The confusion arises largely from the identity of pronunciation adopted, which is indefensible. The proper spelling of the cac*ao* not coc*oa* plant indicates the correct pronunciation, which is *ka-cow*. The fruit of this plant (a plant as unlike a palm as anything could be) which Linnæus named *Theobroma* is the origin of the beverages "cocoa" and chocolate, and of numerous confections, which, on the continent of Europe, especially in Spain, are largely flavoured with cinnamon in lieu of vanilla. The temporary check given to the coffee enterprise of Ceylon by the ravages of the fungus, *hemileia vastatrix*, drew attention to cacao, scattered trees and patches of which had long existed in Ceylon, the most appreciable of which were on an estate owned by a well-known planter who received his training in Jamaica, Mr. R. B. Tytler. He has extended the cultivation largely, and his example has been widely followed. The small quantities of the beans as yet sent from Ceylon to the London market for trial have realized most encouraging prices. But neither cacao nor Liberian coffe will figure to any extent in the exports of Ceylon until the local demands for seeds have abated. At the period (August 1880) at which these notes are penned, Liberian coffee beans (not cherries which contain two) are selling at R20 per 1,000, while pods of cacao containing on an average 25 seeds are selling for 25 cents of a rupee, locally produced tea seed being sold at R50 per maund and plants at R10 per 1,000. The writer has paid half a rupee each for plants grown from imported seed of Liberian coffee, and similar prices have been asked for cacao plants. But with advancing cultivation and competition prices will soon be moderate. CACAO, like the gigantic LIBERIAN COFFEE, a branch of which is figured on the left-hand side of photograph No. 4, has the merit of flourishing at low altitudes, in the zone from sea-level up to 2,000 feet, a zone found generally unsuitable for the continued cultivation of the Arabian species of coffee. Liberian coffee (leaves of which measure about two feet in length), only recently introduced into Ceylon, promises equally with or perhaps more than cacao to be a great success.

All the products hitherto noticed in detail, including even the coconut palm, Ceylon owes to other countries. The coconut palm, the cacao tree, and the cinchonas, we have derived from South or Central America, the common coffee from Arabia, and the gigantic species from West Africa. But, notwithstanding much controversy on the subject, it seems beyond doubt that *cinnamon* which has been famous in eastern commerce since the dawn of history, is really indigenous to the island. It is found scattered among the most remote forests, where it attains the dimensions of a good-sized tree. And a beautiful object it is with its young foliage, varying from pure delicate to white pink and deep blood red. But the bark of such trees, or even of those regularly cut and barked in the jungles, is not to be compared with the delicate and highly odoriferous bark of the constantly coppiced, cultivated plants, which are all grown at but a slight elevation above sea level. A stem, a score of which in all stages spring from one stool, is matured generally in the third year of its growth (the evidence being the browning of the outer skin of the bark); and in the middle picture, No. 8, of the three at the bottom of the frame illustrative of cinnamon culture and preparation, a native is represented as cutting from the laurel-like grove "a cinnamon stick" and denuding it of its branches, which are left on the field. In the stores, the sticks are barked (the outer envelope being removed as worthless, the essential oil residing in the cells of the inner bark), dried, quilled, assorted and packed in bales of 100 lb. for shipment. The barking process, in which the peelers (generally "Chaliyas," a caste whose origin is traced to the continent of India) make free use of their lithe toes as well as of their fingers, is represented in photographs 7 and 9, in which also native Sinhalese, men and women, are well figured.

In other products, other countries may compete with Ceylon, but it may be safely asserted that for delicacy of flavour its cinnamon bark is utterly unapproached. The "cassia" of China is obtained from a very inferior variety of the plant; but even cinnamon grown from Ceylon seed in Java and on the western coast of India, has not approached the parent trees in quality of bark. It seems probable that much of the excellence of the Ceylon bark is due, not merely to careful culture and preparation, but to the singular soil, chiefly composed of highly siliceous fine white sand (deposited probably in ancient fresh water lakes) in which most of the cultivated cinnamon is grown. This "cinnamon sand," a specimen of which is amongst the

Ceylon exhibits, gives its name, "Maradana," to that portion of Colombo in which the most famous of the cinnamon gardens were situated; now being gradually circumscribed as the city extends and ground is sold for building lots. There is, however, abundance of good cinnamon soil within easy distance of Colombo, specially at Kaderana near Negombo. The scenic effect of cultivated cinnamon is often much like laurels in Europe when shewing their green foliage over expanses of snow. The "spicy breezes" are a pretty poetical conceit (although embalmed by Heber in one of the most stirring of Christian lyrics), for it is only when wounded or crushed that the bark or leaves emit their odours, in the case of the latter resembling that of cloves. The root yields a camphor-like substance which is made into candles to be used at Sinhalese weddings, and even the acorn-like fruit yields an aromatic extract. Ceylon could supply the world with any quantity of cinnamon, from exquisite and costly "first sort" to cheap and serviceable "chips," for which there could be a possible demand, and under the operation of free trade the consumption of the spice shews a quantity quadrupled when compared with the exports of the old government monopoly days. [Under the Dutch in Ceylon the penalty for cutting down a cinnamon tree was death!] But the difference between a mere luxury like cinnamon and articles essential for human life and health cannot be better illustrated than by the fact that cinnamon, for which Ceylon has been famous for many centuries, figures now for far less value in the commerce of the island than the bark of the cinchonas, which were introduced less than twenty years ago, and the systematic and extended cultivation of which dates little more than ten years back. At the rate at which cinchona cultivation is now advancing in Ceylon, the probability is that the island will speedily contain more of the fever plants than all the rest of the world put together. There are many checks to over-production, however, in the shapes of unsuitable soil and uncongenial exposure, with insect and fungoid plagues.—The Dutch had the start of the British in the actual introduction of the cinchonas into the eastern world, and although at first unfortunate in the species cultivated, they have ultimately succeeded, largely owing to the free volcanic soil of Java, in naturalizing the very finest and richest in quinine of the *calisayas*. As in British India, so in Ceylon we are attempting to follow their example and there can be little doubt that *Ledgeriana*, the King of the *Calisayas*, will be as successful as *Succirubra* and *Officinalis* have proved. Meantime we have the testimony of Mr. Howard, the great quinologist, that the Ceylon crown bark "leaves nothing to be desired."

Up to the period when a third of the present century had elapsed, Ceylon was known mainly to the world as the island of

CINNAMON, COCONUTS, PEARLS AND GEMS ;

it has in the interval become still more famous, and what is better, still more useful as a source of supplies of

COFFEE,

while

TEA, CACAO AND CINCHONA

are rapidly taking leading positions in *THE EXPORTS OF THE ISLAND.*

CEYLON AND AUSTRALIA.

(*From the "Ceylon Observer": prepared for Ferguson's Ceylon Directory.*)

THE TRADE OF CEYLON WITH THE AUSTRALIAN COLONIES.

At a time when special attention is directed to the development of trade between Australia and Ceylon as well as India, it is desirable to have a clear idea of the nature and extent of the trade now existing and of the products and manufactures which may be increasingly supplied with mutual benefit. The abstract which we append gives a fair idea of the trade between Ceylon and the Southern Colonies during the past six years :—

STATEMENT SHEWING THE VALUE AND DUTY COLLECTED ON ARTICLES IMPORTED AND EXPORTED FROM AND TO AUSTRALIA FROM 1874 TO 1879.

	Value of Imports:		Duty on Imports	Value of Exports.	Royalty or Duty on Plumbago Exported.
	With Specie.	Without Specie.			
	R.	R.	R.	R.	R.
1874	1,391,376	595,936	8277	628,213	925
1875	2,152,710	391,460	9969	492,150	256
1876	1,095,537	285,537	6892	703,855	2
1877	822,805	353,565	6098	821,127	70
1878	775,014	358,994	5764	566,929	112
1879	365,388	324,048	2969	564,560	26
Total ...	6,602,830		39,969	3,776,034	1,391½
Average ...	1,100,471			629,339	
Less specie...	715,715				
Avr. of Goods imported.	384,756				

Principal Articles Imported.

Coal and Coke, Wines, Horses, Timbers, Cattle, Fodder, Flour Wheat, Tortoiseshell, Manure, Seeds and Plants, Kerosine Oil, Oilmanstores, Potatoes, Saddlery, Specie, Tank Iron.

Principal Articles Exported :—

Cinnamon, Coconuts, Coffee, Coir Fibre, Coir Rope, Coir Yarn, Coir Manufactures, Coconut Oil, Plumbago, Tea, Curry Stuffs, Ginger.

Importation of Specie from Australia.

1874...	R795,440
1875...	1,761,250
1876...	810,000
1877...	469,240
1878...	416,020
1879...	42,340
Total ...	4,294,290
Average ...	715,715

Value of Chief Imports.

	1878.	1879.
Horses ...	R5,350	59,300
Cattle ...	500	850
Sheep ...	1,000	445
Coals and Coke	79,640	189,240
Flour Wheat	58,012	32,638
Fruit ...	3,260	2,466
Fodder ...	980	478
Manure ...	166,550	
Oilmanstores	13,301	1,805
Potatoes ...	15,568	9,799
Seeds and Plants	2,880	1,930
Wines ...	7.503	3,028
Saddlery and Harness ...		2,552

Value of Chief Exports to Australia.

	1878.	1879.
Cinnamon	R12,021	2,720
Coconuts	3,761	2,008
Coffee, Plantation...	412,969	373,690
Do., Native ..	56,563	90,441
Coir Fibre	25,554	9,928
Do. Rope	11,424	8,204
Do. Yarn	14,003	11,457
Do. Manufactures	650	130
Medicines	3,780	
Oil, Coconut ...	6,165	5,250
Plumbago	3,276	1,063
Tea	815	225

So far as our Import trade is concerned, the chronicle is an exceedingly variable one: our total imports valued at R2,152,710 in 1875 falling off to only R365,388 for 1879! As far back as 1860 the imports from Australia were actually equal to R5,500,000. But on closer examination it will be found that the variations are almost entirely owing to the excessive fluctuations in our specie receipts from Australia, no less than R1,760,000 value (in gold) being received from that quarter in 1875, and only R42,340 last year. The cause ofthe immense falling-off in specie in 1879 is deserving of special explanation, and this is no doubt partly found in the local depression in trade and planting operations, the importation of the money which is received from Australia being a convenient banking arrangement in ordinary years. The low exchanges which have lately ruled have no doubt rendered the importation of gold from Australia unprofitable. Deducting specie, it will be seen that our imports from Australia have fallen from R595,936 in 1874 to R324,048 last year. The ezplanation of this is to be found in the almos complete suspension of the import of Australian manures,—bone-dust, patent manures &c., which attracted a good deal of attention some years ago, special agents of Australian companies visiting Ceylon to foster the demand among coffee planter. Local manufactories as well as increased facilities for obtaining raw material nearer home from India have interfered with this

branch of the trade as much as deficient coffee crops have lessened the local demand. There can be no doubt that the disappearance of vessels with cargoes of bonedust &c. bound from Melbourne to Colombo has affected the trade in other articles: each of such vessels was accustomed to bring a variety of live-stock, oilmanstores, wheat or flour, and it is just the opportunity of cheap and regular freight which is wanted to promote and develope trade between our capital and Australian ports. If there were some one or two chief articles of produce or manufacture to give regular employment to a few sailing vessels, there would always be the means of keeping up a supply of minor but useful articles in request in the two countries. Some years ago there were two such vessels wellknown in the Ceylon and Australian trade, but they have latterly been withdrawn. Consequently, we suppose, the importation of bones and of live-stock has fallen off, as well as that of food supplies—especially flour, the chief dutiable article; for the duties in. Australian imports (flour, oilmanstores, potatoes, wines, saddlery) which equalled R9,969 in 1875 were only R2,969 in 1879. It must be remembered that live stock, manures, coal and coke, seeds and plants, and fruits unpreserved, pay no duty. There can be no doubt that both India and the United Kingdom must always prove dangerous rivals for the supply of those articles—stock, food supplies, manure, saddlery and even coals—which Australia has to offer us. Nothing but cheap regular freight, such as an increasing export trade from Ceylon and India might ensure, will enable an active trade in imports from Melbourne, Sydney, Adelaide, or, nearer still, from Freemantle (Western Australia), to spring up with Colombo.

The case is different with our exports as a rule. It will be seen that, although the annual return varies, it does so to a much less extent than in the case of Imports: the extremes in six years being from R492,150 value in 1875 to R821,127 in 1877 and R564,560 last year. It is needless to say that we send no specie to Australia. Nor is our export trade, paradoxical as it may seem, liable to be affected in the same way as the trade in imports. Coffee makes up nearly four-fifths of what we send to Australian ports, and it is generally of so fine a description as to be able to afford the higher steamer freight which the P. & O. Company provides. We send a little cinnamon and coir fibre, rope and yarn, as also coir matting, some coconuts and coconut oil, but the only bulky cheap article of export is plumbago, of which the Colonies took over 70,000 cwts in 1874, but that was quite an exceptional rate of export, the average demand being

about 18,000 cwts. Tea has only just begun to appear in our exports, and it will be some time, we suspect, before it figures for a million to a million and a half lbs. as coffee already does.

India must of course lead the way if the stronger and purer Assam teas are to supplant the weak and adulterated China kinds which now to the amount of 15 millions lb. annually are consumed in the Southern Colonies. At present India averages no more than 50,000 lb. of tea in her annual export to Australia against 150,000 lbs. (1,400 cwts.) of coffee ; while Ceylon has just begun sending tea, a few parcels having been despatched so f ar during the current commercial season ; but she has an annual export to Australia of from 10,000 to 12,000 cwts. of coffee. Mr. Henry Cornish of Madras in his book "Under the Southern Cross" devotes a chapter to "Commerce between India and Australia" which includes many interesting and suggestive facts applicable to our own case as well as to that of our huge neighbour. The Bombay Chamber of Commerce, early this year, in inviting contributions for the Melbourne International Exhibition, remarked :—"The Committee of the Chamber of Commerce are of opinion that this movement is of great importance to India, whose products and manufactures are practically unknown in Australia. It appears to them that there is probably no other country in the world where these products would be more appreciated, or which offers a wider field for their consumption; and they believe that the isolation of that country from the commerce of India is entirely due to the fact that no effort has yet been made, and no facilities yet afforded, for trading with it." Again in the official Review of the "Trade of British India for 1878-79" it is stated that "special attention to the development of trade between the two countries (India and Australia) is very much wanted. They ought to be closely *en rapport*, but practically Australia is as distant from, and commercially almost as unknown to India, as Peru." The imports and exports of merchandise for six years, Mr. Cornish gives as follows :—

INDIA.

Imports from Australia.			*Exports to Australia.*		
1873-74 ...	R.	17,10,177	1873-74 ...	R.	21,54,987
1874-75 ...	,,	18,30,442	1874-75 ...	,,	13,54,862
1875-76 ...	,,	31,56,940	1875-76 ...	,,	32,36,098
1876-77 ...	,,	28,04,618	1876-77 ...	,,	29,39,627
1877-78 ...	,,	29,82,980	1877-78 ...	,,	45,55,339
1878-79 ...	,,	12,48,179	1878-79 ...	,,	51,65,957

specie is excluded. Unwrought copper usually counts for more than half the total value of the imports, although last year India seems to have got its supply chiefly from Japan. Horses

coal, railway sleepers and provisions, with wines, follow—the average for the first-named being over 2000 in number with a value of between 600,000 and 700,000 rupees. About 2000 gallons of Australian wines valued at R12,000 are imported. In exports, jute manufactures, that is about 8½ millions of power and hand-loom bags (value R30,49,081) make up more than half the value; castor-oil for lubricating purposes is second (R857,849); rice (R729,745); tea (R60,000); coffee (R90,000). It will be observed that India has already an important jute trade with Australia and its further development is certain, for according to Mr. O'Connor (in the *Trade Review*) "in course of time India will be able not only to supplant the manufactures of Dundee in the American and other foreign markets, but to supply England with bags more cheaply than they can be made in Dundee." But we may expect that Madras, Bombay and Calcutta merchants will now do their best to introduce Indian coffee, as well as tea, tobacco, &c. into Australia. As there is a want felt of a cheap fodder, a trade in oil-cake from India may spring up. In regard to Imports it is possible that Australia might supply woollen goods as cheaply as England to India, but there is no reason why manufactories of wool as well as of cotton should not be established in India itself. It is pointed out that India with abundance of tanning materials and cheap labour might tan Australian sheepskins and bullock-hides which can be bought at from 3d to 4d a lb. in Melbourne, while tanned sheepskins are worth a rupee and hides half-a-rupee per lb in Madras, the difference being ample for freight, tanning and profit. Commissariat supplies for India (and Ceylon), it is pointed out, might well be got from Australia and if meat-preserving prove a decided success we may all look for our chief supply to the far South. Australian coal can scarcely compete with Bengal in India, but seeing the former can be delivered in Southern India at £1 10s 6d. per ton, including cost, freight and insurance, there ought to be a fair demand for it." In conclusion, there is no doubt that the Protection system prevailing in the principal Australian colony is adverse in some respects to the development of trade with India; but it is now likely to be generally relaxed, and in respect of our Ceylon staples, there is not much to complain of. Coffee, we find, is generally charged 3d. per lb. of customs duty, in all the colonies, save Western Australia, where the duty is only 1d.; while the rate for tea is also 3d. in Victoria, New South Wales and South Australia; 4d. in Western Australia; and 6d. in Queens land, Tasmania and New Zealand. The last-mentioned colonies are the more consistent, for there can be no doubt that, to give coffee fair play as against tea, the customs duty on the latter per lb. should be double that on the former.

A COCONUT SHELL EMBLEMATICALLY CARVED.

(*From the "Ceylon Observer"*).

One Exhibit (No. 103 in Catalogue,) has been brought to us for inspection, which is a curiosity in its way: a coconut shell mounted on a stand so as to form a box, and covered with carvings representing the various stages of some of the manufactures of the coconut tree. We give the carver's description in his own words:—

THE COCONUT SHELL.

The object of the carver in executing this coconut shell is to illustrate in a miniature scale the principal manufactures from the coconut tree. The figures carved under each carving represent as follows:

Fig. 1 The toddy-drawer climbs the coconut tree with the toddy pot, knife and other necessary tools.
„ 2 The rope that connects the tops of coconut trees and which serves a sort of bridge to the toddy-man in passing from one tree to the other.
„ 3 The toddy-man empties the toddy pot attached to the coconut flower into the bigger pot suspended from his waist.
„ 4 The toddy-man lets down the pot in which he has been collecting toddy, by a rope and
„ 5 his attendant pours the toddy into a big tub placed on the ground.
„ 6 Two coolies carrying the tub to the distillery.
„ 7 The distillery.
„ 8 The cauldron.

Between figs. 8 and 9 an old man with a coconut shell in his hand craving for a draught of toddy.

„ 9 Man taking charge of the arrack oozing into a big tub.
„ 10 Pot containing the strongest arrack.
„ 11 Bottle of arrack on the bar of the tavern.
„ 12 Arrack poured out into glasses.
„ 13 A man having had a drop too much tries an additional glass.
„ 14 He meets a friend on his way.
„ 15 He is sick and his wife supports him.
„ 16 He is carried home by his wife and friend.

The carving on the front on the same line in which the key-hole is—the first figure (beginning from the right) represents a man carrying coconuts on a pingo; the second peeling coconuts to gather the fibre for making coir, rope, &c.; third and fourth men buying coconuts; and the fifth a man carrying coconuts on a pingo for sale.

Carver, Don Andris Dawapurarathna Wimala Jayasingha,
Arachchi, Galle, Ceylon.

The carving, considering the material, is well executed; the price fixed is rupees 50, (£5).

SILVER CASKET AND PRECIOUS STONES EXHIBITED BY MUDALIYAR P. B. GOMES,

(*From the "Ceylon Observer."*)

This highly finished Casket (No. 15 in Supplementary List in Catalogue,) made in Ceylon under the supervision of Mudaliyar Gomes is of pure silver and can be unscrewed in pieces, it stands on four ivory castors and measures $7\frac{1}{2} \times 5\frac{3}{4} \times 4$ inches. The carving is specially worthy of attention as on the lid and sides of the casket are depicted a variety of the fruit-bearing trees and vegetable products of Ceylon. It also shews very well-executed figures of a Kandyan Monarch and his Adigars (Ministers). Among the products carved are the Jack tree, the Bread fruit tree, Cinnamon, Coffee, Gamboge, wild Breadfruit, Coconut palm, Plantain, Kittul palm, Palmirah, Arecanut, Wild Date palm, Jambu tree or the Rose apple, Tobacco plant, Ash Gourd, Pumpkin, Long beans, Betel creeper, Pepper creeper, Cucumber, Carville, Sweet potatoe; beside these, an Elephant Kraal is depicted, and Native Carvers at work.

The Silver Casket which is valued at 500 rupees (£50 sterling) contains a number of the precious stones of Ceylon cut and uncut, the list being as follows :—

No. 1	Ruby cut 1, uncut 6	value R120
,, 2	Sapphire cut 1, uncut 2	40
,, 3	Topaz cut 1, uncut 5	120
,, 4	Cat'seye cut 1, uncut 5.	120
,, 5	Starstone cut 4, uncut 1	20
,, 6	Amethyst cut 3, uncut 1	15
,, 7	Aquamarina cut 1, uncut 7	5
,, 8	Tourmaline cut 2, uncut 4	5
,, 9	Moonstone cut 3, uncut 9	25
,, 10	Cinnamon stone cut 4, uncut 11	5
,, 11	White Sapphire cut 4, uncut 4	5
,, 12	Coins Ceylon, Gold 1	30
	,, Silver 9	
	,, Copper 14	
	,, Goldstone 1	

or about 500 rupees' worth of gems and old coins.

PLUMBAGO,

(The only Mineral of Commercial Importance exported from Ceylon.)

THE CEYLON TRADE IN PLUMBAGO.

(From the *Ceylon Directory and Handbook of Information for* 1880.)

Ceylon at the present time is the chief source of supply of plumbago or graphite. Most of the product of this island is carried to England for distribution or manufacture, but quantities are shipped direct to other countries, especially the United States. It has various uses. Much of it is used for making pencils, whence its name graphite. The graphite for pencils is obtained chiefly from Siberia.* The great consumption of the mineral, however, is for the manufacture of crucibles used in chemistry and metallurgy. It is practically infusible. There appears to be no material in nature fitted to compete with plumbago in the manufacture of crucibles for melting metals, and no source of supply with superior advantages to this island. Our plumbago (a form of carbon) resists the action of fire better, perhaps, than any other substance except asbestos, and accordingly the demand for it has increased with the increased demand for the precious metals in the shape of coin, steel, &c.

The quinquennial Export of PLUMBAGO from Ceylon has been as follows:—

5 years	ending	1841	average annual export		cwts. (can't be
do	...	1846	do		,, given)
do	..	1851	do	13,410	,,
do	...	1856	do	13,950	,,
do	...	1861	do	37,530	,,
do	...	1866	do	57,295	,,
do	...	1871	do	124,714	,,
do	...	1876	do	137,474	,,
3 do	ending	1879	do	114,671	,,

It will be observed that, notwithstanding a heavy export last year, (162,000 cwts. in 1879) the average has latterly diminished, but this is probably owing to the fact that the crucible-makers, both in England and the United States, made extra efforts to lay in stocks in view of the announcement that the Ceylon royalty was to be collected by the Customs instead of at the pit's mouth, the latter system being found to lead to the export of much of the mineral on which no royalty had been paid. Complaints having been made that the original royalty of R10 per ton bore very heavily on the lower qualities, the rate has now been reduced to R5 per ton. The maximum export of plumbago seems to have been in the twelve months ending 30th Sept., 1869, when nearly 200,000 cwts. were exported, and again, the commercial season ending with 30th Sept., 1880, is likely to shew a quantity very nearly equal, the shipments to 19th August aggregating 183,000 cwts.

The greater proportion by far of the plumbago which goes from Ceylon is used by two great crucible-making firms: one in

* Ceylon plumbago is used to mix with Cumberland graphite to make good pencils, the latter being too hard by itself.

England, the other in the United States of America* ; and if only a certain number of crucibles are wanted by the melters of metals it is clear that enlarged exports may result only in cheapening the raw product to the crucible manufacturers, in glutting the market, and in loss to traders and diggers. All the evidence within our reach seems to shew that from no other part of the world can better or cheaper supplies of this form of carbon be obtained than from the mines of Ceylon. We can supply all qualities for all purposes, from a crucible to a pencil, the exception, perhaps, being the so-called "black lead," requisite for the finest kinds of drawing pencils. Here we yield the palm to Cumberland ; but it appears Ceylon plumbago is used to mix with the fine Cumberland description.

It is impossible to get the exact number of plumbago mines and pits in Ceylon, but it is usually reckoned at about 400, besides 230 gem and 30 iron quarries.

PLUMBAGO MINE AT KEGALLA.—Mr. C. Matthew's mine in this neighbourhood, constructed under the direction of a Cumberland miner, is said to be unique so far as Ceylon is concerned. A regular shaft has been sunk to a depth far below that ever attempted by the Sinhalese. A steam engine, pumps and other apparatus have been erected, and altogether capital and enterprise freely expended. Many years ago, two Cumberland miners, friends of Mr. Robert Dawson, went in for regular mining, but did not succeed. They afterwards went to Bombay and made and lost a great fortune.

SPECIMEN OF PLUMBAGO FORMATION OVER A NUCLEUS OF QUARTZ: EXHIBITED BY MESSRS. A. M. & J. FERGUSON, OF THE "CEYLON OBSERVER."

This mineral, varying in quality according to its more or less freedom from foreign substances, such as portions of the metamorphic rocks (gneiss) in which the mines occur, but generally excellently adapted for the manufacture of crucibles which will stand a considerable number of meltings, is exported from Ceylon in considerable quantities to the United States as well as to Europe. Apart from the precious gems, it is the only mineral of consequence in the commerce of Ceylon. Iron ores abound, but they have not yet been utilized except by the natives, who manufacture small quantities of charcoal iron. Gold dust is quite common, chiefly in river sands, and about a quarter of a century ago some diggers from Australia created a small "rush" to the bed of a river about forty miles from Colombo. But the diggers were prostrated by fever before

* This American firm, the Dixon Crucible Company, Jersey City, New York, has for years back competed with the Battersea Crucible Company of London for our plumbago, and the result is that the export has risen.

nuggets could be procured if they exist, which may possibly be the case at depths which have not yet been penetrated. In lieu of a royalty formerly levied at the pit's mouth, the Government now collect a small revenue from this plumbago in the shape of a Customs duty of R5 per ton. With this exception and a royalty of R200 on each elephant caught in the Government forests and sent abroad, there are no export duties levied in Ceylon. The export of plumbago, which gives employment to a considerable number of the natives of Ceylon, has been for a series of years back:—

	Cwts.
1850. . . .	23,823
1860. . . .	5,660
1865. . . .	40,144
1870. . . .	85,249
1875. . . .	149,938
1878. . . .	84,635
1879. . . .	162,495

Last year's export was valued at £160,000.

THE CEYLON PLUMBAGO INDUSTRY.

(From the *Ceylon Observer*, 12th August, 1880.)

A visit we paid the other morning to the Plumbago Store of Mr. W. A. Fernando at No. 1, Brownrigg Street, Cinnamon Gardens, has given us a new and enlarged view of the ramifications of the Plumbago Industry of Ceylon. We were, of course, familiar with the rise and progress of our export trade in this the only mineral of any importance of which Ceylon can boast. We knew from the official returns that, while thirty years ago (1851) the total export only equalled 13,410 cwts., last year the quantity shipped had mounted up to no less than 162,000 cwts. But although it was quite evident that the digging and mining which brought so large a quantity of plumbago to light, as well as the carting, preparation, and picking, must give employment to a great number of people, we had no idea before the inspection of Fernando's store of the very considerable influence which the industry now has on the welfare of many thousands of the population in the Western, the North-western and Southern Provinces. The favourite mining districts are at present in the neighbourhood of Kurunegala, Awisawella, Ratnapura and Kalutara, and in the Pasdun Korale. Mr. Fernando, a most intelligent enterprising Christian Sinhalese of Moratuwa, whose father and family have for many years been connected with "plumbago," was unable to tell us that the seekers after plumbago were guided by any better indication than the appearance of the surface soil, or of pieces of the mineral cropping up through fissures in the rock. Here is just the case where a Government Geologist might afford valuable aid in developing an important industry. Mr. A. C. Dixon, if employed by Government during the Academy vacations, might be able to point with much confidence

to undeveloped Crown lands likely to prove of great value for their beds of plumbago, and his advice to private proprietors might also save much time and money in trial pits, surface digging, and general exploration. Plumbago mines have been sunk in Ceylon several hundred feet in depth, and some are worked with all the appliances of an English mine, but, as a rule, the plumbago is found near the surface. It is difficult to say how many men are engaged in digging plumbago, but taking half-a-ton for each man per month in a favourable field as a high average, and making allowance for the wet seasons, holidays, &c., we may feel sure that no less than from 4,000 to 5,000 men were required to provide the quantity shipped last year. The carting to Colombo must have given employment to a good many others, perhaps more or less to 500 carters, carts and pair of bullocks. But it is the elaborate preparation now observed in the Colombo stores which has taken us by surprise. Plumbago is now picked and sized, we may say, as carefully as coffee. The various processes are seen to perfection at Mr. W. A. Fernando's store. He gives employment to from 120 to 150 men and women,* paying from 50 to 75 cents per diem to the former, and 25 to 30 cents to the women. His stores and picking houses are all cadjan-roofed (that is, roofed with coconut leaves), for the very good, but to us novel and strange, reason that the tiles would inevitably fall off any roof under which plumbago was stored or prepared. The dust blown about makes everything so polished and slippery, even the roof rafters and reepers, that tiles constantly slip off, and therefore the only safety lies in cadjans! The first process is to wash the plumbago in large baskets, the smaller pieces and dust being afterwards spread on an asphalte barbacue to dry. By this means the quality is easily discovered by the practised eyes of the pickers, who separate (in much the same way as coffee) pieces affected by iron ore, pyrites, quartz, or other foreign material, a small piece of which passing into a consignment to the Battersea Crucible Works might ruin the whole lot. Some of the pickers are furnished with iron hammers to break up suspicious-looking pieces of the plumbago, and others again are employed in brushing the dust off good lumps, and polishing the same with coconut husks. There are punched sheet-iron sizers with holes of different dimensions (Nos. 1 to 4), and accordingly large lump, small pieces, chips and dust plumbago are now-days carefully separated. It takes about 100 expert men and women to prepare two pr three tons in a day, consequently this branch of trade must give employment to several thousands of people for the greater part of the year. The cask-making and packing afford further occupation, each barrel holding about 5 cwts., so that some 35,000 casks all made of *Hora* staves (generally deemed a useless timber) were required for last year's shipments. The plumbago is also carried from the mines to Colombo in barrels, which, however, are sent

* Sinhalese women have only lately been induced to work as plumbago pickers; their manual dexterity give them an advantage over men, but Mr. Fernando had trouble in overcoming a strange prejudice they had to plumbago as poison or worse for them to touch with their fingers! Now they like the work and come to it readily.

back in shooks and so used repeatedly. Three men are supposed to make 8 or 10 barrels a day. Altogether therefore it will be seen that the Ceylon plumbago industry is a very important one to our Sinhalese neighbours.

Mr. W. A. Fernando, whose model store is well worthy of inspection, sells to the European mercantile houses as much as from 1,200 to 1,800 tons per annum. In olden days he used to ship on his own account, and he has received prices as high as £32 and £48 per ton for lump plumbago, which is now only worth £15. His Brownrigg Street Store should be visited during the busy season, by all who wish to get some idea of the im portance of the PLUMBAGO INDUSTRY OF CEYLON.

PLUMBAGO AND OTHER MINERALS IN CEYLON.

Appended are extracts from the Annual Administration Reports of the District Revenue Officers of the Ceylon Government containing references to plumbago and other minerals :—

GOLD, GEMS AND MINERALS.

(*From the Report on the Sabaragamuwa District for the year* 1868.)

In the month of November, my attention was called by a gem digger to some grains of gold, which he had collected whilst washing gems in a stream close to my residence. I requested a gentlemen in the neighbourhood, who had some experience in Australian gold digging and washing, to inspect the spot, and he reported the prospect to be most encouraging, and the discovery to be well worthy of thorough investigation. I had a couple of ounces of the gold washed and worked up into a ring, and it was declared by the goldsmiths to be the most pure gold they had ever touched.

Shortly after, an application was made by some other parties for the sole right to search for gold on special terms, within certain limits. The application was refused by the Government, who, however, pledged itself to reward any discoverer, according to the value of his discovery. Some diggers then established themselves in the vicinity, a small shaft was sunk, and a washing sluice erected. I have no accurate information as to the result, but am told that they were inexperienced, and that the few ounces of gold found, though sufficiently valuable to pay the expenses of search, left so small a profit as not to offer sufficient inducement to European enterprise. Whether it is intended to renew the search or not, I cannot say.

A more remunerative speculation than gold digging has sprung up during the year, viz., the digging of Plumbago or Graphite, which has been found n a very pure form and in some abundance in nearly every division of the district.

(*From the Report on the Sabaragamuwa District for* 1869.)

There is little to say under this head, but to repeat my opinion, and the same has been held by almost every Assistant Agent for the last 20 years, that a very fair revenue might be derived by licensing diggers on waste lands and in streams.—I beg to invite attention to my letter No. 361 of the 5th September 1867, and the connected papers on the subject. About £3,000 worth of gems are said to have been found on private lands during the year, including two very fine cats'-eyes priced at about £200 each, but no other stones of remarkable value.

No active steps have been taken in the matter of the "Gold" discovery, though the Government Agent forwarded a few of the grains, or rather nuggets, for the inspection of Mr. Brough Smyth, the Government Geologist in Victoria, and that gentleman reported that he had carefully examined them, and was of opinion that

they had not travelled far, and that a careful search in the neighbourhood would probably be repaid.

Owing to the sudden fall in the price of Plumbago, the digging for this mineral has not been so briskly carried on as I had anticipated and hoped. I believe the quality of the Plumbago found in this district is very good, but the cost of transport renders it less remunerative to dig here than nearer Colombo or other ports of shipment.

(*From the Report on the Sabaragamuwa District for* 1873.)

Plumbago, which sold at 200 rupees per ton, now realizes 90 rupees; the working expenses have considerably increased by the enhanced value of labour, and the difficulty of procuring suitable machinery in substitution thereof. One of the native Companies, I understand, indented for a force pump, but when it arrived, the hose was discovered to be one-fourth the size required by the machinery; so after pumping unsuccessfully for a couple of days, they gave up in despair and took to the hand-bucket system of raising water more adapted to their taste.

(*From the Report on the Sabaragamuwa District for* 1874.)

Very little mining operations have been carried on during the year on account of the scarcity of labour and low prices. Plumbago is at present unsaleable; iron cannot be manufactured for its marketable value; and even gems are not as plentiful as formerly. Of the latter, only three were of any great value, and realized from 3,500 rupees to 4,000 rupees each. It is most remarkable that gems command a higher price here than at Colombo or Galle.

On the discovery of a good "stone," correspondents advertise it in the local papers, and merchants from all parts of the country flock in and bid each other up to a ridiculous figure. There are instances where a sapphire, which sold here for 2,500 rupees, changed hands subsequently at Colombo for 1,500 rupees; and in the case of the last find (a ruby, the size of a walnut) the owner refused 5,000 rupees here, to discover, on his arrival at Colombo, that it was flawed and worthless.

(*From the Report on the Hambantota District for* 1868.)

A new branch of industry—not in the interest of agriculture, indeed, but of mining—has, I am glad to be able to report, within the last few weeks, been introduced: one from which much good will result, both as opening out a fresh and remunerative field of labour, and inducing a flow of capital into the district. I allude to the finding of plumbago, of excellent quality, at Warapitiya in Giruwa Pattu near the Kirama Reservoir. Traces of the mineral had previously been found in other parts of the Pattu: and I had long been of opinion that ample quantities would in time be brought to light. The value of the discovery is not to be overrated, as the demand in England for the mineral, which is of the first importance in the arts, is immense and constant. The attention of merchants interested in the export of plumbago, is cordially invited to the discoveries recently made.* It may be worth while to note here also, that what is believed to be magnesian limestone occurs close to the main road to Badulla about sixteen miles north of Hambantota.

* A sample of the Plumbago has been submitted to the Colombo Chamber of Commerce, who pronounce the quality to be fairly good and likely to command about £12 or £14 a ton in Ceylon. The Chamber, I am happy to observe, exhibit a warm interest in the matter, which is one of great consequence to the district. It is probable the hill Ranmalakanda will be found rich in Plumbago and in Iron Ore.

This may perhaps be hereafter turned to account in yielding lime, as coral stone, from which lime is generally made in the maritime districts of Ceylon, is not found east of Usangoda,* half way between this station and Tangalla. Limestone rock is also found up the Walawe River.

(*From the Annual Report on the Hambantota District for* 1872.)

A renewed demand appears of late to have arisen for plumbago. The portion of the district richest in minerals is the hilly country forming the north-western boundary and adjoining Matara.

(*From the Report on the Matara District for* 1870.)

The fall in the price of plumbago has nearly put an end to the digging in Government lands. To meet Ceylon plumbago in Cumberland was certainly a surprise; but when recently at the English lakes, I learnt that plumbago from this Island was mixed with the local graphite to make good pencils, the latter being too hard by itself for the purpose.

(*From the Report on the Matara District for* 1873.)

Plumbago royalty brought in 737 rupees, against 157 rupees in the previous year. I believe the mineral dug in this District is not got out in such large lumps nor of such good quality as is found in the Western Province. I do not see any notice of plumbago-digging in the Central Provinces, though, in speaking of a system now known as commutation, in the Kandyan Province in 1829, Col. Colebrooke in his Report upon Ceylon (page 35) says "Provision had been made for payment either in money or in grain, and also for delivery of cinnamon and *black lead* at fixed prices." Plumbago must be meant; and this is the earliest notice (1829) extant, I should think, of this mineral.

(*From the Report of the Acting Government Agent, Galle, for the year* 1872.)

The quantity of plumbago exported from the ports of the Southern Province for 1872 was 22,751 cwts., valued at 137,016 rupees, being an average of six rupees per cwt. The price varies greatly, according to the sample, from two rupees per cwt. for dust, to eleven rupees for good lump. A considerable portion of this mineral is dug in the Pasdun Korale of the Western Province, and conveyed to Galle for shipment; but there are no means of knowing how much or what the real quantity excavated from Crown lands on license, actually is. I am informed and believe, that about four-fifths of all the plumbago excavated is obtained from Crown lands, or lands liable to payment of royalty.

In 1871 the number of licenses granted for excavation in Crown lands was 102, and the royalty recovered was 840 rupees. In 1872 the licenses granted were 96 in number, and the royalty (one-tenth of the estimated value) amounted to 950 rupees, so that the actual aggregate value of all plumbago dug on Crown lands by ninety-six sets of licenses, in 1872, is represented at 9,500 rupees (the Customs returns shewing an aggregate export value of 137,000 rupees) or an average annual earning of say 100 rupees per annum to each licensee, less cost of excavation. As however the licensees are never (except, I believe, in the case of one man) personally engaged in the work of mining, and as each mine requires from two to eight or ten miners, and even up to fifty or sixty at high wages, some idea may be formed of the extent to which the revenue is defrauded.

As I have before said, the law allows of no means of prevention. The practice is, for the licensee to give notice when he proposes to remove plumbago from the works, and a headman thereupon attends and weighs whatever is pointed out. A permit

* This requires some correction. Coral rock is met with at Amaduwa near Palatupana. It occurs too at Pottana Bay, where, moreover, I have found a species of Sponge, closely resembling the Sponge of Commerce.

is then given to remove this, in bulk, and as the removal is continually going on, and fresh plumbago is continually dug, whilst the state of the law prevents a headman from seizing plumbago excavated from private land, when removed without permit—a plea which is always available to dishonest traders, without the least fear of detection—the practical result is to give impunity to the illicit removal of the taxable product.

The remedy is very easy, and perfectly free from all reasonable objection. It consists in an alteration of the law, rendering necessary the obtaining of a permit to remove all plumbago—whether the produce of Crown or private lands—as is now done in the case of timber. But it is not sufficient that a permit should be granted for removal to the port of shipment; the permit should be for a specific quantity, to be removed at one time, and should be exhibited to and endorsed by the headmen through whose divisions it is carried. Thus, a permit for one ton could not be made available for an indefinite number of tons, and an effectual stop would be put to frauds. [All this has been obviated by levying the royalty in the form of an export duty.]

(*From the Report of the Government Agent, Galle, for the year* 1874.)

Plumbago.—Nothing, or next to nothing, has been done in this trade during the past year in this province, owing to the acknowledged depreciation in the price of the article, owing, I believe, to the absence of American competition for the last two years.

(*From the Report of the Government Agent, Kurunegala, for the year* 1873.)

The plumbago industry, which so wonderfully increased within the last two years in this Province, and gave employment to some five thousand persons—low-country Sinhalese and Kandyans—in the Weuda Willi Hatpattu, was suddenly paralyzed in the close of the year by a sudden collapse of prices, owing it is said to the home markets having become glutted.

(*From the Report of the Government Agent, Kurunegala, for the year* 1875.)

Plumbago.—The plumbago obtained in this Province is found in the neighbourhood of Mipitiya, about eighteen miles to the north-west of Kurunegala. It is all removed to Colombo by rail, and a return furnished to me by the Traffic Manager shews the quantity thus conveyed in last year to have been 2,567 tons, worth, say 256,700 rupees.

PLUMBAGO, BLACK LEAD, GRAPHITE, AND THEIR USES.

The purposes for which plumbago is valuable, the best methods of applying it, the properties and true character of the mineral itself, its sources and the circumstances that surround it in the commerce of the world, the various grades and adulterations, are all points upon which great numbers, even of those who come in daily contact with it or use it, are by no means familiar, and many are wholly ignorant.

Blacklead, or plumbago, is almost universally sold mixed with iron and charcoal. Now, the want of knowledge of this fact has been a serious stumbling-block in the history of the art with non-scientific men, *i. e.*, the practical electrotypers of the present day. Mr. Robert Murray gives the following interesting paragraphs on this substance:—

Graphite or Plumbago—This form of carbon is sometimes improperly called "Blacklead;" but it does not contain a trace of lead in its composition, and bears no resemblance to it, except that both have been used to mark upon paper. This

peculiar mineral is found in the most ancient rocks, as well as with those of a more modern era. It is also frequently found in company with coal, and is sometimes formed artificially, as in the fusion of cast-iron. It almost always contains a trace and sometimes several per cent. of iron, which is however, foreign to it; otherwise it is pure carbon. It is very much used for making pencils, and the coarser sorts are manufactured into very useful and refractory melting-pots. The most valued plumbago for the finest drawing pencils has been obtained chiefly from the Borrowdale mine in Cumberland; but it is a common mineral in many other countries. It is found crystalized in flat six-sided prisms, a form altogether incompatible with that of the diamond. It is soft, flexible, and easily cut; its density is 2·20; feels greasy, and marks paper. It is quite incombustible by all ordinary means, but burns in oxygen gas, forming only carbonic acid gas, and leaving a red ash oxyde of iron.—*Silliman.*

There is a great difference between one specimen of black lead and an other; one sample appears a perfect conductor, while another is an equally perfect non-conductor; and it is only by actual experiment that its quality can be determined.—*Shaw.*

Plumbago is largely used in the arts; the finer sorts for drawing-pencils, the inferior in domestic economy for polishing iron-work. It does not seem that the difference of quality of this substance depends entirely upon the quantity of carbon it contains. The common qualities, such as are used for polishing stoves, are very good conductors; and, if tolerably pure, will answer our purpose as well as the best. The common kinds of black lead are largely adulterated: among the substances used for adulteration, are plaster of Paris and charcoal.—*Walker.*

Great difference exists between samples of that article; for if it be not really carbon, it is absolutely a non-conductor, and I have found a number of pieces totally inactive, while others were most excellent conductors. The action or inaction of different pieces, before grinding, is not at all dependent on their hardness; for I possessed a piece of that variety called by the pencil-makers rock, which completely annihilated the teeth of three of the saws with which I attempted to cut it. I then sent it to a celebrated mechanic for the purpose of having it sawed, but he succeeded no better than myself; in fact, nothing but a diamond would have made any impression upon it, and yet it was one of the best pieces for voltaic purposes which I ever possessed. Sometimes, on the contrary, hard pieces are of no value, whilst soft ones are excellently adapted for galvanic purposes. There is no method but direct experiment, by which the conducting quality of any particular sample of blacklead can be ascertained. There are not two shops where it can be bought alike, so much being naturally bad, adulterated, or ill prepared. Perhaps the best test of good black-lead is to take a pinch between the finger and thumb, and press it—if good, it will cake together and adhere.—*Smee.*

The black lead of commerce, and what is so called by the trade, in first hands, is found only in Europe, principally in Germany. The plumbago of commerce comes mainly from the island of Ceylon, but is also found in many parts of the United States, being mined successfully, however, only at Ticonderaga, in the State of New York. It is also mined to a small extent in the Ottawa region of Canada, though thus far without profit. It is, therefore, known in trade as Ceylon Plumbago. It is very refractory. An experiment by subjecting for two hours a piece with sharp projecting angles, to a heat that would melt steel, and yet on cooling the sharpest points were found perfect; but it will exhaust if left on the top of such a fire. It is found

in veins in a pure state, is removed in lumps, and a selection of these forms the 'prime lump' of commerce. The formation most common in a pure state is that of laminated crystals, elongated at right angles with the side of the vein, if not more than from four to six inches wide; but when the vein widens the crystallization often radiates from numerous centres, and the whole formation is very beautiful: the foliated variety is equally valuable and more brilliant, but are in any quantity; the acicular form of crystal is not apt to be as pure in the lump, but it is useful for most purposes; the granulated variety, the purest of all, is of little use for crucibles, but, with suitable manipulation, produces the finest grades for electrotyping and fine lead pencils, and is unequalled for lubricating. Pure plumbago is free from grit, when pulverized and rubbed between the fingers, and the polish produced in the same way is instantaneous and very bright, being like a darker shade of polished silver. It is found mixed with iron, rhombspar and other forms of lime, the rock and earth in which the vein is carried, and many other foreign substances injurious for all the purposes for which pure plumbago is needed; so that much care is necessary in purchasing the raw material for a given purpose. Lime, for instance, is fatal to plumbago for crucible-making. The plumbago is mined in the interior of the island of Ceylon, and is brought down to Colombo in bullock carts. It is there selected into grades; so much as may be finely broken up is sifted, and the coarser part of this is called 'chips,' while the finer part is called 'dust.' The 'dust' from the prime lump is, of course, very different in character from the dust left from the poorer grades of lump, and all of it, whether lump or dust, after being handled and packed in barrels in Colombo becomes so black and bright by the poor particles rubbing against the good, that the touch of an expert is required to distinguish between the grades. The German black lead is not refractory, and is therefore useless for any purpose that brings it in contact with the fire. It has no value for the crucible-maker, or for stove polish, and is of but little use as a lubricator. It has a very low conducting power, even in its pure state, and the best quality that comes to market is far from pure. None of it comes in its original state as mined, but all of it is washed and floated, and so the grades are produced. In fact, it resembles a weak black clay more nearly than it does true plumbago in nature as well as appearance. It is used often on account of its cheapness, when it would be cheaper to use the real plumbago even at five times the price.

Pencils.— The first, and still the most widely extended, use of plumbago was for making crayons or pencils. The original method of manufacture was very simple. The lumps of mineral were cut into the required shape, and used in the natural state. At a later date, it was sawn into the shape now used, and covered with wood, making the well-known lead pencil, but the Borrowdale mine in England, the best known, finally ceased to produce the mineral pure enough for the purpose, and that method was reluctantly abandoned. The refuse about the mine was then utilized by purifying and pressing it into blocks, and these in turn were sawn into 'pencil leads.' But the leads made in this way were weak and unreliable; and even had they been useful, the march of civilization required pencils of different grades, some soft and others harder, while the sawn leads were all alike. The present method consists in selecting the best granulated plumbago (found till recently only in Germany), pulverising it very finely, and floating it in water through a series of vats; the coarser particles settle to the bottom of the first vat, the finer in the next, and so on till, after passing through several, that which settles in

the last vat is considered fine enough for the purpose, A suitable clay is found as yet only in Germany, and this is treated by the floating process, the finest only being fit for use. The plumbago and clay are then mixed together with water to the consistency of cream, ground together like grinding paint. When the operation is completed, the mass is plastic, water enough having evaporated to leave it in that state. It is then placed in a press and forced through an opening of the size desired for the pencil leads, and the leads are cut to a suitable length, straightened, and dried. When dry enough to handle, they are placed in a crucible, the air excluded, and subjected to a high heat, which bakes them and brings them out ready to be placed in the cedar for pencils. The different grades are produced by the different mixtures of clay and plumbago; the more clay the harder the grade produced. Skill in the manipulation, the exercise of great care as it progresses, and an expert to select the materials, are absolute prerequisites for a perfect product, there are five grades of the commercial pencils, ranging from the very soft up to a very hard grade.

Crucibles or Melting Pots, Retorts, etc.—For crucibles, the pure lumps known as 'prime lumps' only should be used, ground to a fineness that leaves the particles bright and glistening when held to the light, but not so fine as to destroy this appearance. It is then mixed with clay, and the best known for that purpose is found at Mayence, comes down the Rhine, and is shipped to this country from Rotterdam. A small amount of finely pulverised charcoal should be added to render the crucible porous. As little clay should be used as will suffice to hold the plumbago together, the object in using the clay being only to cement the particles of plumbago. After a thorough mixture, the crucibles are turned into the desired shape, much the same as pottery ware; they are then dried and baked in a kiln, like pottery. In use the crucibles should be placed in the fire, and not on it. The fire should surround the crucible to the very top. If used with a blast, the blast should not strike the crucible direct, but there should be coal for the blast to strike against. The crucible should be kept in a dry place, the least dampness being fatal. If they are well made, no annealing is needed, the object of annealing being only to complete the shrinkage that should be fully accomplished in the 'burning' by the crucible-maker. To provide against slight dampness, however, it is well, when possible, to use the crucible for the first time in a new fire, placing the crucible in the furnace at the time of lighting the fire, so that it heats up gradually with its surroundings. After the first time even this precaution is unnecessary. For melting brass, copper, gold, silver, or alloys of metals, a well-made plumbago crucible should run from twenty to forty meltings according to the fuel, draught, care, or other circumstances. Such have been used seventy and even eighty times, with a natural draught and great care. For melting steel, they will run from four to six times. They can be made to run longer by care and a system of cleaning the slag from the surface after each melting, and coating the crucible with a mixture consisting of fire clay, plumbago, charcoal and silica, pure fine quartz sand being, in ordinary judgment, the most useful form of silica to employ; other substances have been used, but these are all that are of any real value. The carbon from the interior of gas retorts would be better than charcoal, but it cannot be had in quantity, and is too hard to pulverise cheaply; in consequence of that hardness, it is used successfully in electric batteries where a carbon is wanted.

Stove Polish.—Plumbago of the best quality is the only suit-

able material for stove polish, but lower grades will produce a fair polish for trade; and if the manufacturer is sufficiently expert in the examination, he may use the best grade of Ceylon 'dust,' but much of that which comes to market is too poor. For stove polish, the plumbago should be pulverised till the particles are too small to glisten, and what would otherwise be a shining mass becomes a dead black flour, and this appearance is so near that of the German black lead, that the difference can only be discovered by handling. Plumbago cannot be pulverised fine enough in stone mills without running it over so many times that the cost is too great, and hence so much poor stove polish is found in the market, offered by respectable manufacturers. The black lead, even when pulverised equally fine has a harsh feeling between the thumb and finger, polishes but little and with considerable rubbing leaving a dark, poor polish; while the plumbago is good, smooth, almost oily, and polishes with very little rubbing, leaving a bright silvery polish. The finer the plumbago is pulverised, the better it is for stove polish, as each particle should be so small that it flattens out at once on the iron, adheres to it, and polishes quickly; while larger particles will fly off and be wasted, as well as creating a dust, and requiring more labour to produce a fine polish. The polish from pure Ceylon plumbago will last on the iron for a long time, while the polish from the German black lead will burn a reddish brown when the stove is raised to a red heat. But as the German is less than half the price of the Ceylon, it is used with it as an adulteration, and for the cheaper kinds the German is used alone. The Ceylon is adulterated also with coal dust, pulverised slate, and many other substances. Dishonest makers of stove polish have this temptation, that only experts can detect the adulteration; and they succeed in palming off their mixtures, because the particles of adulteration do not prevent the particles of plumbago from polishing the iron to a small extent. For instance, a thousand particles of adulteration and a thousand particles of plumbago, mixed together, can be sold at a low price, and the particles of plumbago will do the polishing, while most of the particles of adulteration will fly off in the process. It is true that the polish will not be as bright, and will require more time or labour to produce it, than if the one thousand particles of pure plumbago had been used alone, so that half the quantity of the pure article is better than the double quantity adulterated. In using the mixture, a great number of particles of the adulteration are rubbed against the iron with particles of the plumbago outside, and in all such cases the polish on that point is poor, and the plumbago wasted, because it cannot get to the iron. Perhaps no article except mustard can be so successfully adulterated as plumbago.

Liquid Stove Polish, called by quacks in trade, 'inventions,' and advertised as such, are mixtures in which there is no value except the little plumbago they contain; and the liquid is generally water, with a little soluble blue for a 'blind.' But recently there have appeared 'inventions' of this sort which are made with various volatile fluids, the object being to apply something that will evaporate quickly. These liquids are of no value in themselves, plumbago being used in the mixture for the polish: the article would be better if made of only plumbago and water. But some of the mixtures are dangerous to have about a stove from the explosive fluid used. The proper way to polish a new stove is to mix the plumbago with water to about the consistency of cream, have it in an open dish, apply it to the iron like paint, and with a dry stiff brush polish quickly till dry, and this polish will be brighter, and last longer, than any varnish polish; and if the plumbago is right, this method is much more economical in material and labour.

Lubricating.—As a lubricator, none but the very best plumbago will answer. For coarse and common purposes, a plumbago not quite pure may be better than none ; but for metal surfaces, journal boxes, car axles, and all metal bearings, the plumbago should be pure and entirely free from grit. From the prime lump should be selected the very choicest lumps, and these should be pulverised till the particles will not glisten, but the mass becomes a dead black. It cannot be made fine enough if separated by bolting, but must be separated by floating either in water or air. The simplest method is the water separation, and during the process it should be treated to a bath of dilute sulphuric acid, which will take up the particles of spar and iron, leaving the sulphates of lime, magnesia, and iron, easily washed out. I have seen a very attractive preparation, very smooth between the thumb and finger, free from grit, and useful for many purposes, but the particles under the microscope show themselves in light scales instead of infinitesimal grains: and this was separated in water ; but the defect was in the method of pulverising it having evidently been done by the use of stones. Lubricating plumbago is pulverised by rolling thirty-two pound iron balls, and is brought into infinitely fine grains, giving it more body and usefulness than the scale form. There is no purpose for which plumbago should be as pure and as fine as for lubricating, except for electrotyping ; but a large part of that which is offered for sale as a lubricator is adulterated, some of it being composed mainly of the German black lead, and is of no more use than common clay for the purpose. For blowing cylinders the best quality of Ceylon plumbago, pulverised to the finest grade, pure, and left with a good body, is the most economical. For engines, rolling mills, and machine bearings, the very finest should always be used. For wood bearings, after oiling with the plumbago a few times, the oil can be dispensed with, and the pure plumbago only applied in the dry powder. For metal bearings, it should be freely mixed with oil. On hot axles or journals, apply it freely, dry, and then oil up as usual. If the railroads would all use the best grade of Ceylon plumbago, pulverised and prepared as described, hot journals would be very rare, and much delay and loss in freighting saved, as well as annoyance to passengers avoided. No substance is known that is so useful for lubricating as plumbago, and yet, although used for that purpose more than two hundred years ago, the true method of preparing it was not known till within a few years, and it comes upon the market now little understood, and almost like a new material. It is destined to work great changes. Mixtures and quack nostrums are sold with sounding names, but as the plumbago in them is all they contain of the least value, it is better to use it pure.

Electrotyping.—To the electrotyper absolute purity in his plumbago is a necessity, and hence any adulteration will discover itself at once on trial. The purest selected Ceylon lumps should be treated as described for lubricating, but the separating process should be carried to a finer point, and the acid bath given with care. This acid should be applied till with a thorough stirring no effervescence takes place, or bubbles rise to the surface. In electrotyping, the great conducting power of the plumbago asserts itself.

Facing for Moulds or Foundry Facings.—For this purpose plumbago is but little understood, although it is used to a limited extent. That it is valuable, most skilful moulders are aware, consequently much of the trash that is sold for 'facings' is called plumbago, to make it sell, without containing a particle of anything even resembling the real mineral. Most of that which is sold to the stove plate and other smooth casting foundries for 'black lead,' is innocent ground slate, but some of it is a

mixture of ground coal and German black lead, while charcoal would be better than either, if ground fine enough. Ceylon plumbago combines the two qualities of a substance almost as refractory as asbestos, and the most perfect conductor of heat. These are the essentials of a perfect 'facing.' It cannot be pretended that any other substance will answer as well, unless it will combine and form a flux upon the surface of the metal. As for the mechanical operation of filling up the pores, or smoothing the mould, plumbago has no equal. For iron castings it need not be a perfectly pure article, but that it be pulverised very fine is absolutely necessary for economical work and the best results. For pianos, plumbago is employed to coat the bridge over which the wires are drawn, because of its perfect lubrication; it prevents the wire from adhering to the wood, and should be as free from impurity as that used by the electrotyper, but need not be pulverised as finely. For organs, it is used to lubricate the sides, and should be the same as that used by piano-makers. The German black lead imparts a peculiar tone to the colours and a softness and smoothness to the touch of felt hats. The very best lump only should be accepted. As it has once been washed and dried in lumps, they will readily separate again in water, and no pulverising is needed For colouring dark glass for carboys, bottles, etc., the best German black lead is used in lumps, but no inferior grade will answer. For paint, plumbago has long been known as possessing great value. The elements do not exhaust it, water sheds from it as from oil itself, and fire does not affect it. The grade need not be the highest. For the bottoms of boats and yachts it has long been used, especially for racing boats; but only the best Ceylon plumbago, very finely pulverised, is valuable.

For Blast Furnaces.—Plumbago thrown into the blowing cylinders, if adulterated with coal dust, will be worse than nothing. It should be pure and very fine, so that each particle that strikes the side of the cylinder assists in polishing the surface. The German black lead is of no value, because as many particles of the clay character will stick to the iron, as there will be particles of the black lead character to lubricate the iron and render it smooth.

Refractory Mixtures.—For tweers, pointing-up furnaces, &c., take 'prime lump' Ceylon plumbago, pulverised to scales as directed for crucibles. Then mix equal parts of Dutch pipe-clay, fire-clay, half the quantity (by measure, not weight) of charcoal, and the same half quantity of silica (pure quartz sand ground fine being the best); to this mixture add as much of the plumbago as possible and leave the mass thin enough to work. It should be made just thin enough with water, so that it will run rather sluggishly. Plumbago for polishing powder should be of the very best quality, finely pulverized. The German black lead is sometimes used, but is not economical for the powder maker, and for highpriced powder is useless. Shot is polished with plumbago, and it should be absolutely pure, pulverized to the finest grade from Ceylon 'prime lump.'—*Orestes Cleveland.*

SUMMARY OF INFORMATION

REGARDING

CEYLON:

ITS NATURAL FEATURES, CLIMATE, PROGRESS, AGRICULTURE, COMMERCE, INDUSTRIES, RELIGIONS, &c.

Compiled and corrected up to 1880, *for the "Ceylon Directory and Handbook of Useful Information" by A. M. & J. Ferguson.*

CEYLON [part, as many believe, of the region known to the Hebrews as Ophir and Tarshish] :—Taprobane of the Greeks and Romans (from Tâmraparni, *Sanskrit*, and Tambapanni, *Pali*) ; Serendib of the Arab voyagers ; Lankâ of the Continental Hindus and the Sinhalese ; Ilangei of the Tamils ; Lankapura of the Malays ; Tewalanka of the Siamese ; Seho or Teho of the Burmese ; Ceilão of the Portuguese, &c. Pearliform Island ("pearl-drop on the brow of Ind"), bounded by the Indian Ocean, Bay of Bengal, and Gulf of Mannar ; greatest length and breadth 267 by 140 miles ; circumference 760 miles. Lat. 5° 53′ to 9° 51″ N. ; Long. 79°41′ 40″ to 81° 54′ 50″ E. Sun rises 5½ hours before he shines on Britain. Light from 6 to 6 nearly all the year round ; but the sun sets about 42 minutes later in July than in November, indeed twilight in June occasionally exists till after 7 p.m.

AREA.

About 24,702 square miles ; or 15,809,280 acres, of which about one-sixth comprises hilly and mountainous zones, lying in the centre of the southern half of the Island. Maritime districts generally level, and northern end of Island broken up into flat narrow peninsula and small islets.

DISTANCES ;

(Approximate) : from nearest point of Southern India, via "Adam's Bridge" and Ramisseram to Tallamanaar, 60 miles ; from Madras to Point Pedro 250 ; to Galle 545. To Colombo : from Tuticorin 150 ; Madras 615 ; Calcutta 1,385 ; Bombay 900 ; Cape 5,000. England by Cape 15,000 ; by Suez canal to Southampton 6,500. From Mauritius via Aden 4,500, direct about 2,500; Singapore 1,600 ; Hong Kong 3,000 ; Yokohama, Japan 4,700 ; Freemantle, Western Australia 3,000 ; King George's Sound or Albany 3,400 ; Adelaide 4,400 ; Melbourne 4,900 ; Sydney 5,450, (via Singapore) 6,500 ; New Zealand 7000 miles. The distances generally are counted from Colombo.

HIGHEST MOUNTAINS.

Pidurutalagala (rising over the Sanatarium of Ceylon, Nuwara Elliya,) 8,296 feet, or nearly 1,000 feet higher than Adam's Peak (7,353), usually described as the highest, because it is to voyagers the most conspicuous mountain in Ceylon. This latter is really the fifth in altitude, being inferior to Kirigalpota (7,832), Totapela (7,746) and Kuduhugala (7,607) as well as to Pidurutalagala. Fully 150 mountains, ranging from 3,000 to 7,000 feet. (245 recorded Trigonometrical altitudes over 1000 feet, 145 over 3000 feet, 118 over 4000 feet, 53 over 5000 feet, 28 over 6000 feet, and 10 over 7000 feet.) Most of the mountain ranges on which coffee is cultivated are wooded to their summits; but vast prairie tracts of hill region chiefly on the eastern side, bear little beyond coarse lemon grass. Mountain scenery generally rich and grand.

GREATEST RIVERS.

The Mahaweliganga (Ganges of Ptolemy), nearly 150 miles from its source, in its longest feeder the Agra-oya under Kirigalpota (the "Milkstone" mountain) close to Horton's Plains, to its double debouchure near the great harbour of Trincomalee on the east coast. This river drains nearly one-sixth of the area of the Island. Rivers not naturally favourable for navigation, except near the sea, where they expand into backwaters. Steam navigation by means of small vessels introduced on Colombo lake, between Colombo and Negombo on canal, and on Kelani river to Hangwela.—The Kelani entering sea near Colombo; Kaluganga, at Kalutara; Mahaoya, near Negombo; the Ginoya, near Galle; Wallaway-oya near Matara, are some of the other numerous rivers. Rivers in mountain regions frequently fall over precipices, forming beautiful waterfalls. One in Dimbula about 300 feet high; in Haputale one said to be 600 feet; and the foot of Ramboda Pass, celebrated for a series of beautiful falls. In the arid regions of the north of the island some of the river beds which run full of water in the rainy months of the North-East monsoon, (middle of October to middle of January,) shew only expanses of sand with a few pools in the dry or South-West monsoon season, during which the North-East of the island is almost rainless, while torrents are deluging the South-West coast.

LAKES.

None inland, but ruins of magnificent tanks (Sea of Parakrama, Mineriya, Kantalay, Giant's Tank, &c.) in north and east of island; and fine, extensive backwaters on the sea-coast, such as the Negombo Lake; the Lakes of Bolgoda, Mullaittivu, Batticaloa, &c. The freshwater lakes, which add so much to the beauty of Kandy and Colombo, are artificial or partly so.

TIDES,

Generally almost imperceptible (at Colombo the rise and fall never exceed 4 feet), but in the debouchures of some backwaters and rivers it is more noticeable: at Panadure the tidal current runs in at the rate of 4 miles an hour. Powerful currents also sweep roudn the coasts, some of them owing their origin to the Pacific.

GEOLOGY AND MINERALOGY.

The Geological formations met with in Ceylon are of the Palæozoic, Mezozoic and recent age. The greatest portion of island consists of ancient sedimentary beds, doubtful deposited sea or lake, metamorphoses have obliterated all traces of fossils remains. Mountain ranges formed of primary and metamorphic rock. Principal rock, gneiss, with beds of laterite (locally named "cabook") and dolomite, according to some authorities,—described by others as crystalline marble or primary limestone. Plenty of iron, but no trace of coal. Manganese. Gold and platinum, but in such small quantities not apparently worth gathering. Molybdenum, Cobalt, Nickel, Tin, Copper and Arsenic also occur. Plumbago the only mineral of commercial importance. Cretaceous beds of Jaffna of Mezozoic age. Nitre in caves. Salt forms naturally, and is also manufactured in sufficient quantity at Puttalam, Jaffna, and Hambantota, to supply the consumption of the Island. Calcareous Tufa met with at Bintenne deposited from warm springs. Hot springs at Trincomalee and other places, but no direct evidence of present volcanic action, and earthquakes seldom perceptible. Greenstone, however, underlies gneiss at Kadugannawa, and with vitrefactions is observed in fissures of rocks at Trincomalee. Spring of Sulphurretted Hydrogen similar to Harrowgate water occurs in Puttalam district. Large tracts of alluvium occur in the Nuwara Eliya and other districts. Process of slow upheaval believed to be in operation on western coast, with compensating disintegration of mountain ranges. Recent formation a breccia formed of particles disintegrated rock held together by calcareous and ferruginous matter near Negombo and along coast. Gems abundant, especially about Ratnapura ("city of gems") but, with exception of blue sapphire and ruby, of slight value. A flawless sapphire is rare and good rubies are excessively scarce. Zircon or "Matara diamond," and amethyst, common. Chrysoberyl (or "Cat's-eye,") not uncommon, curious, and often prized. Moonstones (very beautiful form of "adularia") and "cinnamon stones," (brown garnets) common. Spinel and Tourmaline very abundant. Many rocks and river beds sparkle with red garnets, beautiful but intrinsically valueless. Ceylon celebrated for fine pearls.

CLIMATE,

Varies in different parts, from hot and arid plains of north and east, to warm and humid south-west coast, and cool and wet mountain regions; but, for the tropics, generally healthy. Fever zone extends round middle altitudes of mountain ranges, and banks of rivers frequently unhealthy. Fever seldom or never occurs above 3,000 feet altitude and is rare within the influence of the sea breezes. The hot months at Colombo are February, March, and April, when all who can, escape to the hill regions, Nuwara Eliya especially. The heat in Ceylon, however, seldom reaches 90° in the shade: 93° in April being the maximum in Colombo, where the mean of the year slightly exceeds 80°, sea-breezes tempering the heat for a large portion of the year. The rate of mortality in Ceylon towns ranges from 1·65 per cent for Jaffna (Colombo 1·76) to 4·06 for Kurunegala. The military death-rate in Ceylon is down to 25 in 1,000; and this rate is capable of

still further reduction by sanitary measures. The opening of the Suez Canal and the facilities offered by steam communication have led to abandonment of Nuwara Eliya as a military sanatarium, invalid soldiers being sent "home" instead. The perfection of climate in Ceylon is supposed to be found at and around Bandarawela on the plateau of the Uva principality at 3,900 feet elevation with an average annual rainfall of 86·21 inches falling on 120 days.

METEOROLOGY.

Exposed to both monsoons (S. W. from April to September, N. E. from November to February), but storms seldom violent. Ceylon is most fortunate in being outside the region of the cyclones peculiar at certain seasons to the Bay of Bengal; also the hurricanes of the Mauritius seas; and the volcanic disturbances of Java and the Eastern Archipelago. Rainfall: 32 inches at Manaar, 39½ at Hambantota, 42½ inches at Jaffna; 52 at Anuradhapura; 58½ at Batticaloa; 60¼ Trincomalee; 80½ at Matale; 82½ at Kandy and Kurunegala; 86¼ at Bandarawella in Uva; 88½ at Colombo; 99 inches at Nuwara Eliya; 110½ at Kalutara; 137 Ramboda; and from 117 to 150 on the Dimbula, Dikoya and Maskeliya ranges, outside the Table Lands of Nuwara Eliya at 6,000 feet, and Horton Plains 7,000 feet altitude; 149½ at Ratnapura; 152½ at Nawalapitiya; 159½ at Avisawela; and 199½ at Templestowe, Ambegamuwa; and the maximum 218 at Padupolla North-east of Adam's Peak. In parts of Yakdessa the annual rainfall is often over 200 inches, as much as 50 inches, of which have been known to fall in one month. Temperature varies from a mean of 37° F. at the mountain sanatarium of Nuwara Eliya; 65 to 66 at Langdale, Dimbula, and at Bogawantalawa, Dikoya; a mean of 73 at Badulla, 75 Kandy and 80 at Colombo, also Galle, Ratnapura, Puttalam, Hambantota, and Anuradhapura; about 82 at Batticaloa, Jaffna and Manaar and a fraction higher at Trincomalee. The extremes in the shade range from below freezing point at Nuwara Eliya to 93 at Colombo and 95 at Trincomalee.. Except in the north and east, climate moist as well as hot. Fertility due more to this circumstance than to richness of soil, generally. Fruits of temperate regions fail from continuous warm moisture but long-continued and extreme heat, acting as a wintering, favours grape cultivation at Jaffna. Snow is unknown. Hail not unfrequent in hill districts in very hot weather. Ice forms occasionally at Nuwara Eliya under clear radiating sky during the rainless months, December to February. Electrical phenomena—thunder, lightning, waterspouts, &c.—frequent and sometimes grand. Lightning so frequently seen without thunder being heard that Arabs compare a liar to Ceylon lightning. Optical phenomena, such as rainbows, Buddha rays, anthelia, mirage, occasionally very striking. Sunsets frequently beautiful, and zodiacal light sometimes seen. Moonlight and starry nights often splendid, and, when perfectly cloudless, peculiarly cool.

BOTANY.

Ceylon, while presenting most points of resemblance in its fauna and flora to the neighbouring continent of India, differs in some respects, and assimilates to the Malayan archipelago. There

can be little or no doubt that cinnamon, for which Ceylon has always been famous, is really indigenous to this Island. So, doubtless, with rice. On the other hand, its most profitable productions, coffee and coconuts, are introductions (the first certainly, the second also in the judgment of botanists), and most South American plants readily adapt themselves to the island, as is proved by the recent success of the cinchonas and cacao. Tea is also growing luxuriantly in a climate peculiarly favourable to leafage. Ceylon is peculiarly noted for ferns and balsams; while orchids abound. Ebony, satinwood, and other fine cabinetwoods, with serviceable timber, are plentiful in the forests. Calamander, the most beautiful of the cabinet woods, is becoming very scarce. In the higher mountain regions, familiar European forms mingle with the richest tropical vegetation. Palms and bamboos are specially beautiful and luxuriant; few objects in nature being more magnificent than a talipot palm in flower, and few more elegant than the slender areca palm, or the tall bending green bamboo of the mountain forests of Dimbula. The coconut palm luxuriates along the western and south-western coasts, just as the palmyra with its 500 different uses to the natives, abounds in the Jaffna Peninsula. Many of the forest trees, such as the lagerstrœmia regina, red rhododendron, and scarlet-blossomed cotton tree, bear beautiful flowers; while the vari-coloured foliage of the cinnamon, ironwood, &c., relieve the deep green of the forest, looking at a distance like rich floral masses. There are few parts of the world so rich in fungi as Ceylon, and one, new to science, has within the past decade, injuriously effected the great coffee enterprise of the island. Backwaters are rich in mangroves. Some of the seaweeds are also very beautiful. The indigenous species of plants mentioned by Mr. Thwaites of the Royal Botanic Gardens, Peradeniya, include :—Dicotyledons, 1,959; Monocotyledons, 548; Filices, Lycopodiaceæ, and Marsileaceæ, 225—total 2,832; double the flora of Britain, and about one-thirtieth of all species in the world yet described.

ANIMALS.

Elephants specially famous: large numbers formerly killed by sportsmen; 1,600 (captured by being snared, or enclosed in kraals) exported to India from Northern Province in five years ended 1862. A license now required to shoot elephants and the number killed or captured has much decreased: only 1,685 exported in 18 years since 1862, valued at R452,000, a royalty of R200 for every elephant exported having no doubt checked the trade. No tigers or lions (though the native name of the people signifies "the lion-descended"), but "cheetahs," cats and civets, two species of the *paradoxurus*, jackals, bears, monkeys, squirrels (two species of "flying squirrel"), rats, elk (or sambur) and smaller deer, boars, hares, procupines, ant-eaters, lorises, ichneumons, bats, whales, dugongs, porpoises, dolphins eagles and hawks, peacocks, jungle fowl, double-spurred partridge, parrots and pigeons, crows, sparrows, swallows (including the species which form edible nests), tailor and weaver birds, sunbirds, orioles, ortolans, kingfishers, jays, wagtails, flamingoes, toucans, ducks, teal, cormorants, snipe, herons. Deficient in songbirds: the dayal-bird is the most remarkable—notes sweet but low.

So with orioles and Indian robins. The voices of the doves are soft and plaintive. The Indian cuckoos, including the "jungle crow" are remarkable for their strange notes. English blackbirds and thrushes would be sure to flourish on the hills, and starlings and other insectivorous birds much wanted to check the ravages of cockchafer beetles and their grubs so destructive of coffee and other cultivation. A native thrush at Nuwara Eliya and other parts of the hill region, but seldom heard.

The following reptiles are found in Ceylon :—Land tortoise one, fresh water one, fresh water turtle one, marine turtles four, crocodiles two, water lizards two, skinks five, acontiads four, geckos sixteen, agames (or bloodsuckers) fifteen, chameleon one, snakes of fifteen different groups, about sixty, eight of which are venomous and three deadly, whilst about twenty-three sea-snakes are found on the coast, all said to be deadly. Of ground and tree frogs forty, and one burrowing batrachian.

River fish, chiefly carp, are few in number and of inferior quality. Better kinds might be introduced. There are from 500 to 700 different kinds of sea-fish, mainly species of mackerel, to which the salmon-like seer-fish belongs, with sharks and rays. No cod, but sword and sawfish, mullet, perches, lobsters, crabs, prawns, "beche de mer," chanks, edible and pearl oysters. Sea and land shells numerous and beautiful. The floor of the sea in certain parts is studded with richly-coloured corallines and the softer zoophytes, while the waters swarm with star and jelly-fish and infusoria, so that frequently the waves, in breaking, display a line of phosphorescence, supposed to be caused by some of these, but the phosphorescence chiefly caused by the Noctiluca miliaris.

Perhaps there is no sea-coast in the world richer in fishes and shells, and some of the fishes described have a right to the title "odd." Mr. Edgar Layard has described perches which "walk across country" (allied to those which Dr. John, of Tranquebar, found climbing palmyra trees); and the late Rev. B. Boake made acquaintance with air-breathing species which flourish in mud, but drown in pure water, and others which, disdaining the marsupial pouch possessed by the "sea horses," carry their young in their mouths. Fishes actually live in the hot wells near Trincomalee in a temperature of 115°. The natives of Ceylon are great consumers of fish, the Budhists salving their consciences by the subterfuge that they do not kill the fish; they only take them out of the water.

Myriads of insects, including butterflies, beetles, bees, wasps, mosquitoes, white, black, and red ants, ticks, scorpions, centipedes, tarantulas, multitudes of curious spiders, &c., are found in Ceylon, and the periodical swarms of butterflies, which proceed in the teeth of the prevailing winds, are peculiarly interesting. Many of the butterflies, moths (including Atlas moth, cinnamon moth, and the variety which yields the *Tusser* silk), beetles, and dragon-flies, are exceedingly beautiful. Efforts to domesticate bees have been failures hitherto: wild varieties numerous. Leaf-insects

and "praying mantis" curious, and whole regions resound to the incessant noise of the cicada or "knife-grinder." Coconut beetles, cockchafers and their grubs, and coccus, known as coffee bug, very injurious. Grasshoppers and locusts occasionally destructive over limited areas. A species of wasp builds pendant nests (chiefly on coconut trees) six feet long Spiders' webs sometimes so numerous, large and strong as almost to impede progress of travellers through forests. Land leeches excessively troublesome in damp forests. Indian medicinal leech common.

HISTORICAL NOTES.

From conquest by Wijaya, prince from Northern India, about B. C. 543, to deposition of Wikrama Raja Sinha, last King of Kandy, in 1815, Sinhalese annals record one hundred and sixty sovereigns. Portuguese first visited Ceylon 1505, erected Fort at Colombo 1518. Dutch first visited Ceylon 1602, landed forces in 1640, and ousted the Portuguese in 1658, so that Portuguese occupation lasted 140 years, dating from their landing in 1640 to the capitulation of Colombo in 1796. The Dutch occupation lasted 156 years; or 138, if the 18 years of warfare with the Portuguese are excluded. Acquired by England: Maritime Provinces, 1796 (separated from Madras Presidency and made Crown Colony 1798); Kandyan Kingdom, 1815. Torture, compulsory labour, and slavery, successively abolished 1803, 1832, and 1844. Trial by jury introduced, 1811. Kandian polyandry and polygamy (prematurely) prohibited, 1856; law relaxed, 1869. There was a formidable rebellion in 1817-18 in the Kandyan Provinces, and again a feeble rising, also of Kandyans, in 1848. The Kandyans, equally with the rest of the population of Ceylon, are now loyal, contented, and pacific; so that the small military force which the colony supports is ample for the repression of possible internal disturbance, and it is believed for repelling, what we may deem impossible, sudden piratical attack. Ceylon, out of her small force, yielded valuable aid to India in repressing the mutiny of 1857.

ANTIQUITIES.

Besides tanks, important and ancient Hindu and Buddhist temples and other ruins at Dondra, Anuradhapura, Polonnaruwa, &c. The Jetawanarama Dagoba at Anuradhapura is 246 feet high, or more than half the altitude of the great Egyptian Pyramid, diameter at base 396 ft., side of square 779 ft. The sacred bo-tree (*ficus religiosa*) at this place, believed by some to be one of the oldest historical trees in the world. The Maligawa at Kandy is famous as containing the so-called tooth of Buddha—a piece of discoloured ivory. At Dambulla is a vast rock temple; while the small Aluwihara near Matale is interesting as the place where the Buddhist doctrines are said to have been reduced to writing about a century B. C.

POLITICAL DIVISIONS.

[The latest regular Census was that of 1871: we add to the results then obtained 10 per cent for the increase in population, or 1 per cent per annum, being about the normal rate in Ceylon.]

Seven Provinces, viz.: Western 3,345 miles; 853,913 pop.; 253 to square mile. North-Western 3,028 ;—304,453 ;—101 Southern 1,927 ;—439,730 ;—227. Eastern 3,510 ;—124,619 ;—35. Northern 3,150 ;—309,966 ; 99. Central 5,770 ;—544,874 ;—93. North-Central 3,972 ;—69,341 ;—18. Sub-divided into korales or counties, and minor divisions such as pattus, &c. [Besides Municipalities and Local Boards in the chief towns, and "Gansabawa" or rural Village Councils, there are also judicial divisions and circuits, liable to change, the enumeration of which would convey little definite information.]

CHIEF TOWNS.

According to the Census of 1871 (with 10 per cent added), Colombo 106,000 inhabitants (or, with floating and immigrant population, 120,000) in area of 11 square miles. Galle, 52,000; Kandy, 19,000; Jaffna, 38,000. Batticaloa 3,700; Kurunegala, 4,000. Anuradhapura 1,000. [The above are the capitals of the Provinces :—Negombo, Ratnapura, Kalutara, Panadure, and Morotuwa in the Western Province; Gampola, Matale, Nawalapitiya, Nuwara Eliya and Badulla in the Central; Kalpitiya, Chilaw, and Puttalam in the North-Western; Point Pedro in the Northern; Matara (18,000), Ambalangoda, and Baddagama in the Southern Province, are, some of them, of more importance as regards population than the provincial capitals, while Trincomalee (pop. 10,000), though no longer the chief seat of Civil Government in the Eastern Province continues to be of surpassing importance as the chief naval port in the east.]

POPULATION.

Nearly 2¾ millions; 117 to sq. mile, ranging from 18 in North-Central Province to 253 in Western.—*Races* :—Sinhalese (Kandyan and maritime) 1,837,000; Tamils 595,000; Moormen 179,000; Malays, Javanese, Kafirs or Negroes, Afghans, Arabs, Persians, Parsees, Veddas and Rodiyas &c. 13,000; European descendants 15,500; Europeans 6,600.

[About one-half of the Tamils are *immigrants*, balance of 2¼ million who came from Southern India (chiefly to labour temporarily on coffee estates) in 40 years ending 1879. Nearly one-fourth Europeans are *military* and families. Effective *military* number 1,150. *Native soldiery* (since the disbandment of the Ceylon Rifle Regiment) consist of 88 Hindu Gun Lascars. *Total Military* (European and Native), with women and children, say, 1,450. Constituents of *European* population, wives and families included :—Military, 1,450; Planters, 2,000; Civil Servants, 1,200; Merchants and their employes, Clergymen, Physicians, Storekeepers, Railway employes, &c., 2,000.]

RELIGIONS.

Romanists 204,000.—Protestants: Episcopalians 22,000; Wesleyans 21,000; Scotch and Dutch Presbyterians, and Congregationalists (latter converts of American Mission) 11,000; Baptists 6,000. *Total Protestants*, 60,000. *Total Christians*, 264,000. Buddhists and demon-worshippers 1,673,000; Gentoos (worshippers of Siva, Vishnu, Pulliyar, and other gods of the Hindu pantheon) 512,000; Muhammadans 189,000.—So that we get 264,000 Christians against

189,000 Muhammadans, and no less than 2,185,000 idolators and demon-worshippers. [We rank as Christians 154,000 Sinhalese; 88,000 Tamils; 15,500 European Descendants; 6,600 Europeans and a few Kafirs, Veddas, and Rodiyas.] The proportion of Christians to whole population (10 per cent) is far higher in Ceylon than in India where those professing Christianity do not much exceed half a million out of the whole 200 millions or more. Ceylon is the classic land of Buddhism, and its fall here would influence a vast proportion of the human race (in Burmah, Siam, and China). The Kings of Burmah and Siam frequently send offerings to the "Temple of the Sacred Tooth" in Kandy.

CASTE,

Though disavowed by Buddhism, has still so strong a hold on the Sinhalese as a matter of civil distinction, that intermarriages of persons of different castes are almost unknown, except amongst the lowest of the population. The Tamils have all the Hindu castes, as essentials of their religion, from the Brahman downwards to the Covia and Pariah. There are no Brahmans amongst the Sinhalese, and the Chaliyas (cinnamon peelers) alone dispute the pre-eminence of the Vellalas or husbandmen. The fishermen are the next great caste, and, curiously enough, they are the best and most enterprising carpenters; then follow numerous divisions down to the jaggery caste, the members of which are employed to collect the juice from the flower sheaths of palms to be fermented into "toddy" and yeast, distilled into arrack, or inspissated into coarse sugar called jaggery. Under the Kandyan dynasty, caste was strictly enforced:—the son of a barber being inevitably and for life a barber. There is now no legal restriction, nor any social disability, save what the natives voluntarily choose to retain or submit to, if we except the anomaly of Government recognition and support from the revenue bestowed on two sects of Christians.

LANGUAGES AND LITERATURE.

Sinhalese, founded on the Sanskrit, with a considerable infusion of Pali, and therefore belonging to the Indo-European family; but peculiar, except in its Sanskrit roots, to Ceylon. A Dravidian origin has been claimed for the language, but, as Spence Hardy shrewdly pointed out, all the names of places, mountains and rivers are Sanskrit. *Tamil*, the leading branch of the Dravidian family, common to about 16 millions of people in Southern India and Ceylon. Spoken by the Moormen as well as the Tamils proper.—A Portuguese patois still retains its hold amongst the European descendants, but Dutch has gone entirely out. Knowledge of English rapidly advancing in towns. Historical and Buddhistical literature generally in Pali, with Sinhalese translations, commentaries, and glosses. Translation of *Mahavanso* by Turnour threw a flood of light on the history of Ceylon and India, while researches of Gogerly and writings of Spence Hardy and others have done equal service in revealing the true nature of the atheistical system of philosophy called Buddhism. Goldschmidt and Muller have recently, by examining and interpreting rock inscriptions, illustrated the history of the Sinhalese language, though not

much new matter has been added by their researches to the history of the country and people. Works on medicine and science, generally in Sanskrit, and almost wholly derived from India. Two daily English newspapers, (the daily and weekly *Observer* having by far the largest circulation) with weekly editions published in Colombo, meet with fair and increasing support; also two bi-weekly English Journals in Colombo and the weekly "Government Gazette"; a Jaffna weekly paper; and several periodicals in English, organs of Churches, Missions, &c.; and a native press, Sinhalese and Tamil, with a few representatives in newspapers and periodicals. An interesting collection of palm leaf MSS. exists in the reading-room of the Colombo Museum.

EDUCATION.

Through the agency of a Government Department of Public Instruction and a Grant-in-aid system chiefly availed of by the various missionary societies, 75,000 children or 1 in 32 of the population are receiving instruction in English and the vernaculars. Private schools, not connected with Missionaries or religious bodies, are few and ill-supported. A knowledge of vernacular reading and writing, generally very imperfect, is communicated in some of the Buddhist temples and native schools. A large proportion of the population can sign their names who can do little more. Education in missionary schools is, of course, strictly Christian. In Government schools, the custom is where no objection is offered, to read the Bible during the first hour. Attendance during that hour not compulsory, but pupils seldom or never absent themselves. Cost of Government Educational Department (educating some 18,000 pupils) R300,000 per annum (besides Grants-in-aid nearly R200,000), of which R28,000 is returned in the shape of fees, sales of books, &c. Total outlay on education public and private is about R700,000 (£70,000) against R7,000,000 (£700,000) supposed to be spent by the population on Intoxicating Drinks. Science is now practically taught in the principal educational establishments in Colombo, and it is to be hoped that technical training in agriculture and useful trades will be added. Government grants aggregating R3,000 per annum distributed among 18 Public Libraries.

OCCUPATIONS.

Vast majority of inhabitants engaged in agriculture. Settled inhabitants (Sinhalese and Tamil) cultivate chiefly rice and other grain with coconuts, palmyras, other palms, fruit trees and vegetables; while 250,000 Tamil immigrants, superintended by Europeans, grow Arabian coffee to which has, of late years, been added Tea, Cinchona, Liberian coffee, Cacao and other new products. Rice to, and coffee from, plantations, conveyed mainly by Sinhalese "bullock bandy men" or carters, where railway communication does not serve. [There are about 13,000 licensed carts, mainly employed in the coffee trade, against half that number in 1850; this is exclusive of unlicensed carts employed not only by natives but by estate owners now in very considerable numbers. Bullocks in size and strength, and carts in capacity, greatly improved.] Fisheries (10,000 boats and canoes) and small class of shipping (vessels belonging to Ceylon, number 500; tonnage 20,000) employ a good many. The timber trade gives employment in

felling, sawing, rafting or carting to very many. Manufacturing industry advancing: carpentry, weaving, oil-making, &c. [There are about 10,000 small looms, and 2,000 wooden or stone oil presses, or "chekkus," scattered over Ceylon; while steam and other machinery is extensively in use for preparing coffee and coir, expressing oil, sawing timber, &c., perhaps 150 engines aggregating nearly 2,500 H. P. and 25,000 employes. About 150,000 Coffee, Oil and Plumbago casks made and exported each year; and many thousands of women and children, chiefly Sinhalese, find remunerative employment in "coffee picking," cinnamon and cinchona bark and plumbago preparing at Colombo stores.] Very serviceable bricks and tiles made in the Island; and Moormen have special aptitude as masons. Potteries, for common earthenware utensils, common. Numerous distilleries, with simple apparatus for manufacture of arrack, and a few to obtain essential oils of cinnamon, citronella, and lemon grass. Plumbago mining is increasing, giving employment in digging, carting, preparation and shipment to several thousands; and gem-searching (250 gem and 25 iron mines) employs a number of not over peaceable persons. Pearl fishery uncertain—foreign divers chiefly employed. Chank fishery steady, but not very profitable.

CULTIVATION.

Grain:—Rice 660,000 acres. Kurakkan, varieties of millet (known locally as "dry grain"), Indian corn, &c., with kollu and other legumes 150,000. *Total Grain* 810,000.—*Palms*:—Coconuts: native "topes" 250,000; European plantations 50,000; = 300,000 total coconuts. Palmyras, arecanuts, kitul, &c., 120,000. *Total Palms* 420,000.—*Coffee*:—European plantations (1,400 separate estates, or 1,500 if divisions of large estates counted) cleared and in all stages of cultivation, 260,000 acres; native holdings 50,000. *Total Coffee* 310,000. Cacao, Tea, Cardamoms, Cinchona, Liberian coffee 35,000 acres. [Coffee (Arabian) is cultivated from elevation of 1,500 to 5,000 feet: medium best. Reserve of forest in connection with plantations 150,000; Government hill forest suitable for coffee, tea, cinchona, &c., perhaps half a million acres, and at least four times that extent of low lands suited for Liberian coffee, tea, and cacao, and for coconut, grain and garden cultivation.]—Tobacco, cotton, sugar, aromatic grasses, aloes, onions, chillies, brinjals, potatoes and yams, cabbages, greens, pineapples, pumpkins, cucumbers, &c. 125,000 acres.—Plantain, jak, mango, breadfruit, orange, lime, guava, cadju, lovi-lovi, goraka, bilimbi, and other orchard cultivation 120,000. Cinnamon 30,000. Cultivated grass-land 20,000. Introduced Timber trees 1,000.—TOTAL CULTIVATION 1,871,000 acres; or at most 2 millions—or about 1-8th of area. Sugar cultivation a failure, probably from excessive moisture of climate, in Western, Southern, and Central Provinces; a little still grown and manufactured at Baddegama, near Galle; Plantain (or banana) cultivation for fibre tried unsuccessfully near Matara. NATURAL PASTURAGE—including Patnas 2 or 3 million acres probably, that on hills coarse and indifferent and (up to 4,000 feet) infested by land leeches; in low-country better, but great proportion inunhealthy parts.

[NOTE.—Arabian Coffee *grows* around native huts, and bears scattered berries at the sea-level; and there are two or three plantations

so low down as only 600 feet above the level of the sea, with a good many at an elevation of 1,000. There are also plantations at an altitude of 5,000 feet and higher. These, if situated on detached hills, on sunny slopes, or on ranges, such as Haputale, facing a hot, low country, do well. The Liberian species of coffee is only likely to succeed between 2,000 and sea-level, although in Uva trees flourish over 3,000 feet. But the true Arabian coffee zone runs between 2,500 and 4,500 feet. The coconut flourishes chiefly at the sea-level. Rice runs up to where coffee begins. We have now tea cultivation to make the gradation complete, with cinchonas flourishing from 1,700 to 7,000 feet elevation.]

VALUE OF COFFEE PROPERTY, AND EFFECTS OF EUROPEAN CAPITAL AND ENTERPRISE.

The value of cultivated coffee land on plantations all round may be taken at about £30 an acre for the 260,000 acres, say 7¾ millions sterling. Add £750,000 for 150,000 acres reserve forest at £5 an acre, and we get 8½ millions for coffee lands in the hands of Europeans. Including buildings, machinery, carts, cattle, &c., the value is certainly not under 8 millions, and we may add another million for 50,000 acres native coffee at £20 per acre. If cinchona, tea, Liberian coffee and other new products is added, another million sterling of value may be added. The value of coconut palm cultivation in the island we put it at between 9 and 10 millions sterling. Of other palms and fruit trees 4 millions. Of cinnamon £750,000. Cotton, tobacco, vegetables, and other garden produce one million. Of rice and other grain 5 millions. Making a total value of cultivated land of about 30 millions pounds sterling. The amount of British capital diffused by the planting enterprise since 1837 has been enormous, and the Sinhalese carpenters and other artizans, cart contractors and cattle owners, with the Tamil rice dealers and labourers, profited largely by it—a profit in which the European capitalists and planters have only in a scanty measure participated. 43,000 deeds were registered and 27 millions rupees secured on mortgages in 1878. Splendid roads have been opened and fine bridges erected over impassable rivers, and populous and thriving towns and village shave sprung up in the planting districts, where 40 years ago all was interminable jungle. The natives in the towns are rapidly adopting European habits, and many send their children to England for education or to take rank as barristers, physicians and clergymen. The improvement has spread to the urban masses too : witness the declaration of the Rev. R. S. Hardy, a missionary of 40 years' experience : "The contrast between one of their homes now, and in the times I can remember, is nearly as great as between a grimed native chatty [earthen pot] and a bright English tea kettle." Crime has, however, kept pace with the spread of wealth and what is usually termed "civilization." Although the Sinhalese, on the authority of one of their own number (the late Mr. James Alwis) possess "not even a tincture of soldiership," they are prone to crimes of revenge and violence. In this respect the "low-country Sinhalese," although most of them profess a religion which absolutely forbids the taking of life, hold "a bad pre-eminence;" the Tamils ranking second, and the Kandyan Sinhalese third.

RETURNS OF CROP

from rice and grain lands, generally range from 5 to 30 bushels per acre, the average for rice being about 20 bushels in the husk or 10 bushels clean. [The Government returns give averages of under 10 bushels for rice, and a fraction over 7 bushels for "dry grain," in both cases unhusked grain. But these low averages arise from the defective mode in which the accounts are made up. An acre is about "2½ bushels sowing extent]"—the average return 20 bushels; in favourable positions twice that quantity.] Coconuts 1,600 to 4,000 nuts per acre. Coffee on plantations ranges from 2 cwts. to 10 cwts.: average (previous to the appearance of a coffee leaf fungus, *Hemileia vastatrix* in 1869) a little over 6 cwt.; for native gardens 5; in both cases *clean* coffee. Of recent years, the average has been reduced to less than 3 cwts. Cinnamon gives on an average about 80 lbs. per acre. Lands fully planted and cultivated yield up to 125 and 150 lbs., neglected and swampy lands not more than 40. A good deal of "jungle spice," cut from the forests, enters into the exports. Coffee (*Coffea Arabica*) until the last few years was regarded as almost the only really paying cultivation in which Europeans could engage, but the prospects of "new products" chiefly of Cinchona, Tea, Liberian Coffee and Cacao now seem good. There are a few remunerative coconut estates, but Europeans cannot successfully compete with natives in this pursuit. The tree is said to love the sound of the human voice, the obvious meaning of which is that it flourishes best where best supplied with fertilizing matter and otherwise tended. The once famous cinnamon of Ceylon, though still the finest grown, seldom yields more than a minimum of profit to the cultivator. Grain cultivation cannot even at present high prices offer any inducement to European enterprise, and the Natives persevere in the pursuit mainly for the reasons thus stated by the experienced and intelligent servant of Government who lately administered the Western Province, Sir C. P. Layard:—"You are right in your conclusion that the cultivation of paddy is the least profitable pursuit to which a native can apply himself. It is persevered in from habit, and because the value of time and labour never enters into his calculation. Besides this, agriculture is, in the opinion of a Sinhalese, the most honourable of callings. I do not think that the average yield of our fields is as low as 5½ bushels to the acre—twenty is nearer the mark; but all arable lands are not cultivated at once, or even in the same year, and the estimates of a season's sowing often include crops abandoned immediately after the seed has been sown either on account of drought or flood. The uncertain climate of the maritime districts and a poor soil are both causes of the comparative smallness of our returns. In India *i.e.*, both in Bengal and the grain-producing districts of the Madras presidency, they have extensive tracts of alluvial lands on the banks of their rivers, the like of which, even on a small scale, cannot be found here." Of course *all* the grain grown in the Island is consumed within its limits. Of the produce of the coconut tree, by far the larger proportion is also consumed in the Island. Taking the annual value of nuts, arrack, toddy, coir, &c., at 2 millions sterling, *one-fifth* is exported; the people consuming the remaining *four-fifths*, chiefly in the shape of nuts for food, with a good deal of arrack, toddy, oil, &c. Prac-

tically, the whole of the cinnamon grown is exported. Of the coffee produced, the local consumption may be taken at six per cent. or about 50,000 cwts. representing a value of R2,500,000 against (700,000 cwts.) 35 to 40 millions of rupees' worth exported. Of the produce of the areca and palmyra palms (areca nuts, used for the almost universal Indian and Ceylon masticatory ; with palmyra timber and coarse sugar)—while much is consumed in the Island, a good proportion is exported. But for the one important mineral Plumbago, (of which 162,000 cwts. were sent away in 1879, valued at over a million and a half rupees) the whole export trade of Ceylon might still be described as the produce mainly of the coffee shrub, with the products of three palms, and in a subsidiary degree of the cinnamon and now of the cinchona barks, while tea, cacao and Liberian coffee are still in their infancy. The statement that Ceylon at one time grew grain enough to feed a population of 5 millions is very doubtful. Some of the great tanks appear never to have been completed, having been commenced by particular monarchs chiefly for their own glorification. Much more is to be hoped for from the smaller irrigation works recently constructed or restored. At present Ceylon grows COFFEE (with Coconuts, Cinchonas and other secondary products), and gets much grain, cattle, cloth, specie, and nearly all she wants in exchange.

CROWN LANDS GRANTED AND SOLD.

Since 1833 about 1,146,000 acres. Average price, 1833 to 1844, 10s 8d ; 1844 to 1879, average 37s 9d. Upset price now £1 ; highest price realized nearly 250 rupees (£25) for hill forest land,—generally ranges £1 to £7 for forest land and £400 occasionally for building lots near Colombo. Half of lands sold hill forest suited for coffee, cinchona, tea, &c. ; half for grain, coconuts, Liberian coffee, cacao, tea, plantains, &c. Full title—no land-tax, (only 5 per cent on lands and houses *within limits of towns* for police purposes ; in Colombo 3 per cent. for lighting and 2 per cent. expected shortly for water)—tithes levied on grain only 10 to 25 per cent. against 50 per cent. tax in India. There are insuperable objections, on the part of the natives mainly, to a land tax, which would fall on coconut, fruit and root culture, now free, but a liberal commutation system is being applied to the grain tithes, which were exacted by the native rulers in addition to other taxes, all of which except the rice tax, the British Government abandoned. Those who cry out against food and salt taxes in Oriental countries, may as well be reminded that except through grain, salt and cotton cloth, the vast majority of the natives of Ceylon would almost entirely escape contributing to the expenditure necessary for the support of Civil Government, military and police protection and means of communication.

STOCK.

Returns very defective. Perhaps there are 5,000 horses, 900,000 cattle (including buffaloes), 80,000 sheep, 100,000 goats, and 50,000 swine in Ceylon, with 1,000 asses and 200 mules. Ceylon imports (chiefly from India, with some from Australia) nearly all its horses, most of its draught cattle, and much cattle, sheep, goats, and poultry for food. One-third of the grain consumed (about 18

millions of bushels in all) is also imported. Prices, always high in Ceylon, have risen rapidly of late years, and the tendency is steadily upwards. So with the wages of servants and labourers. Butcher-meat, especially up country, is likely to become scarcer and dearer in consequence of cattle establishments having been abolished on a large proportion of estates as not profitable. Artificial manures are found to cost less, generally, than the dung of cattle fed on cultivated grasses and expensive grain and oil-cakes.

COMMERCE.

Imports, 60 millions of rupees. *Exports* 55 millions; total value of commerce, 115 millions; nominally 11½ millions pounds sterling: or, excluding specie, 10 millions. [The *coasting* trade is also considerable.] Staple Imports: Rice, &c. 6½ million bushels, 1½ million sterling; cotton goods about R6,500,000 (nearly £1,000,000 in 1864 from exceptionally high prices); cattle £100,000; salt fish £70,000; coal 80,000 tons. Staple Exports:—Coffee 650,000 to 850,000 cwts., 3 to 4 millions sterling; coconut oil, 2 million gallons, £200,000; cinnamon 1½ million lbs. £66,000; coir 70,000 cwts. £50,000; plumbago 150,000 cwts. £150,000; ebony 30,000 cwts. £20,000; other kinds of timber £20,000; cinchona bark 1 million lbs. £100,000, tea 100,000 lbs. (likely to rise rapidly), cacao, &c. In 1837 Ceylon exported only 34,000 cwts. of coffee, valued at £106,000; total value of trade, including the then valuable article of cinnamon, only £900,000 against 11½ millions now. In 1833 the value of Ceylon exports was only £130,000: imports, £320,0000 total £450,000. So that the increase of trade in little more than 45 years has been nearly 30-fold. Tonnage outwards and inwards over 2½ millions now, against less than 100,000 tons in 1825. [A considerable proportion of the cotton crop of Tinnevelly, on the opposite continent, is purchased and shipped by Colombo merchants, who have agencies with screw presses, &c., at Tuticorin. In former years a good deal of the coconut oil and coir trade of Cochin was in the hands of Colombo firms. Much of the cotton goods and a great deal of the twist, imported into Ceylon, are exported to India. The value of imports exported rose in 1863 to £576,000, but the average may be taken at about £400,000.]

REVENUE.

Averages R15,000,000 per annum, (R9,000,000 from taxes and R6,000,000 Land Sales, Railway and other Receipts). This includes R1,000,000 direct taxation on all males (save Governor, military, and Buddhist priests) between 18 and 55, for thoroughfares; persons paying direct taxes number 515,000. Add R760,000 raised by Municipalities, Local Boards, and Village Councils and R250,000 under Cooly Medical Ordinance from Planters making the total of about R17,000,000. Customs yield one-fifth and Railways nearly one-fourth regular revenue; excise on toddy (fermented juice of coconut tree) and Arrack (spirit distilled from it) one-eighth. Grain tithes, land sales, salt monopoly, tolls, and stamps, are the other great sources of revenue. Pearl fishery occasionally productive, but very uncertain; yielded altogether over 1 million sterling to British; greatest amount £140,000 in 1798. Taxation not heavy—about R4. (8*s*) per head; but mass of people poor, and, under ancient village regulations bestow labour on

upkeep of irrigation tanks and channels.—The revenue has doubled in fifteen years, trebled in 25 years, and nearly quintupled in 40 years, although cinnamon monopoly, fish tax, &c., abandoned and customs duties equalized and moderated.

EXPENDITURE.

Civil, Judicial, Ecclesiastical, Public Instruction, Medical, Police, Prisons' Establishments and Services R6,600,000, Pensions R450,000, Military R1,200,000. Roads and buildings R3,500,000. Railway services (against large income) R1,700,000. Minor items, such as conveyance of mails, immigration, &c. What the Colony mainly requires is a liberal and judicious expenditure on

MEANS OF COMMUNICATION.

A line of railway 74½ miles long between Colombo (chief shipping port) and Kandy (capital of the Central or planting province) was opened in August 1867; an extension to Nawalapitiya from Peradeniya 17 miles in December 1874; an extension from Kandy to Matale 17½ miles will be opened on 1st October 1880. Besides the above, a seaside line has been constructed from Colombo to Kalutara 27½ miles, opened in September 1879; and a few miles of line to serve the breakwater. And on 3rd August 1880, the first sod was turned of an extension from Nawalapitiya for 42 miles to Upper Dimbula, whence it is intended to be carried 25 miles farther to Haputale Altogether about 180 miles of railway all on the 5½ feet gauge have been opened or are under construction. Other lines are contemplated to connect the main line with Kurunegala and Negombo; and to extend from Kalutara to Galle, from Kalutara to Rakwane; from Colombo to Kotte; and a city line in Colombo for the Northern suburb of Matakuliya. A line taking in Kotte and other suburbs of Colombo would it is believed pay well. At present, two coaches run daily from Kalutara to Galle, and *vice versa*; a coach runs tri-weekly, (shortly to become daily) between Colombo and Ratnapura; and mail-carts or coaches exist between Colombo and Negombo; Galle and Matara; also a Coach or Mail-cart from Gampola as far as Ramboda; and in the season to Nuwara Eliya. In 5 days, a visitor to Galle might easily run up via Colombo and Kandy to Nuwara Eliya, passing through the finest of mountain scenery and return; 3 days would suffice to pay a visit from Colombo to Kandy and the central coffee region, while a run to Kandy and back with a sight of the beautiful and grand scenery in view on and from the RAILWAY INCLINE, can be accomplished in one day.—ROADS:—metalled 1,150 miles; gravelled, 790; ungravelled, 740 = total miles of road, 2,680, or one mile of road for every nine square miles of extent in the Island; expenditure on roads, canals, and irrigation works £190,000; total expenditure Public Works Department £550,000; Road Pioneer Corps number 1,400 with 19 trained working elephants. Canals navigable for boats 170 miles, besides portions of rivers and backwaters. [In addition to expenditure from general revenue, roads and canals are made and kept up by thoroughfares tax, equivalent of 6 days' labour per annum from each adult male. Groups of estates not intersected by thoroughfares can get cart-roads on paying half the cost, Government giving other moiety. In 1807

there were no carriage roads beyond the limits of the principal town in the maritime provinces; and none in the Kandyan country until 1820, the era in which Sir Edward Barnes' great roadmaking operations commenced, opening up the pacified Kandyan country to enterprise and so rendering railways necessary and possible.]—Besides the P. & O. Company's and Messageries steamers connecting Galle (very shortly Colombo is expected to be made the Mailport) with India, China, Australia, &c., the British India Steam Company maintain a regular communication (weekly) between Colombo, Bombay, Calcutta, and intermediate ports; this Company has also a monthly line between London, Colombo, Madras and Calcutta via the Suez Canal, and other similar Steam-lines are worked by the Star, the Ducal, the City and other Steam Companies.

PUBLIC DEBT OF CEYLON.

The cost of the Colombo and Kandy Railway (£1,740,000) was provided for partly out of general revenue and by a special tax on coffee, and afterwards out of the receipts and profits of the line amounting to from 8 to10 per cent on capital. There now only remain £350,000 of debentures due and by present arrangements £200,000 of this is already provided in Sinking Fund; all will be cleared off on this account in 1883. For the Colombo Harbour Works £800,000 in all will be required, of which, £250,000 are to be given by the Public Loan Commissioners at 3½ per cent for 35 years, and the balance £550,000 at 5 per cent for interest and sinking fund. For the Matale railway, a debt of £275,000 has been sanctioned and another of one million sterling in debentures for the Dimbula-Uva Railway Extension, and another half million will be required to complete to Haputale. £250,000 is also estimated for the Colombo Water Works. So that when the works in hand are complete, the debt of the Colony for general and municipal purposes will be about 2½ millions pounds sterling, with an annual charge for interest and sinking fund of about £141,000. The annual Railway, Harbour and Water Supply receipts will then, however, not be less than £600,000 per annum, and deducting working expenses, will yield not less than £200,000 of clear profit.

FORM OF ADMINISTRATION: CENTRAL AND MUNICIPAL.

Governor, aided by Executive and Legislative Councils; the power of making laws being vested in the latter concurrently (as is the case with Crown colonies generally) with the legislative power of the Crown, which exercises that power by Orders in Council. Executive Council consists of five of the principal officers of Government, presided over by the Governor, who being personally responsible to the Home Government can consult, but is not bound to follow the advice of the Executive Councillors. All appointments to, or promotions in, the Civil Service with salaries over R2,000 per annum vest in the Secretary of State, but practically all appointments except to the higher offices are left to the Governor. For Writerships in the Civil Service four gentlemen are named for each vacancy by the Secretary of State or the Governor, and the candidate who receives the greatest

number of marks is appointed. With salaries much more moderate in Ceylon than in India, we have a Civil Service numbering several hundreds for 2¾ millions of inhabitants instead of about a dozen Civilians with native assistants for a similar population in India. The Legislative Council is composed of the members of the Executive, four other principal officers of the Government, and six unofficial members selected by Governor with reference to as fair a representation as possible of the various classes and interests (at present representatives include Sinhalese, Tamil and Burgher members; one European for planters, one for merchants, and one for general European interests); sixteen in all, six however, form a quorum, and an Order of the Queen in Council declares proceedings of Legislature valid, though all unofficial seats vacant. The Governor can command the votes of all official members except on points where religious principles are affected. Governor presides with casting vote and ultimate power of veto. All Ordinances are sent for the final approval of Her Majesty, but only in rare cases is the operation of a law suspended, pending that approval. Unofficial members can introduce drafts of Ordinances where votes of money are not concerned. Provinces administered by Government Agents and their Assistants (with native revenue and police headmen, such as Ratemahatmayas, Mudaliyars, Muhandirams, Koralas, Vidanas, &c.) all under strict supervision of Government; centralization being the ruling principle, perhaps to an injurious extent. By means of Native Village Councils, Municipalities in the three chief towns (Colombo, Galle, and Kandy) and Local Boards in eight towns of secondary importance (ranging from 1,500 to 6,000 population), the principles of self-government are being to some extent diffused. As yet, however, the bulk of the natives appreciate the incidence of Municipal taxation more than the benefits conferred by sanitary and other improvements. The Colombo Municipality has introduced gas, and is about to spend R2,500,000 on a Water Supply. Kandy has already made provision for Water Supply.

LAWS.

The Roman-Dutch Law is the common law of the land, and applicable in all cases not otherwise specially provided for by local enactments. It obtains in cases of marriage, inheritance, succession, and contracts. The law as to matrimonial right, has been modified by Ordinance 15 of 1876 by abolishing community of goods as a consequence of marriage and by prescribing the order of succession in cases of intestacy. The law of England, however, is of force (by virtue of the Ordinance No. 5 of 1852) in all maritime matters and in respect of bills of exchange, promissory notes, and cheques. The Law of England was further introduced by Ordinance 22 of 1866 in respect of Partnerships, Joint Stock Companies, Corporations, Banks and Banking, Principals and Agents, Carriers by land, and Life and Fire Insurances. Roman-Dutch Law however, absurdly enough, prevails as to Contracts and Torts [damages]. Property can be willed away, but intestate estates are divided according to the principles of the Dutch law controlled by Ordinance 15 of 1876. Local ordinances are subject to approval of sovereign, but may be brought into force at once. They cease to be operative, however, if not

confirmed within three years. The Kandyans are subject to their own laws, and when these are silent the Roman-Dutch law governs them. In 1859, their marriage laws were greatly altered, and polyandry and polygamy, formerly sanctioned, were then expressly prohibited; but this salutary prohibition had afterwards to be in some degree relaxed, the legislation being in advance of the intelligence and condition of the people. Europeans and European descendants are now exempted from the operation of the Kandyan law as respects inheritance, and made subject to the Roman-Dutch law, by which the widow gets a just moiety of her husband's estate (excepting when a different provision is made by ante-nuptial contract or by joint will), and the children the other moiety in equal shares. The Muhammadans have a code of their own in matters of marriage and inheritance. The Tamils of the north and east have their code also—the Thesavallami. The Roman-Dutch law obtains professedly in criminal matters; but Russell, Archbold, and Roscoe—not Matthæus and Damhouder—form the *vade-mecum* of lawyers, as well as judges and advocates. The English law of evidence prevails in all the courts; and a special ordinance provides that substantial justice shall not fail through want of adherence to legal technicalities.—Codification of laws, so as to secure settlement of principles and avoidance of conflict and occasional uncertainty desiderated, as well as a law of libel which would recognize the functions and privileges of a free press better than do the antiquated provisions of Roman-Dutch laws, revived, too often, by the caprice or animus of particular judicial functionaries.

ADMINISTRATION OF JUSTICE.

The ordinary courts are Supreme Court (Chief Justice and two Puisne Judges), District Courts, Courts of Requests, and Police Courts. The last have jurisdiction in all minor cases not punishable with more than £5 fine, three months' imprisonment, and 20 lashes. Courts of Requests have jurisdiction in all civil suits where the matter in dispute—land or money—does not exceed £10 in value. District Courts have unlimited civil jurisdiction in civil, matrimonial, testamentary, and insolvent cases, and criminal jurisdiction in all cases, not punishable with more than £20 fine, a year's imprisonment, and 50 lashes. The Supreme Court has only an appellate jurisdiction in civil cases and over the criminal decisions of the District and Police Courts, and an unlimited jurisdiction in criminal cases. The latter is exercised by a judge and 13 jurymen, the verdict of the majority prevailing. The Supreme Court and the District Courts of Colombo and Kandy are intended to be filled by professional men. All the other judicial offices are open to members of the Civil Service, or others appointed by the Governor or Secretary of State. There is no grand jury, its powers being exercised by the Queen's Advocate, who has a seat in the Executive Council and is a member of the Government. All local ordinances are prepared by him—he advises the Government in all legal matters, and has the charge of Crown suits throughout the Island, being assisted in his work by the Deputy Queen's Advocate for the Island and local deputies for each circuit. An appeal lies of right to the Privy Council, from all

decisions of the Supreme Court in cases above £500—it may be allowed by grace in other cases. Besides the regular tribunals, there are Justices of the Peace who act as magistrates, taking preliminary depositions in criminal cases, and committing them for trial, and coroners who conduct inquests. There are only two classes of lawyers in Ceylon, advocates and proctors admitted on examination. English and Irish barristers and Scotch advocates are entitled to plead as advocates. Notaries, who draw deeds but do not practise in the courts, are numerous, being appointed by the Governor with reference to the wants of districts. Many proctors hold warrants and act as notaries. The proportion of lawyers to population is high, the people of Ceylon being excessively litigious, fractions of fruit-trees being often the subjects of action.—In CRIME, about 65,000 offences reported and 135,000 persons apprehended annually; ⅔ usually acquitted; great proportion false cases. Committals to gaol about 10,000, but ⅓rd tax defaulters; about 1,800 convicts. Cost of Crime to Colony estimated R800,000 per annum.

POLICE.

Whether regularly organized and paid, as in towns, or rural system of unpaid headman called Vidaanas, by no means perfect the material to work on being far from good. Reforms in the regular police have, however, been carried out, the total number under an Inspector-General with Provincial Superintendents being now 1500, costing R630,000 per annum for the Department altogether. Some 50 of the constables are Europeans, besides all the Superintending Officers. The regular police is taught rifle drill, and in furnishing guards for prisons, escorts for treasure &c., largely performs duties which previously fell to the military, mainly to the late Ceylon Rifles Corps.

CURRENCY AND FINANCE.

Rupees and cents of a rupee; the copper or bronze subsidiary coinage, including a five cent piece, cents, half cents, and quarter cents. The latter have now superseded the old Dutch coins: fanaams, pice, challies, &c., as well as English pence and their parts. The silver half rupee is taken at 50 cents, the quarter at 25 cents, and the eighth (2 anna piece of India) at 12½. The rupee for some time has averaged 1s 8d sterling in value. Gold coins are sold by the two banks, (the Oriental Bank Corporation and the Chartered Mercantile Bank) which under their Charters issue paper money to an average value of 4½ millions of rupees. There are besides in the island agencies of the Bank of Madras, and, through Mercantile houses, of the Chartered Bank of India Australia and China, of the Comptoir d'Escompte of Paris, &c., Besides these private banking institutions, and some agencies of Loan Companies, there are the Government Saving's Bank (with deposits equal to R1,727,960 lodged by over 10,000 depositors) and the Loan Board, each of which lends money on good house security at comparatively moderate interest.

WEIGHTS AND MEASURES.

British standard, to which local candies, leaguers, &c., are reduced. Coffee, the staple produce, is usually sold locally by the

bushel, from 4½ to 5 "parchment" going to 1 cwt. clean coffee. For freight purposes 16 cwt. coffee in casks, 18 in bags go to a ton, 17 cwt. coconut oil, 12 cwt. coir and cardamoms, 14 cwt. hides, 16 cwt. horns and pepper, 17 poonac or oil cakes, 800 lbs cinnamon or cinchona; measurement goods 50 c. ft. to the ton.

CUSTOMS DUTIES,

port dues, pilotage, &c., moderate, the leading principle in the Customs tariff being 5 per cent on the value of imports, and the only export duties being R200 for every elephant and R5 per ton on plumbago in lieu of Government Royalty; with moderate charges on tonnage, which will shortly have the benefit of safe and commodious harbour accommodation at Colombo, by means of the fine breakwater now in course of construction.

COLOMBO HARBOUR WORKS.

Begun in 1875; foundation laid by H. R. H. the Prince of Wales, 8th Dec.; Sir John Coode, Kt., Consulting Engineer; John Kyle, M.I.C.E., Resident Executive Engineer; about R4,000,000 expended to date and 2,125 feet of breakwater arm completed from starting point at shore end, besides extensive reclamation work. Expected 8 millions rupees will be expended in forming safe, commodious harbour (with jetties) covering 200 acres with from 26 to 40 feet of water, and 200 acres more with from 6 to 24 feet of water.

POSTAGE.

Ceylon enjoys even more than the boon of a "penny postage" for letters, the rate being 4 cents of a rupee equal at present to about ¾d., on each half ounce; two cents postage for newspapers; besides post-cards and a fairly moderate book and parcel postage. External postage to all parts of the world moderate, although uniformity is much required, the letter rate being 24 cents to the Australian Colonies and only 20 cents to the United Kingdom, Canada, the United States or Jamaica! 114 Post Offices in Ceylon; 6 millions letters, cards, newspapers and packets received annually, and 8 millions despatched. Revenue R250,000; Expenditure R347,000 for which the large correspondence, including heavy parcels, of the Government Departments is carried.

TELEGRAPH RATES.

The minimum for inland messages is R1 for a message of 20 words including address, the number of words being quadrupled in case of press messages. The lowest charge for a message to England is R2·62½ per word, to Canada 4·75, to Victoria 4·94 including address; to India R1½ for 6 words exclusive of address which is free; about 618 miles of telegraph line and 795 of wire in Ceylon; 340 miles to be added shortly. Paumben cable 53½ miles.

DISEASES.

The most formidable diseases of Ceylon are malarious fevers, malignant dysentery, and wasting diarrhœa, with "sore mouth." These varied forms of "FEVER" occupy here the place of lung disease in England. Elephantiasis or "Cochin leg" is fever caused by inflammation of the absorbent vessels and glands, the remote cause of the inflammation is supposed to be a

blood worm in the circulation. "Parangi," a loathsome congenital disease aggravated by scarcity of nutritious food, prevails in some of the more remote portions of the island. It is said to resemble the "yaws" of the West Indies. Ceylon boils, sure signs of debility, are sometimes very trying, but rapidly disappear on a "change" to the cool mountain regions. Liver disease is far less prevalent than on the continent of India, and sunstroke exceedingly rare. Cholera and small-pox become occasionally epidemic, but Europeans seldom fall victims to either. With facilities for occasional change, and the exercise of care and temperance, the chances for European life here are, scarcely if at all, inferior to what they are in England. The large majority of the coffee planters enjoy robust health. Surveyors, road officers, and railway engineers, compelled to traverse feverish regions and endure exposure to sun and rain, incur much greater risk, as also planting pioneers in new districts. With all its moisture, the climate is favourable to the extension of consumptive lives. Here as elsewhere in the tropics, life is practically passed in the open air, so that vitiated air in dwellings is seldom a source of disease.—Government Medical Department and Hospitals cost over R700,000 per annum: 180,000 cases treated in hospitals and dispensaries in 1878; 7,000 deaths; 350 lunatics and 200 lepers in asylums.

OBJECTS OF SPECIAL INTEREST TO STRANGERS IN CEYLON.

COLOMBO AND WESTERN PROVINCE.—The Fort: Government offices; Sir Edward Barnes's statue. The Grand Oriental Hotel. The military buildings. The law courts at Hulstsdorp, with busts of the late C. A. Lorenz and R. F. Morgan (by a Ceylonese, R. G. Andriez. Town Hall with pictures of H. R. H. the Duke of Edinburgh, Sir Hercules Robinson, Sir William Gregory, the late C. A. Lorenz, M.L.C., and Sir C. P. Layard, K.C.M.G. Cinnamon Garden, Circular Walk gardens near which is situated the Colombo Museum, with statue of Sir William Gregory. Hulstsdorp Mills, and other Establishments for preparing coffee, coconut oil, and coir. Cinnamon culture, peeling and baling at Maradana, or at Ekela and Kadirana, near Negombo. Plumbago Stores in Brownrigg Street, Cinnamon Gardens. Liberian coffee and cacao culture near Kalutara or Polgahawela. Henaratgoda Government experimental garden. Welikada Jail, Lunatic and Leper Asylums. Railway and Breakwater works. Government Factory and elephant shed. Gasworks. Alfred Model Farm towards Kotte. General Cemetery. Wolvendal Dutch Church. St. Peter's Episcopal Church with some interesting monuments on the walls. Ancient tortoise at Tanque Salgado and large kumbuk tree near mouth of river, at Mutuwal. Crow island in mouth of river. Quasipeat and breccia formations north side of mouth of river and canals. Bridge of Boats and railway bridge across Kelani river. Buddhist temples at Kelani and Kotte. Rich palm, bambu and general vegetation on banks of river. Liberian coffee and cacao cultivation.

GALLE AND SOUTHERN PROVINCE.—All Saints' Church, Galle. Native bazars and shops of jewellers and dealers in tortoiseshell and carved work; Wakwella and Cinnamon Gardens near Galle; drives and view alongside Gintara river, of the Haycock and Adam's Peak mountains; Baddegama mission station; Richmond Hill mission station, and view. Cultivation of sugar and lemon grass, by Messrs. Winter & Sons, and others. View from Buona Vista, near Galle. Tanks in Matara district. Temple ruins and salt formations, Hambantota. Temple ruins

at Devundara ("Dondra Head") near Matara. Urubokka dam, Weligama, and rock figure of Kusta Raja or the leper king. View of the Fort and Harbour of Galle from the site of the Roman Catholic Chapel at Kaluwella.

GALLE AND COLOMBO ROAD.—Groves of coconut palms, with jak, breadfruit and other trees along the whole route. Bentota resthouse. View of interior with mountain range from the road at Beruwala near the 32nd milestone. Kalutara river (Kaluganga or black river), bridge, and town. Railway along seashore from Kalutara to Colombo. Panadure outlet for extensive backwaters. Moratuwa, a prosperous village of carpenters. Mount Lavinia with bany an tree and Grand Hotel.

COLOMBO TO KANDY, GAMPOLA AND NAWALAPITIYA, ALSO TO MATALE.—Kadugannawa Pass, Dekanda valley, Alagala mountain and railway incline with Miyangala gallery, "Sensation Rock" and tunnels. Dawson's Monument at Kadugannawa. Peradeniya satinwood bridge, and Railway iron lattice bridge. View from railway of the Mahaweliganga and of Pussellawa mountains, beyond Gampola. View of Mahaweliganga and Kotmale on railway and at Pasbage, and of Adam's Peak, Dolosbage, and Ambagamuwa onwards to Nawalapitiya. The Matale railway, bridge over the Mahaweliganga, view of Hunasgirikanda and Etapola, of the Matale valley. Aluwihara, Balakaduwa Pass. Cacao cultivation on Palakele and Wariyapola.

KANDY, CENTRAL PROVINCE, &c.—Sir Henry Ward's statue. Dalada temple at Kandy. Audience Hall and Octagon. Prince of Wales' Fountain, New Jail. Police station and Kachcheri. Messrs. Walker & Co.'s factory for pulpers &c. Matale railway works. Hantane Peak or Matana Patana for view, Lady Horton's Walk. The Pavilion. Peradeniya Botanic Gardens. Gampola Bridge. Matale, Uva and Dimbula for coffee, tea and cinchona cultivation. Ramboda Falls and Pass. Kadiyanlena, Kotmale; and Devon and St. Clair Falls, Dimbula. Huluganga Falls in the Knuckles. View of Adam's Peak from Ambagamuwa road. Waterfalls in the Horseshoe Valley, Maskeliya. Adam's Peak, the climb up and view from. Trip to Anuradhapura via Dambulla (where rock temple); ruins at Polonnaruwa; the great tank region, &c. Elk hunting, elephant shooting, gemming, &c. The trip to Badulla and Haputale. Badulla temple and fort, and hot springs.

NUWARA ELIYA.—The drive round the Lake and Moon Plains; the "Longden Drive" along the side of the Nanuoya towards Upper Dimbula; the drive on the new Udapussellawa road with beautiful alternation of forest and grass land ("patanas"), magnificent gorges, fern-covered gullies and waterfalls; the waterfall and "grotto" on Portswood estate; the view of the lake, bund and river from Lady Horton's Walk above the bund; the view of Adam's Peak, Dimbula, &c. from One Tree Hill; of Uva from Hakgala cinchona gardens; Pidurutalagala summit. The old graveyard.

JAFFNA.—The Fort and Batteries, the Dutch Church, the Batticotta Seminary, "the bottomless well," the F. N. Society's Hospital, the market, salt lewayas and pearl banks. Tobacco cultivation at Jaffna, &c.

BATTICALOA.—Fort and Batteries, the Vamel tank and tree, the Niravu tank, beautiful Bay of Vendeloos. Extensive rice and coconut cultivation.

TRINCOMALEE.—One of the finest harbours in the world. Fort Ostenburg. Fort Frederick. Nillavelli salt pans. Hot springs at Kannera, and the coral wells.

WRITERS ON CEYLON, AND AUTHORITIES TO BE CONSULTED FOR MORE DETAILED INFORMATION.

De Barros, De Couto, Ribeiro (Lee's translation—with valuable appendices), Valentyn, Baldæus, Knox (edited by Philalethes)

Percival, Cordiner, Lord Valentia, Bertolacci, Marshall, Davy, Forbes, Bennett, Knighton, Pridham, Emerson Tennent. Casie Chitty's Gazetteer; Parliamentary papers; Ceylon blue books; Sir H. Ward's collected minutes and speeches; Ceylon Almanacks, Civil Lists, Manuals, Directories, &c. For *Natural History*:—Moon, Gardner, Thwaites, Kelaart, Hooker and Thomson, Templeton, Nietner, E. A. Layard, W. Ferguson, Boake, Steuart, Tennent (Monograph on Elephant and on Pearl-oysters, Natural History of Ceylon), Legge, Moore, &c. On *Oriental and Buddhistical Literature*:—Turnour, Casie Chitty, Gogerly, Hardy, Alwis, Fox, Callaway, Tolfrey, Upham, Childers; with transactions of Asiatic Societies of Britain, Bengal, Bombay, Ceylon, Paris American and German Oriental Societies; *Indian Antiquary*,; &c. On *Elephant and Elk Shooting* :—Baker. For *Laws and Principles of Justice*, see Thomson's Institutes, collected volumes of proclamations, ordinances, &c., with index, and reports of cases by Marshall, Murray, Morgan, Lorenz, Beling and Vanderstraaten, Beven and Mills &c., and Supreme Court Circular. On *Kandyan Law* :—Sawers, Armour, &c. *Tamil* and *Muhammadan Law* :—Muttukistna. On *Coffee Planting*:—Sabonadière's Coffee Planter of Ceylon; A. Brown's Manual; R. E. Lewis, Aliquis (description of coffee planting in rhyme, by the late Captain Jolly), pamphlets by Dr. Elliott, Geo. Wall, P. Moir, Ballardie, Cross, Owen, &c. *New Products* :—On Liberian Coffee, Tea, Cinchona, Cacao, Cardamoms, Coconut and Cinnamon planting, see Manuals published at *Ceylon Observer* Office. *Poetry* :—Captain Anderson's "Ceylon" and other poems. On *Missionary Operations* :—Harvard, Selkirk, Emerson Tennent's "Christianity in Ceylon"; Hardy's "Jubilee Memorials of Wesleyan Mission," Memorials of Church Mission, Memoir of Mrs. Winslow and other American works, with reports of Baptist, American, Wesleyan, Church, and Romish Missions. On *Sinhalese Language* :—Clough, Carter, Lambrick, Chater, Alwis, Jones, Nicholson, C. Alwis, &c. On *Tamil Language* :—Winslow, Percival, Pope, Rhenius, A. Joseph, A. M. Ferguson junior, &c. For the most complete repertory of general and statistical information affecting the Colony, see the "Ceylon Directory and Handbook of Information" by A. M. & J. Ferguson.

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